

FOOD PRODUCTION (GENERAL)

1st Semester

TRADE THEORY

SECTOR: Travel, Tourism & Hospitality



**DIRECTORATE GENERAL OF TRAINING
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP
GOVERNMENT OF INDIA**



**NATIONAL INSTRUCTIONAL
MEDIA INSTITUTE, CHENNAI**

Post Box No. 3142, CTI Campus, Guindy, Chennai - 600 032

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NATIONAL INSTRUCTIONAL MEDIA INSTITUTE
P. B. No.3142, CTI Campus, Guindy Industrial Estate,
Guindy, Chennai - 600 032.
Phone: 044 - 2250 0248, 2250 0657, 2250 2421
Fax : 91 - 44 - 2250 0791
email : nimi_bsnl@dataone.in
Website: www.nimi.gov.in

FOREWORD

The National Instructional Media Institute (NIMI) is an autonomous body under the Directorate General of Employment and Training (DGE&T) Ministry of Labour and Employment has been developing, producing and disseminating Instructional Media Packages (IMPs) are extensively used in the Industrial Training Institutes/Training centres in Industries to impart practical training and develop work-skills for the trainees and the trainers

The Ministry of Labour & Employment constituted Mentor Councils (MCs) to revamp courses run / to be run under National Council of Vocational Training (NCVT) in 25 sectors. The MCs have representatives from thought leaders among various stakeholders viz. one of the top ten industries in the sector innovative entrepreneurs who have proved to be game-changers, academic/professional institutions (IITs etc.), experts from field institutes of DGE &T, champion ITIs for each of the sectors and experts in delivering education and training through modern methods like through use of IT, distance education etc. The technical support to the MCs is provided by Central Staff Training and Research Institute (CSTARI), Kolkata and National Instructional Media Institute (NIMI), Chennai. Some of the MCs are also supported by sector-wise Core Groups which were created internally in the Ministry (in 11 sectors).

A Steering Committee to provide overall coordination and guidance to Mentor Councils has also been constituted and has representation from the MCs, Chair positions to be endowed by the Ministry, trade unions, and experts on distance education and training. The MCs are mandated to work towards revamping/ suggesting new courses, improving assessment systems, overall learning etc. for subjects under the purview of the NCVT.

Accordingly NIMI with the support and assistance of MC has developed **Food Production (General) Trade Theory 1st Semester in Travel, Tourism & Hospitality sector** to enhance the employability of ITI trainees across the country and also to meet the industry requirement.

I have no doubt that the trainees and trainers of ITIs & Training centres in industries will derive maximum benefit from these books and that NIMI's effort will go a long way in improvement of Vocational Training.

I complement Director, Mentor Council members, Media Development Committee (MDC) members and staff of NIMI for their dedicated and invaluable contribution in bringing out this publication.



ALOK KUMAR, I.A.S.,
Director General of Employment &
Training/ Joint Secretary
Ministry of Labour and Employment
Government of India

New Delhi - 110 001

PREFACE

This National Instructional Media Institute (NIMI) was set up at Chennai by the Directorate General of Employment and Training (DGE&T) Ministry of Labour and Employment, Government of India with technical assistance from the Govt. of the Federal Republic of Germany. The prime objective of this institute is to develop and disseminate instructional materials for various trades as per the prescribed syllabi under the Craftsmen and Apprenticeship Training Schemes.

The instructional materials are developed and produced in the form of Instructional Media Packages (IMPs). An IMP consists of Trade Theory book, Trade Practical book, Test and Assignment book, Instructor guide, Wall Charts and Transparencies.

Hon'ble Union Minister of Finance during the budget speech 2014-2015 mentioned about developing **Skill India** and made the following announcement

"A national multi-skill programme called Skill India is proposed to be launched. It would skill the youth with an emphasis on employability and entrepreneur skills. It will also provide training and support for traditional professions like welders, carpenters, cobblers, masons, blacksmiths, weavers etc. Convergence of various schemes to attain this objective is also proposed."

The Ministry of Labour & Employment constituted Mentor Councils (MCs) to revamp courses run / to be run under National Council of Vocational Training (NCVT) in 25 sectors which will give a sustained skill based employability to the ITI trainees as the main objective of Vocational training. The ultimate approach of NIMI is to prepare the validated IMPs based on the exercises to be done during the course of study. As the skill development is progressive the theoretical content on a particular topic is limited to the requirement in every stage. Hence the reader will find a topic spread over a number of units. The test and assignment will enable the instructor to give assignments and evaluate the performance of a trainee. If a trainee possesses the same it helps the trainee to do assignment on his own and also to evaluate himself. The wall charts and transparencies are unique, as they not only help the instructor to effectively present a topic but also helps the trainees to grasp the technical topic quickly. The instructor guide enables the instructor to plan his schedule of instruction, plan the raw material requirement ,

Thus the availability of a complete Instructional Media Package in an institute helps the trainer and management to impart an effective training. Hence it is strongly recommended that the Training Institutes/ Establishments should provide at least **one IMP** per unit. This will be small, one time investment but the benefits will be long lasting.

The **Food Production (General) Trade Theory 1st Semester** in **Travel, Tourism & Hospitality** sector is one of the book develop by the core group members of the Mentor Councils (MCs). The 1st semester book includes **Module 1 - Personal Hygiene & Safety in the Kitchen, Module 2 - Introduction to Food Production, equipments & ingredients, Module 3 - Knife handling techniques and pre preparation of food, Module 4 - Methods of Cooking, Module 5 - Preparation of different receipes.**

The **Food Production (General) Trade Theory 1st Semester** is the outcome of the collective efforts of Members of Mentor Council which includes academic/professional institutions (IITs etc.) , experts from field institutes of DGE&T, champion ITIs for each of the sectors, and also Media Development Committee (MDC) members and staff of NIMI.

NIMI wishes that the above material (Trade Practical & Trade Theory) will fulfil to satisfy the long needs of the Trainees and Instructor and helps the trainees for their employability in vocational training.

NIMI would like to take this opportunity to convey sincere thanks to all the Mentor Council members and Media Development Committee (MDC) members.

Chennai - 600 032

A. MAHENDIRAN
Director, NIMI

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National Instructional Media Institute (NIMI) sincerely acknowledges with thanks for the co-operation and contribution extended by the following Media Developers and their sponsoring organisation to bring out this IMP **(Trade Theory)** for the trade of **Food Production (General)** under **Travel, Tourism & Hospitality** Sector for Craftsman Training Scheme. This Book is prepared as per Revised Syllabus.

MEDIA DEVELOPMENT COMMITTEE MEMBERS

Shri. Girish Shankar	-	Additional Secretary, Ministry of Tourism Chairman, Mentor council
Shri. Virender Kumar Shukla	-	Joint Director of Training, DGE&T, New Delhi Mentor, Mentor council.
Shri. Sandeep Kalia	-	Training Officer, RDAT, Faridabad. Member, Mentor council.
Shri. Vinod Kumar	-	Training Officer, RDAT, Faridabad. Member, Mentor council.
Shri. S. Gowri Shankar	-	Teaching Associate, IHM, Tharamani, CIT Campus Chennai. Member, Mentor council.
Shri. Meena	-	Training Officer, NVTI Noida. Member, Mentor council.
Shri. Ashish Chakraborty	-	Training Officer, CSTAR, Kolkata Co-ordinator, Mentor council.
Shri. N. Ashfaq Ahmed	-	Training Officer, NIMI, Chennai - 32 Co-ordinator, NIMI, Chennai.
Shri. V. Gopalakrishnan	-	Training Officer, NIMI, Chennai - 32 Co-ordinator, NIMI, Chennai.

NIMI records its appreciation of the Data Entry, CAD, DTP operators for their excellent and devoted services in the process of development of this instructional material.

NIMI also acknowledges with thanks, the invaluable efforts rendered by all other staff who have contributed for the development of this Instructional material.

NIMI is also grateful to all others who have directly or indirectly helped in developing this IMP.

INTRODUCTION

This manual of trade consists of practical and related theory exercises to be completed by the trainees during the I semester as a part of one year course on food production -general trade - 1050 hours. The practical exercises are designed to ensure that all the skills in the prescribed syllabus are covered. Related theory to be taught and explained before starting a practical session. Attempts have been made to give a broad understanding about the kitchen and its equipments, and general food production in a restaurant. The distribution of time for the practical and theory in the five modules are given below.

Module 1	Personal Hygeine & Safety in the Kitchen	40 hours
Module 2	Introduction to Food Production, equipments & ingredients	40 hours
Module 3	Knife handling techniques and pre preparation of food	40 hours
Module 4	Methods of Cooking	150 hours
Module 5	Preparation of different receipes	255 hours

The exercises in all the five modules are arranged in proper sequence so that the trainee can learn the skills from easy to difficult, simple to complex, basic to advanced.

Each exercise starts with Exercise title and the skills objectives to be achieved at the end of the exercise.

If a particular skill is explained in the earlier exercises, the same skill may not have been repeated again.

Wherever possible photos and diagrams are given in addition to explanation for easy understanding.

Cooking time specified in this booklet is not standard and varies depending the the type of ingredients and mode of heat transfer. Trainees need to take additional care during cooking to ensure safety and to get a final product of desired consistency.

training faculty for improving this manual.

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Personal hygiene & safety

Objectives: At the end of this lesson you shall be able to

- define cookery
- explain personal hygiene and handling of food.
- hygiene in handling food
- kitchen uniform & protective clothing
- safety procedure in handling equipment

Introduction to Food Production Department

Cookery

Cookery is defined as a chemical process involving the application and withdraws of heat; proper mixing of ingredients decision-making and technical knowledge and skill but with the changing definition cooking is defined as both an art as well as technology. In French the word 'cuisine' means the art of cooking and preparing dishes and the place kitchen where they are prepared. The art of cooking is ancient and generally originated when by chance a chunk of meat fell into fire and came out to be more tasty and tender and it was from this point only that cooking has evolved to reach the present level of sophistication.

There are 3 classes of professional cookery associated with the craftsmen and they are graded according to the quality of material used

Cuisine Simple/Plain Cookery

Here the basic necessities are used and the craftsmen prepare the dishes of highest standard with the minimum materials.

Cuisine Bourgeoise

This is a type of cookery, which provides better raw materials to produce the dishes of better quality.

Haute Cuisine/Highclass cookery

In this cookery the best possible raw materials are used and the best quality dishes are prepared.

A. Level of Skills & Experiences

Skills may be grouped into three general categories.

- **Supervisor:** The head of the food service, whether called Executive chef or head chef or kitchen director, must have management and supervisory skills as well as through knowledge of food production.

He should be able to:

- Organize and motivate people under him.
- Planning menus and production procedures.
- Controlling costs and managing budgets.
- Purchasing food supplies & equipment.
- Must be an experienced chef in order to schedule food production.

– Train and instruct workers.

– Control quality.

- **Technically:** The cooks are the backbone of the kitchen. These workers carry out the actual food production. They must have knowledge of and experience in cooking techniques. They must be able to function well with their fellow workers and co-ordinate with other departments. Food production is a team activity.
- **Entry level:** This level of workers usually requires no particular skills & experience. The jobs assigned to them are stewarding or basic pre-preparation of vegetables. As their knowledge, skill & experience increases, they may be given more complex task which will eventually make them skilled chefs. Many ex-chefs begin their career as pot washers. Beginning in an entry level position and working one's way up has been the traditional way of advancing in a food service career. Today however, who are a graduate from hotel management start at entry level already possessing a general knowledge of food production practices, which would give them a head start over other beginners who have no knowledge.

C. Personal Hygiene

A hygienic appearance of professional is indicated by high standards of personal cleanliness and is shown by cleanliness of hair, hands, face, clothing and shoes. Good personal hygiene helps prevent food borne disease; therefore these points must be put into practice.

- Shower or bath daily
- Wear clean clothes and uniform.
- Do not work if suffering from a communicable disease.
- Handle food as little as possible.
- Wash hands before and during work and after using the toilet.
- Keep hair clean and do not handle.
- Keep fingernails clean & shorter.
- Do not touch nose & mouth with hands.

- Do not cough or sneeze over food, use a tissue.
- Do not wear rings, earrings, jewellery & watches.
- Do not smoke in food areas.
- Taste food with a clean spoon.
- Do not sit on a work surface.
- Footwear should be clean and safe.
- Chef cap should always be worn when handling food.
- Open cuts, burns etc. must be covered with waterproof dressing.
- Persons suffering from diarrhea, sore throat, vomiting, cold etc. must not handle food.

If a person becomes aware that they are suffering from or are carrier of typhoid, paratyphoid, salmonella or staphylococcal infection, the person responsible for the premises must be informed, who then must inform the Medical Officer of Health.

Hygiene in Handling Food

- Dry food storage: Avoid moisture, air tight container, avoid insect & rodent.
- Freezer storage: Well packed food with label store at -18°C , follow FIFO & thaw properly before use.
- Cold Storage: Cooked items away from raw item. Store everything in container. Chill food before refrigeration. Keep temperature under 7°C .
- Hot food storage: Do not reheat in Bain Marie. Cover all the food. Keep food above 65°C .

Food Handling

- Work with fresh & safe food
- Use clean equipment & work table.
- Wash & wipe tools (knives, chopping board etc.) after every use.
- Wash ingredients.
- Re-boil stocks, sauces, soups, milk before re use.
- Do not mix batches of cooked food.
- Use separate tools for vegetables & meats.
- Use separate tools for raw & cooked food.
- Quickly chill all high risk food for cold storage.
- Keep work area clean.

D. Kitchen Uniforms & Food Handling

Chef Cap

- Should cover the hair.
- Retain sweat on the face.

Scarf

- Retaining sweat around the neck.
- Decreases risk of catching cold when going inside a walk in.

- Also brings neatness to uniform.

Chef Coat

- Protect the chest from heat (double press, cotton).
- White colour (shows when dirty, less heat absorber)

Apron

- Protect chef coat & trouser.
- Not used to wipe hands.

Trouser

- Generally black or black & white check.

Shoes

- Ankle high shoes.
- Low heel
- Leather with rubber or wooden sole.
- Always wear black socks.

E. Safety Procedure in Handling Equipment

- Do not wash equipment unless you understand the operation.
- Use all guards & safety devices on equipment.
- Do not touch or remove food, from any kind of equipment, while it is running.
- Remove particles of food with cloth, palette knife, needle or brush from cutting machine.
- Un-plug electrical equipment before disassembling or cleaning.
- Make sure the switch is off before plugging in equipment.
- Do not touch or handle electrical equipment including switches, if your hands are wet or if you are standing in water.
- Test that it is properly assembled, plug in and switch on.
- Wear properly fitting clothing and tuck in apron string to avoid getting caught in machinery.
- Use equipment only for the purpose intended.
- Stack pots, pans and other equipment properly on racks so that they are stable and not likely to fall.

Aims of Cooking

- Sterilization: It is the process of killing pathogenic bacteria and worms present in the food. Boiling and freezing are two popular methods of sterilization.
- Preservation: Cooking also helps to preserve the food for a longer time with the help of spices, oils and sugar

syrups, etc., mixed with it while being processed.

- **Digestibility:** Cooking also helps in digestibility of certain vegetables and raw food which cannot be digested if taken uncooked.
- **Appetizing:** Cooking gives an appearance to the food which makes it presentable and also appetizing. On application of heat, the red colouring matter such as haemoglobin in meat decomposes and changes the red colour to brown. Flavours are developed, which stimulate the digestive juices. The colours of vegetable are brightened.
- **Enhancement of nutritive value:** Though cooking may destroy certain vitamins it usually enhances its nutritive value by breaking up heavy materials like fat into digestible particles.
- **Variety:** Cooking produces variety from the same ingredients. Several type of preparation can be made from one raw ingredient.

Objectives of Cooking:

- Retaining nutritive value of the food.
- Retaining the original colour of the food.
- Prevent clash of flavours.
- No under cooking or over cooking.

Cooking is the application of heat to food for the purpose of making it more digestible, safer to eat, more palatable and to change its appearance. In the cooking processes heat breaks down the cellulose in plant foods, softens some of the connective tissues of meat, breaks down and gels starches present, changes and blends flavors within the food, destroys bacteria and makes food more acceptable to humans and human digestion.

Cooking may include a process of extraction, leaching and steeping by which soluble materials are removed from a food for use as flavouring medium. When bones are simmered to produce stock for e.g. the soluble compounds in the bones are extracted and passed into simmering water. Stock can then be used in soup and sauce making.

While the application of heat to food materials is the principal action taking place in cooking, other things are done to enhance the flavour, and spices, seasoning and sauces are added. The food may be marinated before cooking; it may be cooked in wine. Fat may be added before, during or after cooking. Flavours and colours may be added. Different foods are blended together to produce new flavours and appearances. Some foods such as raw fish are made palatable by marinating in lime juice. The acid in the juice breaks down the connective tissues of the fish and inhibits bacteria.

The baking of pies, cakes, cookies and various doughs is also cooking in the sense that heat is applied to food material. In most baking the leavening action takes place. Air, steam or carbon dioxide stretches the gluten in the dough to expand it.

THE ROMAN EMPIRE

North from the Greek colonies in south Italy the conditions did not change, people continued their more primitive existence, providing food for themselves, providing shelter and protecting from attack. They realized that defence was an important consideration and they built village on hills. One of these villages grows to be a great heart of a Empire called Rome by thousands. Then Rome built up strong armies to defend them, any attack of aggression were crushed and the lands owned by the soldiers annexed and added to the Empire, thus expanding the Roman Empire.

The average Roman citizen was not rich, they were shepherds in farms. Meals were of fruits, vegetable, porridge, and wine. They eat pork and meat. The number of meals varied depending upon religious customs. But the pleasure of food and dining played an important role in the life of Roman elite's who were very rich and could afford the very best from any where in the world. They had staffs able to produce the most exquisite of dishes.

These people were quick to sample foods from other places and were in fact so intent on the discovery of new tastes and sensations that they even set expeditions to far concerns of the world in search of such things. They found some of the culinary inspiration in Asia Minor they came back with appetite for oriental food. It was then that meals began to demand more preparation and expense. The Romans captured the Greek colonies in the south and were very impressed with food prepared by magieros who they sent to Rome as slaves to work as cooks in the houses of wealthy citizens. And when Rome captured Greece, some more magieros were sent back to Rome.

The captured magieros accepted their fate and went about teaching the Roman about the artistry of food. In due time they received great an acclaim for accomplishments and some were freed by grateful masters. It was during this year that the duties of the kitchen were 1st separated and departmentalized and in 25 AD man called Apicus who wrote the first cook book. The Roman were great meat eaters and birds were highly popular, they loved to use all sorts of condiments, they had no cane or beet sugar so they used grapes syrup and honey.

To meet the new demands made by changed tastes Rome developed a sophisticated system of food production, importing and marketing. So it set up a centralized market of brick where all kinds of foodstuffs were sold. The Roman Empire, top heavy with power & luxury and corruption was deteriorating and by a 76 AD it collapsed.

All over Europe darkness fell, people returned to a life in small rural villages and led a simple life eating simple food. The 1400 years period of decline and recovery is known as Dark or Medieval period. The Dark Age was a period of decline and subsequent recovery for the fortunes of food and dining customs. Like everything else they sank to a very low point before recovery got underway.

The culinary achievements of Greece and Rome were stored in written words to be discovered later. The basic social system at this time was Aendalism where someone

who declared themselves as kings and this in turn to be subdivided and given to lords who in return paid tax and loyalty to the king owned large areas. The lords' in turn again assigned lands to tenants or serfs who tilled the land, grew crops, raised animals. Half or more of the produce went to the Lord who in turn gave some to the king and kept some for himself. This way the lords and kings lived comfortably at the costs of the serfs. This Feudalism produced 2 levels in society with each one with distinctive habits. The serfs existed on a diet of salt, pork, black beans, turnips and cabbage. While the Lords and kings stuffed themselves with a minimum of 30 dishes a meal.

A Short History of Modern Food Service

This is an exciting time to be starting a career in food service. It is a time interest in dining and curiosity about new foods is increasing rapidly. There are more new restaurants every year. Many restaurants are busy every

night, and restaurant chains number among the nation's largest corporations. The chef, once considered a domestic servant, has become respected as an artist and skilled craftsperson.

The growth of the food service industry creates a demand for thousands of skilled people every year. But it is not simply the opportunity of finding a job that attracts so many people. A food service career is challenging and exciting, and, above all, provides the chance to find real satisfaction in doing a job well.

Unfortunately, many people see only the glamorous side of food service and fail to understand that this is a tiny part of the picture. The public does not fail to understand that this is a tiny part of the picture. The public does not often see the years of training, the long hours, and the tremendous pressures that lie behind every success.



Kitchen Design & Layout

Objectives: At the end of this lesson you shall be able to

- explain
 - kitchen layout & design
 - concepts of layout
 - layout configuration
 - functioning area space allocated
 - three primary kitchen work stations
 - kitchen layout & specifications
 - planning of various supports in kitchen
 - receiving & storing & planning of areas

Kitchen Layout & Design

After developing the work places, determining the specific equipment to use, and finalising the space requirements, the food facility consultant is ready to accomplish the layout phase of the planning process. Some of the equipment layouts for certain functions may already have been completed during the design of the work places. Now the designer will formalize them, first as rough sketches and ultimately in the form of blue prints.

The layout process may be described as two separate stages that occur at the same time. One stage deals with arrangements of individual pieces of equipment, work tables, and sinks with a unit which comprise a functional area or a functional department i.e. one particular area may be developed for the function of Indian and Tandoor preparations, (or) salad and sandwich preparation, as a single unit.

The second stage of layout process involves arranging the functional areas into a total facility. For e.g. the receiving, storing, prepreparation, production, pot washing areas, and non-production areas such as rest rooms, offices are brought together to form the basic floor plan for the facility.

There may be some doubt as to whether these 2 stages of layout are done at the same time. Even though the designer may be working on one stage or another at any given time, layout design must be considered in term of both stages. In essence, the layout of the total facility must be considered when laying out the component areas and vice versa.

Concepts of Layout:

There are 4 concepts of layout for a kitchen plan, they are

1. Materials or products
2. Machines and equipment's
3. Workers
4. Movement.

1. Materials or products

- The products should be designed for ease of production.

- Raw materials used should require minimum no. of processing steps.
- The layout should protect the material from detrimental factors such as moisture, dust, vibration and temperature changes.
- To provide flexible layout to handle change with product
- Material storage area should facilitate taking inventory.
- Provide facilities for storing waste and scrap materials.

2. Machines and Equipments.

- The equipment provided in the layout should be united to the required processes.
- Maximum use of the equipment's should be planned.
- Layout should provide for each operations of the equipment.
- Layout should facilitate movement of mobile equipment's.
- Sufficient access space for equipment maintenance should be provided.
- Proper ventilation and exhausting of equipment to be provided.

3. Workers:

- Layout should safeguard the workers by eliminating hazards.
- Adequate light should be provided.
- Proper exhaust system for fresh air should be provided.
- Layout should be free of distracting activities.
- Design of work place should correspond to the height of the workers.
- Layout should provide adequate work space.

4. Movement:

- Layout should provide for easy movement of material and workers.

- Provide for smooth flow into and out of work place
- Layout should prevent back tracking
- Delays in movement of material should be minimised.

Layout configuration

The arrangement of equipment and work places for functional areas is usually in the form of a straight line or in combination and modifications of straight line configurations. The basic patterns that may be used include;

- Single straight line arrangement: This is the simplest of designs, but it is limited in the number of pieces of equipment or work places that can be arranged. The straight line arrangement may be placed along a wall or take the form of an island.
- 'L' Shaped arrangement: This is a modification of the straight line arrangement to accommodate more equipments and work places, it is sometimes used where linear space is limited. The 'L' shaped configuration is suitable for separating two major groups of equipment. One group of equipment would be placed on one leg of the 'L', the other group forming the second leg.
- 'U' shaped arrangement: 'U' shaped configuration is ideal for small areas where only one or two employees are working. One disadvantage of this configuration is that straight line flow through the area is not possible.
- Parallel, back to back arrangement: This configuration is an arrangement of two parallel lines where the backs of the equipment and/or work places on each line are adjacent to each other. This arrangement centralizes the utility lines required for the equipment. Sometime a short wall is constructed between the two rows of equipment, in which case provision for cleaning and maintenance should be provided.
- Parallel face to face arrangement: This arrangement utilises two straight lines of equipment and work places where the front face each other and are separated by an aisle space. This is very common configuration that can be used in many areas of facility. This configuration requires two separate utility lines for equipment as compared to the single utility line used in the parallel back to back arrangement.

The final arrangement for most facilities is usually composed of a combination of configuration of equipment and work places. Only the smallest of operations would use a single configuration of the layout facilities.

After arriving at the total area requirement for the main kitchen, the following is the estimated percentage of production/space for functional areas:-

- Functioning area Space allotted %
- Receiving 5
- Food storage 20
- Pre-preparation 20

- Cooking 12
- Baking 10
- Pot wash - KSD 5
- Traffic aisles 16
- Garbage – wet/dry 5
- Employee facilities 5
- Miscellaneous 2

If you understand the basic principles of kitchen layout will help take much of the mystery out of the design process. The most basic layout principle is the work triangle. The work triangle is the line drawn from each of the three primary work stations in the kitchen - the food storage, cooktop, and sink. By drawing these lines, you can see the distance you'll walk to move to and from each area.

The sum of the ideal triangle is supposed to be between 15 and 22 feet, putting each of the three appliances within two or three steps of one another.

The three primary kitchen work stations which create the work triangle are:

- Food storage- Your refrigerator and pantry are the major items here. Cabinetry like lazy Susan or swing-out pantry units adds function and convenience. Options like wine racks, spice racks, and roll-out trays help to organize your groceries.
- The preparation/cooking station - Your range, oven, microwave, and smaller appliances are found in this area. Counter space is important in this section. Conserve space by moving appliances off the counter with appliance garage cabinets and space-saving ideas like towel rods and pot lid racks.
- The clean-up station - Everyone's least favorite activity is one of the kitchen's most important - clean-up. This area is home to the sink, waste disposal, and dishwasher. Cabinetry for this station is designed to organize with the trash bin cabinet and roll-out tray baskets for storage convenience.

Your kitchen is probably more than just a place to cook and eat. You may choose to include a breakfast bar, desk, bookshelves, computer station, a TV or whatever in your kitchen.

Triangle reloaded

The work triangle, however is experiencing a remodel of its own. The work triangle was designed for an age when there was only one cook, and only three appliances (fridge, stove, sink).

Here are a few top tips:

- No leg of the triangle is supposed to be less than 4 feet or more than 9 feet.
- There should be no human (well, or non-human, of course) traffic flow cutting through the triangle.
- Place the microwave near the refrigerator for convenience

- Walk space should be 42" wide to account for traffic flow and clearance of large appliance doors or large relatives
- Counter space on either side of the range or cooktop should be a minimum of 15 inches
- An 18-inch counter should be adjacent to the fridge on the same side as the handle
- The food prep area (minimum counter space 36 inches) is ideally located between the fridge and the sink; If the food prep area is between the sink and the range or cooktop, it will involve more travel.
- A lower surface is best for food prep (measure 7 to 8 inches below your elbow height)
- In two-cook kitchens, the fridge and range/cooktop are usually shared.
- Two triangles can share a leg, but shouldn't overlap
- An island with a second sink creates at least one more triangle, and adapts to many uses: wet bar location, flower cutting and arranging, homework station etc.

Kitchen Layouts

The single line (or Pullman) kitchen

This is a smart and simple solution for narrow rooms, ideally with one wall over 10 feet long, without windows or doors. However, this layout causes the longest journey distances since you often have to walk from one end of the room to the other. Therefore, it's a good idea to place the sink in the middle of the line, with adequate space separating it from the range.

- Ideal for apartments and smaller homes
- Works well with the open designs found in many contemporary homes
- Small moveable table can provide eating space
- Can be enhanced with the addition of an island

The galley kitchen

This shape offers the most efficient use of space, making it the choice of many professional chefs. The two rows allow room for lots of preparation space, and moving between activity areas can be as easy as turning around. However, this shape is not ideal if the corridor is open at both ends, since it can cause traffic congestion.

Make sure there is enough room for opposite drawers to be open at the same time (at least 48"). Another important consideration is to keep the cleaning and cooking areas on the same side in order to minimize the risk of accidents while moving hot pans between the sink and range.

- Great for smaller kitchens
- Appliances are close to one another
- Easy for one cook to maneuver
- Can easily convert to a U-Shape by closing off one end

The L-shape kitchen

This is a very popular kitchen layout - ideal for a family kitchen, or for entertaining guests, since it can easily accommodate table and chairs in the same room. Using two adjacent walls, the kitchen also benefits from the lack of through traffic. The sink, range and fridge should be separated by a preparation area.

- Very flexible layout design
- Major appliances can be placed in a variety of areas
- Work areas are close to each other
- Can easily convert to a U-Shape with a cabinet leg addition

The U-shape kitchen

The use of three full walls in a room offers the perfect working kitchen. The fridge, range and sink can be spaced out for maximum efficiency and convenience. This is great news for those who take your cooking seriously, as it provides the best workflows with the shortest distances around the kitchen. This shape also allows for large amounts of countertop and storage space.

- Perfect for families who use their kitchens a great deal
- Provides plenty of counter space
- Efficient work triangle
- Can convert one cabinet leg into a breakfast bar

The island kitchen

A very popular kitchen type, the island layout is perfect if you plan to entertain but requires more floor space. An independent island unit can face a dining or living area, allowing the cook to socialise while preparing. A sink here provides the optimal arrangement in terms of the kitchen's working triangle. Otherwise, a cooktop with a canopy over the island can form a stunning focal point to the kitchen.

The G-Shaped Kitchen

Built very much like the U-Shaped with the addition of an elongated partial wall, the G-Shaped kitchen offers a great deal of space. Ideal for larger families needing extra storage space Plenty of counter and cabinet space Multiple cooks can function well in this layout Can convert one cabinet leg into a breakfast bar or entertaining area

Planning of various supportive services

Pot and Pan Washing:

The pot and pan washing function is also preferably done in a separate area instead of combining it with other areas as some small operations may be inclined to do. The basic pot and pan washing function can be handled with a 3 compartment sink and drain boards, sufficient space for storing the soil utensils have to be provided.

In some operations, a large storage area for soiled utensils may be required because they are not washed as soon as

they are received. This occurs when the same personnel who wash dish, also wash the pots and pans. Pot washing machine are considered for large food facility if they can be economically justified.

A pot wash area is suppressed by 6" than the regular floor level of the kitchen, to avoid the water flowing into the main kitchen area. Heavy jet washers with water at a temperature of 88 degrees is used to wash pots because they easily remove the dirt and fat and make cleaning easy. Since the pot wash area becomes very messy with waste food and fat, anti-skid tiles are recommended for the floor and white glazed tiles on the three side walls up to 8' feet height. A minimum area of 10' x 10' is required.

Wet Grinding Area:

In India wet grinding area is considered to be one of the supporting services to the main kitchen. There will be a minimum of two wet grinders in any small hotels, so that there is a stand by in case of breakdown. Wet grinders are tailor made and are of different capacities. The ideal functional area required for a wet grinding is 10' x 4'. The area has to have anti-skid tiles for the floor and glaze tiles on the wall to maintain hygienic conditions.

Chef's Cabin:

The chef's cabin has to be ideally located, so that, he has a clear view of the entire kitchen. In some organizations and some hotels the Chef cabin is being utilized to store the imported stock of ingredients like, spices, wine etc. Ideally 10' x 10' is required for the chefs cabins.

Chef's Larder

This is a substore which is located within the kitchen, in the control of the chef. The quantities of material drawn for the day from the main food store is stored in the chefs larder, since there is no space to store this in the individual kitchen, the drawn material is stored in a place with the kitchen, which is called as chefs larder. Chefs larder is convenient for the cooks, because they can draw material at any given time of the day even after the main food store is closed for the day in the evening. Large quantities of food material should not be stored in a chef larder because it blocks the capital of the hotel.

Kitchen layout

The plan or layout of a kitchen will be determined by the catering policy of the establishment. The plan is often limited by space availability. The production area is divided into 3 very distinctive areas.

- Receiving, Preparation & Storage.
- Cooking.
- Service (Dispatching) and wash-up.

As in any other industrial production unit, the kitchen has three functions:

- Receiving raw materials
- Transforming them into finished goods

- Forwarding the products.

The main factors that determine the layout of a kitchen are:

- Whether the hotel is primarily for guests or if there is a busy chance trade.
- The locality.
- The type of customer.
- The type of menu/service.
- Seasonal pressure of trade.
- Possibility of expansion.

Among current trends in cooking, kitchen organization and food service, the following are readily noticeable.

- Greater mechanization
- Simpler operations
- Increased use of convenience foods

The information that will be required before beginning kitchen planning will be:

- What type of meal is offered?
- How many persons will he served?
- Meal timings and how many sittings.
- What type of service?
- Will convenience foods be used?
- Is allowance to be made for special functions/seasons?

Area Requirements: It is possible that kitchen space will be reduced to provide more seating capacity in the restaurant. However cramped, inadequate kitchens will lead to delays and faults in service. This will invariably affect the turnover. Inadequate facilities will also affect staff morale. Kitchen areas will depend on the type of service. Normally a kitchen will occupy between 25%-33% of the space allotted to the restaurant. Whereas 10-12 sq. ft. per cover is the norm in the restaurant, the kitchen space is generally 2½-4 sq. per cover. In smaller establishments this will go up to 6-9 sq. ft. per cover. Generally ¼th the kitchen area is set aside for storage. The remaining is divided between food pre-preparation, cooking and service.

Receiving,Preparation & Storage areas

Receiving area: The receiving area should be large and convenient enough to receive the volume and type of goods delivered. The receiving clerk must inspect all items before acceptance. The receiving area should be located near the entrance to the storage area so that once checked, goods can be stored quickly.

Delivery Quay: The delivery quay will be situated near the store and will consist of a platform of lorry level for easy unloading. It should be well lit, and fitted with anti-pest fans and an air curtain at the door. A water connection with hosepipe will ensure easy regular cleaning. Trolleys must be kept for easy unloading and cartage.

Gas Bank: If cylinders are used, these must, be kept outside. In case of a gas tank the distance from the building must be at least 150 yards. A daily check of gas shelters and tank is necessary as a safety measure.

Garbage Disposal: Wet and dry garbage must be stored separately. Wet garbage is stored in containers in a cool area to prevent fermentation and smell. Dry garbage can be incinerated. Disposal of garbage must be on a daily basis. Garbage areas must be cleaned daily, then disinfected and deodorized.

Central stores: Dry stores must be maintained at 70°F (21°C). Lightweight items could be stored on top of shelves and heavy weight items at the bottom. Cases/Cartons can be stored either on shelves or pallets. Nothing should be stored on the floor. 8" height above the floor will ensure easy cleaning. Shelves should not touch the wall. A 2" space must be maintained.

The Cold Room: Many foodstuffs will have to be maintained at refrigerated temperatures. There are two types of cold rooms:

- Negative cold room (freezer) with an ideal temperature of -18°C.
- Positive cold room (walk-in) with a temperature of 3°C-5°C.

Recommended temperatures for various food stuffs:

- Meat 0–1°C
- Fish 2–3°C
- Dairy 4–5°C
- Veg. & Fruits 6–7°C

Vegetable Pre-preparation Area: The work here consists of:

- Washing and Cleaning.
- Paring and Trimming
- Cutting, Chopping etc.

Use of frozen vegetables will determine the area required here. This room is sometimes air-conditioned, and in small establishments will be combined with the Butchery.

The Butchery: It is an air-conditioned room for meat pre-preparation. Bone saws, weighing scales and butchers blocks will be provided. The butchery must be situated close to the freezer. Non slip flooring is essential and flycatchers must be installed.

The Larder: The larder must be situated near to but separate from the kitchen. It must be air-conditioned, well lit and well equipped.

Cooking area

In this area, raw materials and pre-prepared goods are turned into finished products. This area can range from a simple kitchen to a more complex group or sections or even satellites.

- Pastry/Confectionery - Bakeshop
- Short order kitchen - Pantry
- Hot Kitchen - Main Kitchen

The Bake Shop- The control of costs and quality of desserts and breads sold in hotels is very important for successful operation. In a small hotel, this will be a corner of the main kitchen whereas in big hotels, this will be a separate fully equipped department. There are two sections

Hot: equipped mainly with ovens (single, double decker or tripletier) (convection or conventional), racks, dough mixer, food processor and will provide all bread, cakes and gateaux.

Cold: is equipped with refrigerated marbles, laminators, ice-cream machines, and food processors. It is usually air-conditioned, and provides all the desserts.

The Pantry- As the name suggests all the short orders are executed from here. These will include sandwiches, icecreams and beverages. Quick service equipment, such as toasters, juicers and shakers will be provided.

The Main Kitchen- Known as the heart of the kitchen. The area is divided into work islands where various jobs will be performed.

A) Roasting and Baking

B) Grilling

C) Frying

The equipment must be placed so as to avoid unnecessary movement. Bain Maries must be located near the gas ranges. Exhaust fans are essential. Good lighting, non-slip floors, and easy-to-clean walls are necessary.

In a classical organization the main kitchen is divided according to partie system. But in India it is divided according to the cuisine. E.g. Continental, Chinese, Indian.

Service & Wash-up area

The Service Area is situated between the kitchen and the restaurant and has the following functions.

- Cleans dirty equipment coming from the restaurant or floors.
- Supplies clean equipment to the restaurant and kitchen.
- Calling point for food orders.
- Delivery of food.
- Cashiering.

Issuing meals to the restaurant is carried out in this area. A kitchen clerk called the Aboyeur is stationed at the survey counter throughout the meal period. On receipt of the waiter's check (KOT) he announces in a loud and clear voice the order with special instructions. The section must acknowledge the order in return. Most orders are executed in parts (en suite.)

The Cashier prepares the bills and gives it to the waiter for presentation. The paid check and cash is returned to the cashier who will stamp it with a PAID stamp. A dispense bar is also situated in this area for drinks in the restaurant and in rooms

The Wash-up Area: Dish washing has a high rate of importance because of its significance in sanitation and hygiene. The wash-up area consists of three parts, manned by the kitchen steward.

- a) Loading – dirty equipment is pre-washed and loaded on baskets/trays for machine or hand washing.
- b) Washing – consists of cleaning, rinsing and sanitizing.

- c) Unloading – The clean equipment is kept on racks, picked by waiters or delivered by stewards.

Pre-rinsing calls for water of a warm temperature. 120° F will melt fat but not cook foods firmly onto the surfaces.

The washing temperature must be 140° F hot enough for effective cleaning action. Sanitizing calls for a temperature of 180° F for 10 seconds. In small hotels, dish washing is done manually, but the process is the same. Ideally separate workers should be provided for handling dirty and clean dishes. To ensure effective dish washing water temperatures must be maintained, detergent concentration should be effective and correct handling procedures followed

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Usage of Equipment

Objectives: At the end of this lesson you shall be able to

- explain kitchen equipment & their uses
- explain maintenance of kitchen equipment & their cost

Hand Tool & Small Equipment

- Ball cutter, melon ball scoop, or parisienne knife – Blade is a small, cup shaped half sphere. Used for cutting fruits and vegetables into small balls.
- Cook's fork – heavy, two-pronged fork with a long handle. Some for lifting and turning meats and other items. Must be strong enough to hold heavy loads.
- Straight spatula or palette knife – A long flexible blade with a rounded end. Used mostly for spreading icing on cakes and for mixing and bowl scraping.
- Sandwich spreader – A short, stubby spatula. Used for spreading fillings and spreads on sandwiches.
- Offset spatula – broad blade, bent to keep hand off hot surfaces. Used for turning and lifting eggs, pancakes, and meats on griddles, grills, sheet pans, and so on. Also used as scraper to clean bench or griddle.
- Rubber spatula or scraper – Broad, flexible rubber or plastic tips on long handle. Used to scrape bowls and pans. Also used for folding in egg foams or whipped cream.
- Pie server – A wedge shaped offset spatula. Used for lifting pie wedges from pan.
- Bench scraper or dough knife – A broad, stiff piece of metal with a wooden handle on one edge. Used to cut pieces of dough and to scrape workbenches.
- Pastry wheels or wheel knife – A round, rotating blade on a handle. Used for cutting rolled –out dough and pastry and baked pizza.
- Spoons: solid, slotted, and perforated – Large stainless steel spoons, holding about 3 ounces. Used for stirring, mixing, and serving. Slotted and perforated spoons are used when liquid must be drained from solids.
- Skimmer – Perforated disc, slightly supped, on along handle. Used for skimming forth from liquids and for removing soled pieces from soups, stocks and other liquid.
- Tongs – spring type or scissors type tools used to pick up and handle foods.
- Wire whip – Loops of stainless steel wire fastened to a handle. There are two kinds of whips :
 - Heavy whips are straight, stiff, and have relatively few wires. Used for general mixing, stirring, and beating, especially heavy liquids.
 - Balloon whips or piano wire whips have mainly flexible wire. Used for whipping eggs, cream, and hollandaise, and for mixing thinner liquid.
- China cap – Cone shaped strainer. Used for straining stock, soups, sauces and other liquids. Pointed shaped allows the cook to drain liquids thorough a relatively small opening. Fine china cap or chinois (shee-nwah) China cap with very fine mesh. Used when great clarity or smoothness is required in a liquid.
- Strainer Round-bottomed, cup-shaped strainer made of screen-type mesh or of perforated metal. Used for straining pasta, vegetables, and so on.
- Sieve Screen-type mesh supported in a round metal frame. Used for sifting flour and other dry ingredients.
- Colander Large perforated bowl made of stainless steel or aluminum. Used to drain washed or cooked vegetables, salad greens, pasta, and other foods.
- Food mill A tool with a hand-turned blade that forces foods through a perforated disk. Interchangeable disks have different coarseness or fineness. Used for puréeing foods.
- Grater A four-sided metal box with different sized grids. Used for shredding and grating vegetables, cheese, citrus rinds, and other foods.
- Zester Small hand tool used for removing the colored part of citrus peels in thin strips.
- Channel knife Small hand tool used mostly in decorative work.
- Pastry bag and tubes Cone-shaped cloth or plastic bag with open end that can be fitted with metal tubes or tips of various shapes and sizes. Used for shaping and decorating with items such as cake icing, whipped cream, duchesse potatoes, and soft dough.
- Pastry brush Used to brush items with egg wash, glaze, etc.
- Can opener Heavy-duty food service type can openers are mounted on the edge of the workbench. They must be carefully cleaned and sanitized every day to prevent contamination of foods. Replace worn blades, which can leave metal shavings in food.

Care & Maintenance of the equipment

- All equipment large or small, heavy or light, requires care in handling, use and storage on order to extend its

life to the maximum, minimize depreciation and maintain it in a reasonably attractive and efficient condition while in use. In small catering establishment the care and maintenance is generally entrusted to those who operate the equipment as the types invested on are generally small or medium duty pieces. In larger establishments where heavy-duty equipment predominates, a maintenance department performs this function.

- In the case of small pieces like cutlery, some metals need less care than others do. Stainless steel is the most non-corrosive and easy-to-care for material, while plated cutlery tends to get scratched easily and with time requires replating.
- With kitchen tools like the chef's knives, choppers, etc. care is limited to preventing the blades from rusting in the case of iron blades, by keeping them dry and covered. It is also common practice to rub them with a little cooking oil to protect them from rusting through contact with air. With whisks and beaters it is the rotating parts or the wiry ends which need special attention. It is good practice to prevent food materials from drying on the rotatory parts and posing a cleaning problem.
- With heavier and larger pieces of equipment general cleanliness of the item and its environment is the guiding principle. The schedule below is a guide to the general care of most equipment.

Schedule for the care of equipment

- Keep all equipment clean.
- Wash all removable parts of equipment with suitable detergent and hot water after each use. In tropical summers this is not necessary, as the water in the taps is usually warm to hot, depending on the environmental temperature. After washing wipe equipment completely dry before replacing.
- All small equipment like cutlery, ladles, chopping boards, kitchen tools, etc. should be washed after use in (2) and replaced in drawers and racks built for the purpose and covered to prevent them from dust or dirt during storage.
- Check that all pieces are in working order. Close supervision at work is necessary to ensure a careful handling and to detect any deviations from effective operation, like an unusual sound, or fusing of warning lights, or ineffective thermostatic controls.
- Repairs must be attended to without delay to prevent the equipment from giving way and disrupting work for any period of time.
- A weekly, fortnightly or monthly programme for oiling or servicing the equipment to maintain movable parts or machinery in order is important. The service instructions provided by the manufacturer along with the equipment are a good guide to the service procedure that should be followed. It is useful to prepare an

instruction card for every equipment carrying the manufacturer's instruction in as simple a form as will be understood by the operators of the equipment. This card could be kept near each major piece of equipment.

- All electrical inputs to the equipment should be checked periodically to ensure that proper electrical load is available for efficient functioning.
- Insulations, plumbing, and other connections need periodic checks to keep equipment at optimum efficiency.
- Make full use of warranty periods to help train organization staff to learn regular maintenance procedures from the manufacturer's engineers.
- Assign the care of each machine to one responsible person.

Money, time and effort spent on care helps to maintain equipment in continuous working order, while that spent on repair can mean interruption in work causing unnecessary strain on staff, in addition to extra costs.

It is beneficial to keep records of all amounts spent on care and maintenance of every large equipment. This helps to estimate the depreciation every year. Excessive costs shown through records for a particular year can help to draw attention to high maintenance costs, which weighed against the cost of the equipment may result in a decision to change the model for a more efficient one. Records can also help to detect inefficient in operation, or defects in design or manufacture.

Thus, if equipment is cared for systematically and proper procedures followed, maintenance follows on its own to prolong the life and optimum usage of the equipment. The cleaning schedules for some commonly used equipment in small food service establishments are given under their respective heads:

Cooking Equipment: (Hot plates, gas stoves or ranges)

- Wipe the top daily while still warm, using wet cloth or sponge.
- Any foods spilled and burnt while cooking may require the use of mild detergent or scouring pad.
- For open burners, a weekly boil in warm soapy water will help remove any food particles that may have been the cause of blockade leading.
- Wipe dry with slightly oiled cloth.

Ovens

- Wash, rinse and outer surfaces daily, after every meal.
- Use liquid wax for enamel finished parts.
- Brush the inside to remove any sediments due to food particles charred during cooking. Any sticky areas may be wiped with a wet cloth after washing the oven and then switching it off.
- Clean all plastic knobs with cloth and wipe dry.

Refrigerators

- The outside surfaces should be cleaned as for oven daily.
- A weekly cleaning of the insides of a refrigerator is sufficient especially if the establishment is small. For this the machine should be disconnected, doors opened and the shelves removed and washed in warm water according to manufacturer's instructions.

Preparation of the Equipment

- All parts, which are removable, should be cleaned after every use with light detergent.
- Sharp edges should be carefully handled for cleaning, drying and replacing immediately for use.

Coffee Urn

- Urns should be emptied after each meal and the insides cleaned with hard brush using a solution of sodium bicarbonate.
- Outer surfaces as for any other equipment.

Note: In general, it is good policy to follow manufacture's instructions for care and maintenance of any equipment.

Maintenance Costs

The cost of maintaining any equipment should be determined on the basis of the following factors:

- (a) Cost savings in terms of fuel consumption, as compared with the fuel bill prior to the installation of the piece.
- (b) Cost of servicing and regular cleaning which would involve the cost of cleaning materials and detergents.
- (c) Rate of depreciation calculated over the expected life of the equipment.
- (d) Any savings that the installation would have resulted in, in terms of better utilization of raw materials and prevention of waste.
- (e) Any savings brought about due to elimination of daily wage workers, as in the case of people being employed seasonally for peeling of vegetables for establishments which function for a limited period in the year, as for school meals, college canteens, and the like.



Ingredients Used in Cooking

Objectives: At the end of this lesson you shall be able to

- explain about Indian spices
- explain cooking with Indian spices
- state about aroma of Indian spices
- describe wet spices
- describe Indian cooking technique

INDIAN SPICES

Spices are referred as the strongly flavored or the aromatic substance with vegetable origin, obtained from tropical plants. They are the dried seeds, fruits, roots, barks or vegetative substances used in nutritionally insignificant quantities as food additives for the purpose of flavoring. They provide taste to the food. They are also good for health as they supply calcium, iron, vitamin B, vitamin C, carotene and other antioxidants.

In medieval period, spices were in great demand and were as precious as gold. India being the land of spices plays a significant role in the global spice market. No country in the world produces the range of quality spices India offers with all of its states growing at least one spice in abundance.

Commonly Used Spices in Indian Cooking

- Aniseed
- Asafetida
- Basil
- Bay Leaves
- Bishop Weeds
- Cardamoms
- Cashew
- Cassia
- Cinnamon
- Celery
- Chillies
- Cloves
- Coffee
- Coriander
- Cumin
- Curry leaf
- Dill
- Fennel
- Fenugreek
- Galanga
- Garlic

- Ginger
- Kokum
- Mint leaves
- Mustard
- Nutmeg
- Parsley
- Pepper
- Poppy
- Saffron
- Tamarind
- Tea
- Turmeric

Tamarind

Tamarind is an indispensable spice in south Indian kitchens. Being the only producer of tamarind on a commercial scale, India exports tamarind to West Asia, Europe and America.

Referred as date of India, this spice also comes in the forms of pulp and juice concentrates which mainly go into the preparation of cool drinks, sea foods and a range of sophisticated cuisine.

Tamarind trees are very common in South India, particularly in Karnataka, Tamil Nadu and Andhra Pradesh. Medicinally, tamarind is used as an Ayurvedic Medicine for gastric and/or digestion problems.

The extracts of tamarind fruits and leaves are used in body lotions, henna-based red hair dyes, face masks, lip balms, body butters and soaps. Tamarind seed oil is used in making paints and varnishes.

Poppy

Poppy is the dried seed of an annual herb and is the earliest plant to be cultivated by men. In olden days, poppy was valued for the oil obtained from its seeds.

Today, poppy oil is an unusual specialty and is produced only in small quantities. Even though poppy seeds are not narcotic, they are cultivated for culinary purposes and for the production of opium.

Opium is obtained from the latex of the mature fruits by making incisions on them. In Mughal cooking style, ground poppy seeds are used as common thickening agents to obtain sweet, mild, nutty flavor and aroma.

Poppy is grown in India in states of Uttar Pradesh and Punjab.

Cashew

The Cashew is grown in a tree in the flowering plant family Anacardiaceae. This plant is basically native to northeastern Brazil where it is referred as caju. It is now cultivated in all regions with sufficiently warm and humid climate. The tree has fruits which are oval or pear-shaped accessory fruits developed from the receptacle of the cashew flower.

The fruits are often referred as cashew apples. The true fruit of the cashew tree is a kidney or boxing-glove shaped drupe which grows at the end of the pseudofruit. Actually, the drupe develops first on the tree, and then the peduncle expands into the pseudofruit. Within the true fruit is a single seed, the cashew nut. The seed is surrounded by a double shell containing a caustic phenolic resin, urushiol, a potent skin irritant toxin and some people are allergic to cashews, but cashews are a less frequent allergen than some other nuts.

The urushiol will be removed from the dark green nut shells before the seed inside is processed for consumption. In India urushiol is traditionally used to control tamed elephants by its rider or keeper.

The cashew apple is mainly used for its juicy but acidic pulp, which can be eaten raw or used in the production of jam, chutney, or various beverages. At some places, its juice is also processed and distilled into liquor or consumed diluted and sugared as a refreshing drink, Cajuína. The cashew apple is the source of juicy pulp used to prepare fenny which is the local popular distilled liquor in Goa.

The cashew apple has tannin and is very perishable. Hence, in most of the places, the false fruit is simply discarded after removal of the cashew nut. The cashews have high oil content and can be used not only for cashew butters, but also for some other nut butters to add extra oil. The liquid contained within the shell casing of the cashew, known as Cashew Nut Shell Liquid (CNSL) which has a variety of industrial uses.

India is one of the largest producers of cashew kernels. Kollam or Quilon in Kerala, South India produces one of the finest varieties of cashews. The major trading centers of cashew in India are Palasa, Kollam or Quilon Mangalore and Kochi.

Coffee

Coffee is one of the commercial spices of India even though Brazil is the top exporter of coffee globally. A mineral-rich volcanic soil, suitable altitudes, good rainfall and temperature variations make for the growth of best coffee cherry which is richer in taste and higher in sugar content.

Roasted coffee is the most preferred state of coffee and the roasting process involves a considerable degree of influence on the taste of the final product. It requires lot of processing and human labour. Coffee berries must be picked, defruited, dried, sorted, and aged.

The raw coffee beans have coffee acids, protein, and caffeine but none of its taste. It requires heat to spark the chemical reactions that turn carbohydrates and fats into aromatic oils, burn off moisture and carbon dioxide, and alternately break down and build up acids, unlocking the characteristic coffee flavor.

Being the most popular drink, coffee can be presented in many ways with sugar, with milk or cream, and hot or cold. Even instant coffee is available and it has been dried into soluble powder or freeze dried into granules, which can be quickly dissolved in hot water for consumption. There is also canned coffee which is a beverage that has been popular in Asian countries for many years, particularly in Japan and South Korea.

Many vending machines typically sell a number of varieties of canned coffee, available both hot and cold. Liquid coffee concentrate is used in large institutional situations where coffee needs to be produced for thousands of people at the same time.

Curry leaf

Most Indian cuisine cannot do without the subtle flavouring of a highly aromatic leafy spice called curry leaf.

The curry leaves are from a small deciduous tree which grows profusely throughout mainland. It is commonly found in forests as gregarious undergrowth along the foot of the Himalayas, from the Ravi to Sikkim and Assam, besides Bengal, Madhya Pradesh, Maharashtra, Kerala, Karnataka, Orissa and Andhra Pradesh.

The trees are also now maintained in homestead gardens, as in Kerala, or on leaf farms as in Andhra Pradesh, Tamil Nadu, Karnataka and Orissa.

The curry leaves are mainly used in seasoning in Indian cooking. They are particularly used in South India cooking to provide a flavouring for curries, vegetable, fish and meat dishes, soups (rasams), pickles, butter milk preparations, chutneys, scrambled eggs and curry powder blends.

In fresh form, they have short shell life, but in dried form it has been preserved for a long time.

Fenugreek

Fenugreek is the small, three- cornered flower. It is an ancient spice used in Middle East, Northern- Eastern Africa and India, especially for pickles. Dry roasting enhances the flavor and reduces the bitterness of this spice.

Fenugreek has a strong, pleasant and a peculiar odor. It grows best in well-drained soils with a low rainfall into brownish-yellow rhombic shape seeds. It is often cultivated as a cover crop in citrus-fruit groves to take advantage of their leguminous nature.

In India, it is grown in the states of Rajasthan, Gujarat, Uttar Pradesh and Tamil Nadu. It is exported in its whole and powdered forms and as oil to Saudi Arabia, Japan, Malaysia, USA, The UK, Singapore and Sri Lanka.

Galangal

Galangal is a special spice having ginger like rootstock built from the cylindrical sub units whose pale-reddish surface is characteristically cross-stripped by reddish-brown, small rings.

The interior has about the same color as the skin and is hard and woody in texture. Even though, galanga leaves and seeds are aromatic they are not used very often for flavoring purposes. But its volatile oil attracts more international interest because of its high medicinal value.

Galanga is cultivated in Indochina, Thailand, Malaysia, Cambodia, Vietnam and Indonesia. In India, it is grown in the eastern Himalayas and South-West India.

Kokum

Kokam is an Indian versatile spice specialty, with an agreeable flavor and sweet, acidic taste.

Its oils, seeds, fruits, bark and leaves have extensive culinary and therapeutic value. Its fruit is cholagogue, cooling, demulcent, emollient and antiseptic.

Its bark and leaves are astringent and its oil is emollient and soothing. In India, kokam is grown in Konkan, Malabar and Kanara regions of Western India.

It is exported to several countries like USA, UK, Canada, Australia, Hong Kong and Middle East.

Pepper

Known as King of Spices, Pepper is indigenous to India and is one of the oldest and best-known spices in the world.

India has always reigned supreme in its production and export. The exotic and most sought-after Indian pepper has made a profound influence on the European economy of the Middle Ages.

Indian pepper is grown in the monsoon forests along the Malabar coast in South India. The celebrated trade varieties of Indian black pepper are the Malabar Garbled and the Tellichery Extra Bold. Even green pepper in several processed forms - frozen, dehydrated, freeze-dried and packed in brine are available.

Pepper is an important spice in the Indian classic garam masala. It is used as flavour ingredient in most major food products including non alcoholic beverages, candies, baked foods, meat and meat products, cheese, condiments and relishes. Medicinally, it is used in aromatherapy, massages and to treat sports injuries.

Its steam inhalation combined with eucalyptus is good for treatments of colds and flu. Its fruits are acrid, bitter, carminative, aphrodisiac, diuretic, digestive and stimulant and are useful for arthritis, asthma, fever, cough, dysentery, dyspepsia and flatulence. Peppers boiled in water along with basil leaves, are said to relieve chest congestions and asthmatic condition

Turmeric

Turmeric is the dried rhizome of an herbaceous plant and is also referred as Indian saffron. It has several unique properties which make it an ideal choice as a food flavour, an effective ingredient in medicines and cosmetics, and as a natural colourant.

It has rich curcumin content, which gives the distinctive yellow colour. India is the largest exporter of turmeric to Middle East, the UK, USA and Japan. The popular varieties are the Alleppey Finger and the Erode turmeric from Tamil Nadu, the Rajapore and the Sangli turmeric from Maharashtra and the Nizamabad Bulb from Andhra Pradesh.

Turmeric is used in canned beverages, baked products, dairy products, ice cream, yogurts, yellow cakes, biscuits, popcorn-color, sweets, cake icings, cereals, sauces, gelatines, direct compression tablets, cheeses, dry mixes, salad dressings, winter butter and margarine. Cosmetically, turmeric is used as a Sun-guard for skin protection.

Medicinally, turmeric is used in treatment for pancreatic cancer, multiple myeloma, Alzheimer's, and colorectal cancer.

Aniseed

Being one of the oldest spices, the aniseed is the schizocarpic fruit of the annual anise plant of the parsley family (Umbelliferae) and consists of two half-fruits which are separable only with difficulty.

The aniseed is widely used for flavouring curries, bread, soups, baked goods, dried figs, deserts, cream cheese, pickles, egg dishes, non-alcoholic and alcoholic beverages. The spice has essential oils and other ingredients which have a strong seasoning action.

It is ground grey to grayish brown in color. The oil ducts are almost always present embedded in the fruit wall beneath the ridges.

In India, it is grown to a small extent as a culinary herb or as a garden plant. The major products are anis oil and oleoresin anis. Basically, the aniseed is anti-bacterial, anti-fungal, anti-oxidant, stimulant, carminative and expectorant.

Basil

The basil is a small, erect, glabrous, profusely branched herb indigenous to India. It has an intensive pungent smell.

The word basil is derived from the Greek word *basileús* which means king due to the royal fragrance of this herb.

In India, basil is also considered to be sacred and is mainly used in the worship of Lord Vishnu.

The basil has rich aroma and excellent blending properties. It is used in the preparation of French liquors, sophisticated perfumes and gourmet class culinary seasonings.

Basil oil is also popular for its unique blending nature with other ingredients.

The growth of basil requires warm temperature climates. Among all the spices, basil is the only one spice which offers highest yields per acre.

Bay Leaves

The Bay leaves are known for their versatile and irresistible aroma and taste. They are the leaves of an evergreen tree called the Sweet bay or the Bay laurel or the Noble laurel or the True laurel.

In India the Bay laurel tree originates in the South slopes of the Himalayas. The bay leaves have essential oil from the leaves containing cinnamic aldehyde and traces of eugenol as its main constituents.

Even though the bay leaves are native to the Mediterranean, they have given wondrous flavor and scent to the Indian cuisine. Indian bay leaves belong to a tree which is related to cinnamon. They are tough three-veined leaves and are very popular in Northern India, but are little known in other parts of the country.

The reason for the popularity of bay leaves in Northern India is that Mughals influenced North Indian cuisine which adopted this flavour. In the Imperial Mughal cuisine, the bay leaves were used frequently in biryanis and kormas. Thus they formed the essential part of the mostly used blend of spices.

Today, bay leaves are one of the most sought-after culinary spices for flavoring soups, casseroles, stews, fish, fish sauces, meat, poultry, pudding and marinades.

Cassia

Cassia is the dried husk or bark of a small, bushy evergreen tree and is considered inferior to cinnamon. Its quill has a single ½ mm thickness layer.

It is used as a flavoring agent in many products such as candies, desserts, baked goods, and meat. It is also used in beverages, perfumery, toiletries and cosmetics, while the oil of cassia finds extensive application in liquors and beauty products.

Cassia contains 4% essential oil of which 75 to 90% has cinnamic aldehyde and there are traces of eugenol along with small amounts of coumarin. It is the spice mentioned in the bible and hence is regarded as the first cinnamon species that was known and used centuries ago.

In India, cassia is grown in the North-Eastern states and in the evergreen tracts along the high ranges of the Western Ghats. There are different varieties of cassia, obtained from different species of *Cinnamomum* and originating from different sources.

Sometimes, Cassia is assumed as cinnamon, due to certain similarities, mainly their origin being the bark of bushy evergreen tree. But there are differences between the two. Cassia is a much thicker, coarser product than cinnamon.

Cassia is sold as pieces of bark or as neat quills or sticks. Its sticks are extremely hard and are usually made up of

one thick layer. Cassia tastes slightly bitter and it lacks the liveliness of cinnamon. It is often used as a less costly substitute to true cinnamon.

Chilies

Being the universal spice of India, chili is a nature's wonder. Its fruit has different sizes, shapes and colour. Only in India, many rich varieties of chilies with different qualities are found.

There are two important commercial qualities of chilies. Red color chilies having the pigment capsanthin and green color chilies known for biting pungency attributed by capsaicin. The chilies are the most essential ingredient in curries of south India.

In curries, they are used as in variety of forms such as paste, powder, broken split or whole form. The fruit is either cooked or consumed raw for its fiery hot flavour which is concentrated along the top of the pod.

The stem end of the pod has glands which produce the capsaicin, which then flows down through the pod. The heat of the pod can be reduced by removing the seeds and inner membranes.

Chili powder is a spice made of the dried ground chilies, along with portions of pepper, cumin, coriander, fenugreek seeds and many other spices.

Coriander

The coriander has long history with its cultivation dating back to ancient species in the Mediterranean region. It has been mentioned in holy bible and is said to be known since the middle age.

Coriander leaves are very popular in India as they are used in variety of dishes for garnishing. Apart from the use of leaves for decorating dishes, coriander is also used in the form of dried ripe fruit.

The aroma is warm, nutty and spicy while the leaves have a strong odor. It is not only a fragrant spice, but also has medicinal properties. It is used extensively in several kinds of foods, beverages, liquors and perfumes. It requires full exposure to sunlight but with less heat and medium-to-heavy loamy soil, good drainage and well-distributed moisture.

In India Coriander is an essential constituent of curry powder and Indian masalas. To enhance its flavor, the normal practice is to fry or roast coriander. It is grown in the states of Gujarat, Rajasthan, Andhra Pradesh, Tamilnadu and Madhya Pradesh.

India exports coriander leaves, powder and oil to USA, UK, Malaysia, Singapore, Sri Lanka and Middle East.

Dill

Dill is a strongly smelling spice which is mainly popular as the Old Norse dilla used to relieve babies from stomach pain due to its anti flatulent power. It is an annual winter crop which requires well-drained sandy soil and complete sunlight for proper growth.

It belongs to the parsley family and grown in the sub tropical and temperate regions of India especially the northern parts.

It is popular all over Europe, Western, Central and Southern Asia due to its sweet taste. It is mainly used for cooking bread, vegetable, vinegar, pickles and fish. It is the national spice in the Scandinavian countries and the fish dishes are usually either directly flavored with dill or served together with sauces containing dill.

In India, however, dill is used to flavor for lentils and bean dishes. It is used extensively in foods, beverages and medicines and its essential oil constitutes an important flavoring for the pickles industry. India exports dill to USA, the UK, Canada and Japan.

Garlic

Being a hardy bulbous annual crop, Garlic has pungent and acid flavour with high medicinal values. Entire bulb has no odor, but when crushed or cut, it produces intense odor.

It is originated in central Asia and is one of the famous spices of the world. It is also mentioned in the Bible and in the ancient Egyptian times when they were fed to the pyramid builders daily and as food for the Hebrews during their sojourn in Egypt.

Garlic is used in pickles and vinegars. It is also used in vegetable, meat and poultry dishes, especially in casseroles, stew and marinade.

Even readymade spices, mixes, pharmaceuticals and disinfectants have garlic. It is cultivated in India in the states of Poona, Nasik, Madurai and Jamnagar.

Mint Leaves

Mint is an erect plant with dark green leaves of pleasant flavour. The various species of mint are peppermint, spearmint, apple mint and corn mint.

Peppermint and spearmint are commercially popular and significant. Peppermint is used in mint tea. Mint oil and menthol are used as flavouring agents in mouthwashes, toothpastes and chewing gums.

Mint leaves are used in few dishes like mint-coriander chutney, rasam, sambar, meat, fish, poultry items and biryanis. In India, mint is grown in Jammu and Kashmir, Punjab, Karnataka, Tamil Nadu, and Andhra Pradesh.

Nutmeg

Nutmeg is the hard kernel of the seed of an evergreen tree which is native to Moluccas.

Mace is the lacy growth known as the aril, surrounds the seed. This spice became popular in the kitchen when the Portuguese developed trade in Spice Island, in 16th century.

Nutmeg is used in both savory and sweet dishes as it has a warm flavor and affinity for rich foods.

In India it is used mainly in Moghul dishes. Medicinally, it is used to relieve bronchial disorders, rheumatism and flatulence as treatment for digestive, liver and skin com-

plaints. Besides, it is used in perfumery, soaps and shampoos.

Nutmeg and mace have similar taste qualities. But nutmeg has a slightly sweeter and mace a more delicate flavor.

Mace is used in light-coloured dishes for the bright orange, saffron-like colour it imparts. In Indian cuisine, nutmeg is used almost exclusively in sweets and in small quantities in garam masala.

Saffron

Saffron is the slender, dried, reddish-brown, flattened stigma of a small crocus of the iris family and is the most expensive spice in the world.

Its aroma is unique and there is no substitute for it. In India, saffron is grown in Kashmir.

Saffron is water-soluble and when added to the dish, gives a pure and homogeneous color. In high dosage, saffron exhibits toxic qualities.

Saffron is used in dishes of Central Asia and Northern India apart from the North Indian biryanis. It is also used in many Indian sweets like, kheer, ras malai, Indian yogurt drink, butter lassi, badam shake etc.

Vanilla

The Vanilla is a climbing orchid cultivated for its pleasant flavour and is one of the few contributions of the western hemisphere to the world of spices. It has over 50 species but only three important species form the sources of natural vanillin. They are

- Vanilla planifolia Andrews
- Vanilla pompona Shiede
- Vanilla tahitensis J.W. Moore

Of these, Vanilla planifolia is the most preferred and commercially cultivated vanilla. There are three main commercial preparations of natural vanilla. They are

- whole bean
- powder (pure ground beans or blended with sugar, starch or other ingredients)
- extract (in alcoholic solution)

Pods or beans of Vanilla are subjected to curing process to produce the characteristic aroma and the substance chiefly responsible for the unique fragrance and flavour of the vanilla bean is vanillin (C₈H₈O₃).

Vanilla has a prime position among the food flavors. Its essence finds large use in foods in the preparation of ice creams, chocolates, bakery products, puddings, pharmaceuticals, liquors and perfumes. It is the second most expensive spice traded in the world market.

The vanilla flavor used in creams, cakes and other foodstuff is achieved by adding some vanilla extract or by cooking vanilla beans in the liquid preparation. If the beans are split into two, stronger aroma can be obtained.

The natural vanilla gives a brownish to yellowish colour to the preparations, depending on the concentration. A good quality vanilla has a strong aromatic flavour. But there are many artificially synthesized vanilla substitutes and food-stuffs with small amounts of low quality vanilla or artificial vanilla-like flavorings are more common, since true vanilla is very expensive.

Vanilla's popular use is in ice creams and hence most people consider it to be the default flavor.

Asafoetida

The asafetida or the asafoetida is dried latex extracted from the living rhizome, rootstock or taproot of an umbelliferous plant of varied species.

It has a unique blend of finest ingredients and Indian asafetida from Kashmir has an exalted position in the international market. Indian asafetida has three forms based on quality. They are as follows.

- Tears
- Mass
- Paste

There is another classification based on the place of origin, flavor and color as follows.

- Hing
- Hingra

The asafetida is highly popular spice as people who do not prefer to eat onion and garlic can make this as an essential ingredient of their cuisine. It acts as an alternative for onion and garlic in most of the vegetable dishes.

It is used in very small quantities in dishes and a pea-sized amount is considered to be large or sufficient to add the asafetida flavor to a large pot of food. The powdered asafetida is less intense and can be used even without frying.

The aroma of this spice is also less when used in powdered form but the resin has a non-perishable fragrance. The resin has strong flavor and must be fried shortly in hot oil.

Bishop Weeds

The Bishop weeds also referred as the ajwain have originated in Eastern Mediterranean, but the usage in cuisine and as an ayurvedic remedy is confined to Central Asia and Northern India.

The most utilized part of Bishop's Weed is the small, caraway like fruits which have the essential oil being dominated by thymol a- pinene, p- cymene, limonene and terpinene as its main constituents.

The Bishop weeds are the aromatic spices with wondrous flavor. In India they are grown mainly in Rajasthan and Gujarat.

Roasting or frying in combination with potatoes or fish enhances the strong aroma of Bishop's Weed. They are also used in ayurvedic medicine to cure diseases related to the digestive tract.

Cardamoms

The Cardamom or the *Elettaria Cardamomum* Maton is called as the Queen of Spices as it is one of the most exotic and highly prized spices.

It is grown mainly in Kerala, Tamilnadu and Karnataka, on the shady slopes of the western Ghats. The Indian cardamom gets its unique aroma, flavor, size and color due to the warm humid climate, the loamy soil rich in organic matter, the distributed rainfall and the special cultivation and processing methods.

The various grades of Indian cardamom offered at the international markets are the Alleppey Green Extra Bold (AGEB), the Alleppey Green Bold (AGB) and the Alleppey Green Superior (AGS).

The cardamom oil is the most precious ingredient in food preparations, perfumery, health foods, medicines, and beverages.

The cardamom seed has strong, unique taste, with an intensely aromatic fragrance. It is often included in Indian sweet dishes, drinks and festive recipes. It is also used in pickles, punches and mulled wines, occasionally with meat, poultry and shellfish.

In traditional medicine, cardamom is used to treat infections in teeth and gums, throat troubles, congestion of the lungs and pulmonary tuberculosis, inflammation of eyelids and also digestive disorders. It is also reportedly used as an antidote for both snake and scorpion venom.

Celery

Celery is a popular herb and vegetable with its roots and leaves being used for garnishing purposes as well as can be cooked for eating as a vegetable.

It has its origin in Mediterranean region of Europe. It is the spice mentioned in Greek epics. It was also considered as a holy plant in Greece. Romans believed that the celery would bring bad fortune under certain circumstances.

In India, celery is mainly produced in Punjab and Uttar Pradesh. The Indian celery dominates the world market with several commercial grades of celery besides its essential oils being exported to USA, Singapore, France, Japan and UK.

Cloves

Cloves are small, reddish-brown flower buds of the tropical evergreen tree *Syzygium aromaticum* of the family Myrtaceae. They were important in the earliest spice trade and are indigenous to the Moluccas, or Spice Islands, of Indonesia. The island of Zanzibar, which is part of Tanzania, is the world's largest producer of cloves.

Cloves have strong aroma with hot and pungent taste. They are used to flavour many foods, mainly meats and bakery products. They are used either as whole or in a ground form, but as they are extremely strong they are used sparingly. Whole cloves are frequently used to flavour cooking liquids for simmering fish, poultry, game and meat. Both north and south Indian cuisine contain cloves.

In the north Indian cuisine, it is used in almost every sauce or side dish in grounded form. They form a key ingredient in the preparation of tea along with green cardamoms. In the south Indian cuisine, it is extensively used in the biryani dishes to enhance the presentation and flavor of the rice. They also form one of the ingredients in many classic spice mixtures.

They contain 14 to 20 percent essential oil with the principal component of the aromatic oil eugenol. Their pungent smell is due to the presence of eugenol. The clove oil is used to prepare microscopic slides for viewing and is also a local anesthetic for toothaches. It is also used in germicides, aromatherapy, perfumes, and mouthwashes, in the synthesis of vanillin, and as a sweetener or intensifier.

Cumin

Being an efficient digestive food flavor for ceremonial feasting of the Biblical times, Cumin is the dried fruit of a small herbaceous plant.

It was used in ancient India and also in Roman Empire. Today, it is one of the popular spices used throughout the world.

Cumin is fried or roasted before usage. It also forms an essential part of the curry powder and of the Bengali spice mixture, panch phoron, apart from being used in Northern Indian tandoori dishes.

Indian cumin is used worldwide in foods, beverages, liquors, medicines, toiletries and perfumery. The basic requirements to grow this soil are rich, well-drained, sandy, loamy soil and the sun.

It grows abundantly in the mild, equable climate of Gujarat, Rajasthan and Uttar Pradesh. India exports cumin to USA, Singapore, Japan, UK and North Africa.

Fennel

Fennel from *Foeniculum* is a traditional spice of India normally referred as saunf. It is the dried aromatic ripe fruit of herbaceous plant and grows well in mild climates.

In ancient India it was used as a condiment and culinary spice. Today, in India it is used to give special flavor to meat dishes, fishes, and pickles. It is also used in medicine, liquor and perfume.

In India, it is grown in sunny, limey, well-drained soil of Gujarat, Rajasthan and Uttar Pradesh. India exports substantial quantities of fennel to USA, Singapore, UK, UAE, Sri Lanka, Malaysia, Saudi Arabia and Japan.

Ginger

- Ginger is a fresh, dried or powdered rhizome of a slender, perennial herb. Being one of the earliest Oriental spices known in Europe, it has been cultivated in India both as a fresh vegetable and marketed as a dried spice since time immemorial. It has a characteristic taste, flavor and texture.

- In India, ginger is grown all over, but the finest quality ginger is grown in Kerala. Indian dry ginger is known in the world market as 'Cochin Ginger' (NUGC) and 'Calicut Ginger' (NUGK). Ginger comes in variety of forms such as garbled or ungarbled, bleached or unbleached and powder forms. Young ginger roots have juicy and fleshy mild taste. They are used in pickles, vinegars, ginger tea, seafood, mutton, candy, cookies, cake, and non-alcoholic beverage.
- Medicinally, ginger is used in the treatment for nausea. It is used as "stomach settler" for generations in many countries. It is a powerful antioxidant and is used to relieve headache and inflammation.

Mustard

Mustard is the spice popularly used in seasoning of foods.

It is an erect, multi-branched herbaceous plant, cultivated in most temperate climates and normally grown in certain tropical and sub-tropical regions as a cold-weather crop.

Mustard is used in variety of forms like seed, paste or powdered form. It is believed that spreading mustard seeds around the exterior of the home will keep out evil spirits.

In India, mustard is grown in the states of Rajasthan, Uttar Pradesh, West Bengal, Madhya Pradesh and Punjab.

Parsley

Parsley is the dried aromatic leaf from a low-growing biennial herb having dense foliage and white flowers.

It is one of the best known and most frequently used culinary spices. It is very expensive but rich in nutritive value.

It contains several vitamins like A, B and C and many other essential nutrients. It is also very attractive with bright greenish foliage and so it is used as a decorative item in various dishes.

It is often referred as the universal garnish as it can be added to soups, all types of salads, sauces, eggs and several vegetable dishes.

Tea

The tea is a drink which is made from the young and flavorful leaves and buds of tea plant. It is the most important non-alcoholic beverage in the world. In India, the state of Assam has over 800 tea estates and is one of the major tea producers.

The estates of Darjeeling produce Darjeeling Teas which are also called as the Champagne Teas with aroma resembling Muskat grapes and taste varying from malty or complex to bright or simple. The teas are grown in high altitudes with clouds comforting the tea plant and moisturizing its leaves.

The tea has three basic types such as the black tea, the green tea and the oolong tea. Black tea is fully oxidized or fermented and yields a hearty flavored, amber brew. It is

very popular in US and over 90% of the tea consumed is black tea.

Green tea skips the oxidizing step and has a more delicate taste with light green/golden in color. Being a staple in the Orient, it is said to reduce cancer risks. Oolong tea is partly oxidized and is a cross between black and green tea in color and taste.

It is popular mainly in China. There are also herbal teas which contain no true tea leaves and are created from the flowers, berries, peels, seeds, leaves and roots of many different plants.

As tea contains caffeine, medicinally it is used as a stimulant, or as an astringent lotion which may be used as a gargle or injection. An infusion of tea is used for some digestive problems and to reduce sweating in fevers. At some places, tea leaves have been used homoeopathically for mania, paralysis, nervousness, neuralgia and sleeplessness.

INDIAN SPICES

Indian Spices in food are used subtly and although Indian food is not bland, most Indian dishes are delicately spiced to enhance the flavor of the main cooking ingredient. Curry powder is the definition of fine spices roasted, combined and ground dry. Fresh ground spices are the order of the day in an Indian home and will be chosen according to the nature of the dish, season, and family.

The role of spices and herbs goes beyond just cooking. Ancient Ayurvedic texts prescribe the herbs and spices for curative and therapeutic functions. Ayurvedic scripts dating back to 3000 years, list the preventive and curative properties of various spices.

Curative Properties: Most spices used in Indian cooking are very healthy, and make the digestion process much easier. The typical Indian cook has learnt to use this knowledge and weave them into everyday dishes. Ginger prevents dyspepsia, garlic reduces cholesterol and hypertension, and fenugreek is a good resistance builder. Pepper is often served as antihistamines, turmeric is used for stomach ulcers and for glow of the skin.

Preserving Foods: Spices have been used to make the food last longer in the days when refrigerators were not available.

Aiding Digestion: In the Western part of the world, after dinner mints are usually given at a restaurant. Indian restaurants serve fragrant spices such as fennel, cardamom or cloves. Not only are they great mouth fresheners, but they aid digestion, prevent heartburn and curb nausea. Others such as asafetida and ginger root, have been known to counteract flatulence and colic, and are added to lentils, a must with every Indian meal.

Balancing Tastes and Properties of Food: Each spice has a property-not just a taste property, but a warm or cooling property to it, along with many others. The cook generally understands these properties and cooking is elevated to yet another level by using this knowledge of spices into the cooking.

Masala is a word that is often used in an Indian kitchen. It means a 'blend of several spices.' Garam (hot) masala is the most important blend masala and an absolute essential to north Indian preparations, added just before serving the dish to enhance its flavor. The Garam masala is a blend of cardamom, cinnamon, cloves and black pepper. Masala may be in dry, roasted ground or paste form. Each State in India has its own particular blend, and furthermore, each family is partial to their own blend, as well as each cook is partial to his blend.

Cooking with Indian Spices

There is an art to using Indian spices. Indians spice their dishes in layers harmoniously blending subtle spices with aromatic ones and layering it with herbs, ginger, garlic and lime juice or tamarind. For practical purposes Indian spices could be divided into 3 stages.

The dance of spicing is as follows.

1. BASIC OR ESSENTIAL SPICES

There are certain basic spices which go into most dishes - We heat a pot - add ghee in it then we add cumin seeds or mustard seeds and asafetida till they sizzle.

Then we add red chili powder, coriander seed powder and turmeric powder. We also add our minced ginger at this time. We then add our vegetables, salt and steam the dish.

Asafetida (hing, heeng), is used mainly for its strong taste on the same lines of garlic.

Cumin Seeds - is a basic spice used in most dishes in North India. It has a strong but pleasing flavor. Cumin may be fried whole in oil, or ground, or roasted and ground, or ground and then roasted, all with very different results.

Turmeric (haldi) is also a basic Indian spice and is virtually used in most Indian savory dishes. It has no real taste and is mainly for its medicinal properties and the lovely color that it gives to the dishes.

Coriander seeds (dhaniya) is the third basic spice in Indian cooking and is mainly for its fresh, cooling and soothing taste.

Chili Powder - is used mainly for its special pungent and fiery taste.

Mustard seeds is mainly in south and west India. Used for its strong but very pleasing flavor.

At the time we add cumin or mustard seeds as specified above we could also add fennel seeds, nigella seeds (for root veggies we may add ajwain seeds).

Other Indian spices (to complement the above) that are basic spices but not essential spices are:

Fennel seeds (sounf)- is used mainly in North India. Used for its strong but very pleasing flavor. Fennel may be fried whole in oil, or ground, or roasted and ground, or ground and then roasted, all with different results.

Fenugreek (methi) seeds - is valued for its bitter taste and health qualities. If it is burnt it gets very bitter and should be thrown away.

Nigella Seeds or Kalonji is used mainly in North India. Used for its strong but very pleasing flavor. Small black seed, sometimes called onion seeds, although they are not really seeds from onions. It is often sprinkled on naan (bread)

Carom (ajowain) is mainly used in North India to flavor breads and root vegetables.

AROMATIC or SECONDARY INDIAN SPICES

Also called garam masala to enhance the above 2 sections - we may or may not add these to our dishes - we add them for tomato curries and thick onion curries. To the above spices we would add chopped onions, tomatoes and herbs and any of the following secondary spices. Then add potatoes, meat, cauliflower or ingredient for your curry and steam with a bit of water.

Dried Ginger powder (adrak, or sont) is again a basic but not essential Indian spice. Used mainly in North India.

Green cardamom pods (eliachi) - A secondary and not essential Indian spice. Used throughout India - both in North and South Cooking. Used for its strong but very pleasing flavor. - One of the spices in Garam masala - It is best to grind small quantities at home using a coffee mill. Cardamom loses its natural oils quickly, it also loses its flavor. Cardamom is an expensive spice. - Used to flavor curries, masala chai and certain vegetables and Indian desserts

Black cardamom (kala eliachi) - A secondary and not essential Indian spice. Used in North Indian Cooking. Used for its mellow and warm flavor. - This larger dark brown variety is used flavoring meat, poultry and rice dishes. The inner seeds are often used for making Garam masala.

Cinnamon (dalchini) - A secondary and not essential Indian spice. Used throughout India - both in North and South Cooking. Used for its sweet and pleasing flavor. It is the bark of the cinnamon tree - One of the spices in Garam masala - Used to flavor curries, masala chai and certain vegetables and Indian desserts

Cloves (lavang or laung) - A secondary and not essential Indian spice. Used throughout India - both in North and South Cooking. Used for its pleasing flavor. - One of the spices in Garam masala - It is best to grind small quantities at home using a coffee mill. It easily loses its flavor. - Used to flavor curries, masala chai and certain vegetables

Nutmeg - A secondary and not essential Indian spice. Used throughout India - both in North and South Cooking. Used for its warm and pleasing flavor. - One of the spices in Garam masala - It is best to grind small quantities at home using a coffee mill. It easily loses its flavor. - Used to flavor curries, masala chai, coffee and certain vegetables and Indian desserts

Mace (jaivriti) - A secondary and not essential Indian spice. Used throughout India - both in North and South Cooking. Used for its warm and pleasing flavor. - One of the spices

in Garam masala - It is best to use the blades whole and remove them after cooking - Used to flavor curries, masala chai and certain vegetables and Indian desserts available whole or ground

Garam masala - powdered blend of spices that may include cloves, cardamom, cinnamon, black peppercorns, nutmeg, mace. - garam means "hot", but not chili hot, hot in the sense that these spices are said to increase body temperature. Interestingly, many of these spices are used in deserts in western cooking (i.e. cloves, cinnamon, nutmeg, and mace) - different regions use different mixtures (masalas) and proportions. Garam masala will also vary from household to household. - powdered garam masala is often added at the end of cooking in small quantities whole garam masala is used in north Indian cooking, especially meat dishes. - A whole garam masala could include whole cinnamon sticks, bay leaves, cloves, cardamom (black or green), whole mace, and black peppercorns. - Often these are fried in hot oil before other wet ingredients such as meat, onions, garlic, and/or ginger are added. Cooking with these spices release a wonderful botanical odor that fills your house and neighborhood.

WET SPICES- Wet spices are fresh herbs and ingredients that are ground with some water and added to the spice base and include coconuts, mint leaves, cilantro leaves, fresh ginger root and garlic.

INDIAN SWEETENERS- Try out Indian jaggery or Gur to sweeten vegetables like squash and zucchini and lentil dishes.

INDIAN SOURING AGENTS- Dried mango (amchoor, Tamarind (imli), tart yogurt and Lime Juice is used to add a tart taste to Indian dishes

THICKENING AGENTS - poppy seeds, sesame seeds, cashews and almonds are used to thicken gravies.

SPECIAL SPICES

Saffron (kesar or zafran) to color and flavor rice and deserts, by soaking its threads in hot milk for about 15 minutes before using to bring out the color in fancy Mughal dishes, not usually in everyday cooking.

Black salt is used in pickles and Chat Masala (a northern Indian spice mix sprinkled over fresh fruit)

Indian Cooking Techniques:

Baghar/Tadka/Chonk (Instant seasonings/Tempering)-

The goal of this technique is to add flavor to a dish very quickly. Spices and herbs are added to hot oil/ghee. Hot oil extracts and retains the aroma, essence and flavor of the spices and herbs. This tempering is done in two ways.

- As the first step in the cooking process, before adding the rice, vegetables or lentils.
- Pouring the tempered oil over dal. Spices and herbs cooked this way retain and enhance their flavors.

A common recipe for baghar is to add either cumin or mustard seeds in hot oil and let them sizzle for a few seconds then add a pinch of asafetida and red chili powder.

Uses - Pour over cooked lentils that has already been boiled with ginger and turmeric, over steamed vegetables and over yogurt raitas and rice.

Balchao (Pickling)

A Goan specialty influenced by the Portuguese, where vegetables like eggplant or seafood like prawns are "pickled" in sugar, vinegar and spices for a day or two before eating.

Bhunao (Curry):

This is Indian curry cooking. Oil is added to a wok or pan, and to this, chopped onion and cumin are added. After the onions are browned then the desired herbs and spices are added (tomatoes may also be added). Small quantities of water, yogurt, and stock are introduced to the pan if and when the ingredients start to stick. After the oil separates from the mixture, the main ingredient (meat or vegetable) is added and cooked.

Dhuanar (Smoke Seasoning):

Glowing charcoal is placed in a small pot, which is then put in a bigger pot. Cooked meats are placed around this. Dry spices and ghee are poured on top of the coals and a lid is quickly placed over the larger pot. This meats imbibe the fresh smoke taste of ghee and cumin. Very popular in the cold months of North India, especially in the desert areas.

Do-Piazza (Cooking with Onions):

There are two theories for the origin of this method.

- Akbar the Great - India's great Mughal ruler liked to surround himself with the most talented people. He called them his 9 Gems. Mullah Do-Piazza, the legendary cook was one of them. He created a style of his own and items cooked in this style are called Do Piazza.
- The other is cooking with 2 (Do) Onions (piaz).

Potatoes and meats are cooked generally with 2 onions, yogurt and spices. Tomatoes usually are not added in this type of cooking.

Dum (Steaming):

This process reflects the ingenuity of the Indian chefs. They virtually created a baking oven and a pressure cooker with very simple ideas. Food was partially cooked before hand. They then put this in a pot and sealed the cover with atta (dough) to capture the moisture within the food as it cooked tenderly and slowly over a charcoal fire. Coals was also placed on the lid to ensure even cooking.

They then added their main ingredients like rice or vegetables or meats or all three with spices, herbs, seasonings, saffron, tomato and let the food continue to cook in its own steam. The entire dish retained all its flavor and aroma and the slow cooking created perfect foods fit for their emperors and kings and rajahs.

Handi:

Handi is an Indian pot that has a bottom like a wok and then has a narrow opening on the top. Slow cooking in steam or

in seasoned moist flavorings are its special attributes. The cooking is done in a thick bottom pan, so the food doesn't stick or burn; the lid helps retain the aroma and flavor. Both bhunao and dum are aspects of Handi cooking.

Kadhai (Round bottomed pan):

This is a wok in which the food is cooked. It is placed directly on the table, where everyone eats out of it. Kadhai cooking is quick, water is not used. The main ingredients cook with the natural juices released by the tomatoes and meat in the dish, which is constantly stirred until cooked. The main aspect of this cooking, is for the sides to become seared and this wonderful flavor is scraped and added to the taste of the dish.

Talna (Frying):

Frying Indian food is usually done in a wok or kadhai. The round bottom uses less oil and cooks the food evenly. Many times ghee is used as this fat can be used over and over again and does not go rancid due to its high smoke point. Another good frying oil is peanut oil.

Tandoori

Tandoori cooking is one of the highlights of Indian cuisine. The Indian tandoor is a clay oven that can reach temperatures as high as 550F. It looks like a rounded bee-hive. Tandoori is a hotter and quicker form of cooking than the western barbecue. It is used to make naan breads, kebabs, tandoori meats and stuffed rotis and paranthas.

A traditional tandoori oven must be seasoned. A paste is made of spinach and applied to the inner surface and left to dry. Paste of mustard oil, buttermilk, jaggery and salt is applied over the spinach. A small fire is lit and the temperature allowed to rise gradually until the emulsion peels away from the walls of the tandoor. Repeat for a few times.

A brine solution is sprinkled on the inner walls to facilitate the sticking of breads like naans to the sides. To know if the oven temperature is optimum, try and stick a naan to the sides, if it falls off, the oven is not hot enough. Meats and Paneer are marinated, the kebabs are seasoned with herbs and spices. They are also basted with ghee to withstand the drying of meats which happens at such high temperatures. Meats, Kebabs and Naan come out perfect in a Tandoor.

Tawa:

A tawa is a round, thick iron griddle, slightly concave in the center. It is used when very high temperatures are needed and is mostly used for Indian unleavened breads called chappati or rotis. It is also used for cooking some unique dishes which require fast cooking, with the outer rim used to keep the dish warm. Popular in street food, especially Pau-Bhaji is a typical tawa dish and needs to be constantly stirred to avoid burning, and is served straight out of the tawa and eaten immediately on sour dough bread.

Knife handling techniques

Objectives: At the end of this lesson you shall be able to

- explain the different types of knives
 - explain handling and storage of knives.
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Types

Wavy (Serrated) Edge - especially useful for cutting soft products with a hard crust (bread) or tough skin (sausages and tomatoes). The teeth of a wavy edge knife allow greater pressure to be exerted on the object being cut and are generally thinner than a plain edge blade.

Straight Edge - recommended for cutting raw meat, slicing salmon and chopping vegetables. A straight edge can be sharpened using a sharpening steel. A straight edge is useful for making very precise or clean cuts and should be razor sharp to get the best performance.

Granton Edge - or "kullenschiff" edge, has hollowed out grooves on the sides of the blade. These grooves fill with the fat and juices of the product being sliced, which allows for thin, even cuts without tearing or shredding the meat. The grooves also help shed the material being cut from the blade helping to reduce sticking.

Paring Knives

The paring knife is a vital part of any set of kitchen knives. A paring will usually have a thin 3 to 4 inch blade that usually tapers to a point. Paring knives are used for intricate work and allow for a greater amount of control than a larger knife. In general, all paring knives (with the exception of the bird's beak) can be used for basic utility work in the kitchen.

Paring knives come in various styles, each with a particular function:

Bird's Beak - for peeling any round fruit or vegetable such as an apple or orange. The bird's beak parer is also good for intricate work like fluting or other precise carving.

Chef's - use as a miniature cook's knife.

Sheep's Foot - this unique parer has a straight cutting blade. Works well for peeling and paring food.

Wavy Edge - use to cut a crust or skin with a soft inside. Perfect for tomatoes.

Clip Point (Granny) - use to perform tasks like removing eyes from potatoes or pits from olives. Also good for peeling fruit and vegetables.

Paring/Boning - use to remove meat from bones and other detailed cutting jobs.

Boning Knives

The boning knife is an ideal kitchen knife for removing meat from bones and cutting fish or poultry. Boning knives can have different widths of blades as well as varying stiffness.

The curve of the blade offers greater control when making precise cuts.

Use a narrow boning knife on ribs and chops to cut easily through bone and cartilage.

Use a wide boning knife for chicken and pork.

Use a curved boning knife for a better working angle when cutting close to and around the bone.

Chef's Knives

The Chef's knife is one of the most used kitchen knives and can be used for everything from chopping to slicing fruits and vegetables. Most chef's knives have a broad blade that curves upward towards the tip to allow to rock for fine mincing. The spine of the blade is thick to add weight and strength. Many chef's knives with have a bolster, or metal collar, between the blade and handle. The bolster helps prevent the knife from slipping.

Chef's knives come in blade lengths of 6, 8, 10, and 12 inches. Longer blades can be more difficult to control, but make for faster cuts. Shorter blades allow for greater control, and are generally suited to chefs with small hands.

Carving and Slicing Knives

Carving and slicing knives are generally used for slicing meats. These knives usually have long blades that allow for cleaner cuts, and pointed tips. One exception is the roast beef slicer that has a round tip. Slicing and carving knives can be 8 to 14 inches long, and have thinner blades than chef's knives. The thinner blade means chopping with a carver or slicer can damage the knife; a sawing motion is ideal for cutting with one of these knives. A long blade allows large pieces of meat to be cut into clean, even slices. Some slicing and carving knives will also have a granton edge.

Bread Knives

The bread knife is thick-bladed knife used for cutting loaves of bread. Bread knives generally have 8 to 9 inch blades with serrated edges for cutting through thick, hard crust. The serrations on a bread knife are very deep, and are too large to cut fruits and vegetables effectively.

Santoku Knives

The Santoku knife is the Japanese version of the chef's knife. The santoku is excellent for chopping vegetables and the wide blade works well for scooping sliced food off a cutting board. The santoku can also be used to slice meat, and has a narrow spine for making thin cuts. The wide blade

can be used to scoop diced vegetables or other ingredients into a pot or bowl and is also good for crushing garlic. The curved blade helps the rocking motion used for chopping food, and a santoku can be used on most ingredients such as fruit, vegetables, and even meat. Some santoku knives will also feature a granton edge.

Cleavers

The cleaver knife is wide-bladed, thick-spined knife that can be used to cut through meat or poultry bones. The cleaver uses its weight to cut through tough food with a chopping motion. The thick, heavy blade on a cleaver is not meant for slicing, but its width makes it ideal for pulverizing meat, or crushing seeds or garlic.

Chinese Cleavers

The Chinese cleaver knife is wide-bladed, narrow-spined knife that can be used to chop through meat and vegetables. It can also be used to remove meat from bones, and like the santoku is good for scooping ingredients into cookware. Chinese cleavers are good for tenderizing meat and crushing garlic, and other tasks that involve slicing. A Chinese cleaver should not be used to split bones since the blade is thinner.

Utility Knives

Utility knives are mid-sized knives used for miscellaneous cutting. The blade is anywhere from 4 to 7 inches, larger than a paring knife but not as large as a chef's knife. The utility knife is good for cutting larger vegetables and sandwich meats that are not large enough for a chef's knife. These knives can come in plain and serrated edges, and are sometimes referred to as "sandwich knives".

Tomato Knives

The tomato knife is similar to the bread knife except it is smaller and the serrations are finer. The blade will have a serrated edge for easily cutting through tough skin and a forked tip for picking up slices of food.

Maintenance of blades

Blades are generally four types of materials:

1. carbon steel,
2. stainless steel
3. titanium alloy or titanium composite
4. ceramic

Carbon steel blades will require the most maintenance of all of the blade types. Because carbon steel blades have a low chromium content the blades will tarnish.

Stainless steel. Stainless steel as in a kitchen sink will not rust but it will also not take or hold an edge, stainless steels that will harden and hold an edge are more likely to spot with water, bleach, and caustic detergents. If they are cleaned and dried properly and promptly, they should not need to be oiled as would carbon steel knives and will not generally spot with rust. Stainless steel kitchen knives should not be put in a dish washer regardless of what the manufacture direction recommend.

Dish Washer - None of these knives regardless of type should be washed in a dish washer! A dish washer uses extremely hot water and caustic detergent, the wash cycle vibrates the edges against other silver ware, dishes and the baskets of the washer dulling fine edges, and the drying cycle uses very hot circulating heat and air. This combination can and will cause handle rivets to pop, edges to dull, and de-lamination of all wood and most synthetic laminate handles. The high extremes of heat and chemicals will spot stainless steel and destroy any edges. It is too violent an environment for your fine cutlery.

Maintenance of edges

is a subset of the blade

1. Sharpening, for sharpening see our page on sharpening knives
2. Cutting surface, see our page on cutting boards
3. What you cut

What you cut, is as important as where and what you cut with. I shouldn't have to mention these simple facts but I have seen enough messed up kitchen knives that I guess it must be mentioned. Kitchen knives are thin, precision instruments designed to cut fruit, vegetables, and meat. They do not work well for prying can lids, prying frozen foods apart, cutting cardboard, whittling wood, digging weed from the yard, etc, etc, etc. They were designed to cut food and that is the only thing they should be used to cut.

Maintenance of handles

Handles are generally made of three materials and usually have one of three constructions.

Materials

1. wood
2. metal
3. synthetic

Wood handles requires the most work. Wood handles are absolutely beautiful when new and absolutely horrible a few months later if not maintained properly. Wood falls in to two categories, natural whole wood handles and laminated handles. Whole wood handles are slabs of wood straight off the tree cut and fit to

tang. Laminated wood handles are thin strips of wood that are glued together much like plywood. Whole wood handles if not maintained will split, crack, shrink, dry out, pop rivets, and produce splinters. They are easy to maintain with a few simple steps. Do not soak wood handles, clean and scrub with hot water, do not under any circumstance put them in the dish washer and every month or so depending on use, re-oil the handles with a light mineral oil, or oil that is designed for use on wood that comes into contact with food. Laminated handles are much tougher than whole wood but they too can be ruined by long soaks in water or subjected to the extremes of a dishwasher. Laminated wood handles are generally fine if washed, not soaked, dried, and kept out of the dishwasher.

Metal handles should be treated much the same as stainless steel blades, wash dry, keep out of the dish washer, dry on the drain board. They are almost trouble free except for spotting that can occur if they are soaked or put in the dish washer. If they look dingy, a scrubbing with metal polish will re-shine shiny areas.

Synthetic handles are almost trouble free. As with everything else, keep them out of the dish washer, synthetic handles will melt if they get close enough to the dish washer drying element or the stove burner. Most of the new high tech plastics are pretty tough, I recommend fully enclosed handles as they seem to stand up better than the riveted styles on some of the cheaper mass merchant brands.

Storage can be considered a maintenance item

Storage how you keep your knives when not in use can be considered a maintenance item. Knives that are crowded in a kitchen drawer can be nicked and chipped from impacting on other knives and reaching to get them may especially be hazardous if edges or points are in the wrong orientation. Storage in a drawer is ok if you keep blade protectors or savers on the knife edges. Protective covers, cover and protect the knife edges from impacting other knives and from impacting your hand and fingers.

Knife storage in wooden block can also be satisfactory, however if you have young children keep the block well away from the counter edge so small fry can not reach up and pull a full block of razor sharp knives on to their heads. Also knife blocks that have the blades facing down may dull your edges as you pull the knife out and its edge drags along the block holding slot. Some blocks orient the edges horizontally and reduce some of the risk of dulling your sharp edges. One last thing to consider, never put dirty soiled knives back in the block until they are thoroughly cleaned, bacteria may set up a presence in the resulting dirty slots

CUTTING BOARD

1. Cutting boards protect your expensive counter top from damage resulting from the sharp edge of the kitchen knife.
2. They also protect the edge of the knife from damage from the counter top (at least in the example of a wood cutting board).
3. They can be used to handily move the chopped or cut food to a skillet or pot, keeping most of the mess in a small easy to clean area.
4. They can be easily cleaned and disinfected in the kitchen sink.

What kind of cutting boards are available?

The most common and popular cutting boards fall into two groups;

1. Plastic
2. Wood

What are the advantages and disadvantages of the different type boards?

1. Plastic boards are; lightweight, inexpensive, and not quite as prone to staining as wood. Disadvantages are, they easily cut and nick, they will soon destroy your knife's sharp edge, and can readily harbor bacteria once nicked and scuffed.

2. Wood - very edge friendly, will not unduly dull your knife's sharp edge. Wood has a porous structure with a unique wicking action that will actually kill surface bacteria by removing the moisture from the surface. Disadvantages are they require more maintenance, should not be put in the dishwasher nor soaked in water, they are heavier, and more expensive than plastic.

Which to use, Wood or Plastic?

Cutting Boards have been the subject of much debate when it comes to cleanliness and infection prevention. We have researched several articles on the relative safety of wood versus plastic boards. The one conclusion that we see over and over (in current research) is that they are both safe if cleaned regularly and properly. If they are both safe and you the user take the time to clean and properly disinfect the board, then it is our opinion to opt for the wood boards because they do not destroy the edge of your knives like many hard plastic boards will very quickly do.

Also it is a very good idea to have more than one board, one exclusively for vegetables and one specifically for meats. Two boards help prevent cross contamination of the raw meat preparation with the vegetables and salad. Two cutting boards is one more way to keep the meal safe from bacterial contamination.

How does one sanitize cutting boards?

The one universally agreed upon method of cleaning and sanitizing both wood and plastic boards is as follows. First a thorough scrubbing with warm soapy water - be sure to remove all food particles, oils, grease, and residue. Secondly a mixture of water and bleach solution (one tablespoon of liquid chlorine bleach in one gallon of water) to completely disinfect the surface area all around. Thirdly and importantly let the board completely dry.

Cuts of vegetables/meats/fish

Objectives: At the end of this lesson you shall be able to

- explain the cuts of vegetables
- describe the various cuts and folds of fish
- explain the cuts of chicken.

Cuts of vegetables

Here are the traditional cuts and whilst these definitions may vary slightly, these are the accepted generalisations.

Brunoise

This is a very small diced cube, sized between 1 - 3 mm square. It is often used as a garnish for consommé. Typical vegetables used are carrot, onion, turnip and celery.

Chiffonade

Finely sliced or shredded green leafy vegetables, usually lettuce or spinach, which is used as a base, garnish or in soups.

Jardinière

A long thin baton, about 2 cm long and approximately 3 mm wide and 3 mm thick. In more recent times these are often slightly larger, but this depends on end use.

Julienne

Long thin match-stick shaped pieces about 4 cm in length.

Macedoine

This is diced cube, 0.5 cm (5 mm) square, which is larger than the brunoise cut. Typical vegetables used are carrot, onion, turnip, beans and celery.

Matignon

Roughly cut vegetables, normally including carrot, onion and celery, which are cooked in butter with ham, thyme and bay leaf. Cooking is finished by deglazing the pan with Madeira. Matignon vegetables are used to add flavour when cooking large pieces of meat. Thin even slices of vegetables used as a base to place the meat on when roasting.

Mirepoix

A mixture of roughly chopped vegetables which are used as the base of sauces or to enhance the flavour of meat, fish and shellfish dishes. Normally onion, celery and carrot are used and these are slowly cooked in butter until they are very tender. Thyme and bay leaves are often added.

Paysanne

This cut may be either squares, triangles, circles or half rounds. In order to cut economically, the shape of the vegetable will decide which shape to choose. All are cut thinly, about 1 - 2 mm thick.

Cuts and Folds of Fish

Fillet

A fillet is a boneless cut such as a side of salmon or a fillet of sole



Suprême

A supreme is a slice cut off a fillet, sometimes cut at a slant. This cut is now commonly called a pavé which means 'a slab or block' and usually applied to cake or dessert - but now is fashionably applied to fish!



Darne

is a cut of steak of round fish cut on the bone



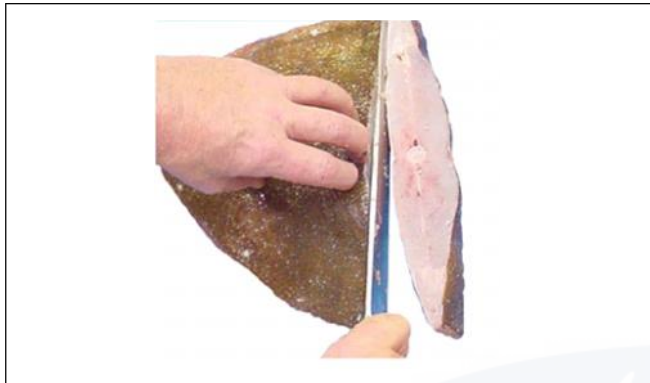
Goujon

a strip of fillet usually pané (floured, eggwashed and breadcrumbed)



Tronçon

is a cut of steak of flatfish cut on the bone



Paupiette

is a stuffed roll of fillet



Cravatte

is a fillet tied in a knot



Délice

is a neatly folded fillet



Colbert

The backbone and bones are removed leaving the fillets attached to the head usually either Sole or Whiting.



Colère

the fish is skinned, eyes, gills and fins removed, it is panéed and the tail bent around into the mouth this is usually associated with whiting



En Lorgette

the cleaned and skinned fish is filleted leaving the fillets attached to head and then each fillet is rolled towards the head - again usually associated with whiting



En tresse

Plait of three different types of fish



Cuts of chicken

The location of the cut of chicken determines texture and flavor; this can make the difference between whether it's suitable for grilling, braising, using as an ingredient in chicken salad, or serving with velouté (or other mother sauces).

To get you better acquainted with the cuts and their best uses and to heighten your food and cooking prowess, here's a primer on the different cuts of chicken.



Whole chicken

What it is:

Just what it sounds like: the whole bird. Well, usually minus the head. Whole chickens can be purchased fresh or frozen.

How to cook it:

Roasted chicken is an absolute classic, and there are many variations, from rotisserie-style to bacon-wrapped. Another popular method of cooking whole chicken is in a slow cooker. A whole chicken can also be broken down into the other cuts listed, in which case, the cooking methods are virtually unlimited, including grilling, braising, frying, baking and broiling.

What is an "eight piece cut"?

The whole bird is cut into two breast halves with ribs and back portion, two wings, two thighs with the back portion, and two drumsticks. They can also be sold as "whole cut chicken." These are usually sold without giblets.

One cooking method that works for just about any part of the eight piece cut of chicken is braising. This slow-cooking method not only maximizes the flavor of chicken, but keeps it nice and moist, too.



Half chicken

What it is:

The whole chicken is split from front to back through the backbone and keel, resulting in two basically mirror-image halves.

How to cook it:

Like a whole chicken, this is a great cut for roasting, but be careful to not let it dry out. Unlike a whole chicken, it's more manageable size makes it well suited for other cooking methods, such as grilling, too.



Breast quarters

What it is:

A cut that includes a portion of the back, the breast and the wing.

How to cook it:

Your favorite method of cooking a chicken breast will work with the breast quarter. Roast it, grill it, bake it. But don't

overdo it. Because it is all white meat, watch for methods that may dry out the chicken, such as baking. It can be done, but you may consider basting to add moisture.



Split breast:

A breast quarter with the wing removed, which may come with or without a portion of the back.

Boneless, skinless chicken breast:

A split breast which has been deboned and skinned. It can be grilled, pan-fried or baked. Sliced, it's great for sandwiches - fancy them up by putting them on homemade artisan bread. Since it is white meat and doesn't have the fat from the skin to contain juices, watch any cooking method to prevent the chicken from drying out.



Whole chicken wing

What it is:

An all-white meat portion of the chicken, with three sections: the drumette, mid-section and tip.

How to cook it:

This is a versatile cut, but keep in mind that since it is all white meat, it contains lower fat, so it is more prone to drying out. So be sure not to overcook.

Wing Drumettes

What it is:

The portion of the wing between the shoulder and the elbow.

How to cook it:

Another common cut they can be grilled, braised, baked or broiled among many other things.



Wing mid section

What it is:

Also referred to as the "wing flat" or "mid-joint," this is the section between the elbow and the tip.

How to cook it:

Probably its most famous use? Buffalo wings. This cut is very versatile though: it can also be broiled, baked or grilled.

Variation:

You can also purchase the "wing mid section with tip," which includes the flat center portion and the tip of the wing.

The tip itself typically is discarded; it's not a common cut to ask for alone.

Whole chicken leg

What it is:

The combination of both drumstick and thigh in one unit. How is it different from the leg quarter? It doesn't include a portion of the back. The whole chicken leg is available bone-in and with skin, or boneless and skinless.

How to cook it:

With the thigh and the leg, these are great braised or grilled. Given their balance of fat and flavor, they are also particularly delicious when fried.

The boneless, skinless version is best cooked with moisture, as it can dry out without the added fat and protection of the skin. Marinate and grill or bake, or braise it for tasty results.



Thighs

What it is:

The portion of the leg cut above the joint of the knee. Typically available bone-in with skin, or boneless and skinless.

How to cook it:

Being a more "worked" muscle, the thighs are well suited for braising, which softens the chicken and maximizes the thighs' rich flavor. Grilling is another popular method of cooking chicken thighs. They can be baked, but with care: especially the boneless and skinless variety can dry out if cooked too long. Shoot for an interior temperature of 165 degrees F.

Drumsticks

What it is:

The lower portion of the leg quarter - between the joint of the knee and the hock.

How to cook it:

Drumsticks can be prepared in a variety of ways. They are well suited to braising, grilling or even baking



Giblets

What it is:

Want the offal truth? "Giblets" refer to the edible offal of the chicken, including the heart, gizzards, liver. Often, the neck is included. If you buy a whole bird from a butcher, they will frequently include the giblets in a sealed bag right in the bird, similarly to how Thanksgiving turkeys are sold.

How to cook it:

The giblets aren't so much eaten straight except by very adventurous eaters, but are a valuable ingredient in many recipes. Giblets add rich flavor to stuffings, stocks and sauces, notably giblet gravy. There's even a French stew called alicot in which giblets are a key ingredient.

Croquettes

A mixture of potato with ground cooked meat, fish or poultry formed into balls, patties or other shapes and coated with a breading before frying.

Croustade

Bread piece dipped in butter and baked until it is crisp.

Croûte

Crust. Sometimes refers to a pastry crust, sometimes to toasted or fried bread.

Croûtons

Small cubes of fried, or recooked bread used as a garnish in salads and soups.

Dariole

A small cylindrical mold used for the creation of baked desserts.

Déglacer

To deglaze, or loosen the browned juices and fats from the bottom of a frying pan or saucepan by adding liquid, then bringing to a boil and stirring. The liquid is usually water, wine or stock.

Dégorger

To extract juices from meat, fish or vegetables, usually by salting them, then soaking or washing. It is usually done to remove a strong taste.

Dépouiller

To skim off the skin that accumulates at the top of a stock or sauce.

Duxelles

Finely chopped raw mushrooms, used as a stuffing. Sometimes combined with chopped ham or scallops.

En croute

Wrapped in pastry and then baked in an oven.

Entrecôte

Sirloin steak.

Entrée

The term used to refer to something served before the main course but is used now to refer to the actual main course.

Entremet

A dessert or sweet - but does not include pastries.

Escalope

A thin, boneless slice of meat.

Farce

Stuffing.

Flamber or Flambé

To set an alcohol - usually brandy - on fire.

Frappé

Something that is iced, or set on or in a bed of ice.

Fricassé

A stew made from poultry, meat or rabbit that has a white sauce.

Glace de Viande

Reduced brown stock used to add color and flavour to sauces.

Gratiner or Au Gratin

To sprinkle the surface of a cooked food with breadcrumbs and butter, and sometimes cheese and left brown under heat. The finished food is referred to as au gratin as in au gratin potatoes.

Hors d'Oeuvre

The first course or appetiser.

Jardiniere

Vegetables cut into batons - similar to julienne but thicker.

Julienne

A standard Julienne cut is 4mm x 4mm x 5cm, or 1/2 x 1/2 x 2 inches. 1/8th of an inch is approx. 3mm, but these sizes do vary.

Jus or Jus de Viande

A French word loosely translated into "juice", but has a more specific meaning than the translation. In French cookery it is primarily a sauce made by diluting the pan juices of a roast with liquid then boiling it in the roasting pan until all of the sediment has absorbed into the stock. Also used to describe thickened or clear brown stock, especially veal. The juices squeezed from raw vegetables or fruits are also referred to as "jus."

Jus Lié

Thickened gravy.

Liaison

Ingredients used for thickening sauces, soups or other liquids.

Macédoine

A salad of small pieces of mixed vegetables or fruit.

Marmite

French word for a covered earthenware container for soup. The soup is both cooked and served in it. Not to be confused with the product Marmite!

Mirepoix

A mixture of braising vegetables, usually celery, carrots and onions.

Mise en place

Mise en place translates as "putting in place", as in getting all your preparation in place - tasks like washing mussels, peeling and preparing vegetables or weighing out some of the ingredients in advance.

Moulè-à-manqué

A cake tin that is wider at the base than at the top and only about 2cm or 1inch in depth.

Napper

To coat, mask or cover with something.

Noisette

The word literally means " hazelnuts ", but can also refer to something being nut brown in colour. For example, beurre noisette is butter browned over heat until it becomes a nut brown color. It can also refer to boneless rack of lamb that is rolled, tied and cut into rounds.

Nouvelle Cuisine

A term that refers to the style of cooking that features lighter dishes with lighter sauces and very fresh ingredients.

Panade

A very thick mixture usually made from a combination of flour, butter, and milk that is used as a base for dishes such as soufflés and fish cakes.

Papillote

A wrapping of parchment paper around fish or meat used for cooking. The paper is used to retain moisture.

Parisienne

Refers to potatoes molded into balls with a melon scoop, and fried or roasted.

Pâte

A basic mixture or paste - often refers to uncooked dough, or pastry.

Pâté

A paste made of liver, pork or game.

Paysanne

Vegetables cut into thin slices.

Pâtisserie

A sweet or pastry, it also refers to a cake shop.

Piquer

To insert fat, such as bacon into meat or poultry.

Portfeuille

A French term describing dishes in which the food is stuffed, folded, or placed in layers. Common preparations of this type are omelets, gratins, or stuffed chicken breast.

Poussin

A young chicken.

Quenelle

Quenelle is a minced fish or meat mixture that is formed into small shapes and then poached. It also refers to the shape that the minced mixture is made into.

Ragoût

A stew

Réchauffée

Reheated food.

Repere

Flour mixed with water or egg white and used to seal pans when cooking food slowly. Often used when cooking a ragoût.

Revenir

To quickly fry meats or vegetables in hot fat to warm them through.

Rocher

A rocher, or one-handed quenelle, is a way to give a beautiful oval shape to a homogenous mass of food - like ice cream, sorbet or even beef tartare. The shape is formed by scooping with one spoon and smoothing it with the other (usually the spoons are warm if its a cold mass).

Roux

Melted butter to which flour has been added - used as a thickener for sauces or soups.

Rouille

A garlic and oil emulsion used as flavouring.

Sautoir

A deep frying pan with a lid - used for recipes that require fast frying then slow cooking.

Terrine

A Pâté or similar mixture of minced ingredients is baked or steamed in a loaf shaped container.

Timbale

A dish cooked in a mold that is higher than it is wide and has sloping sides.

Velouté

A type of sauce made from butter, flour, cream and stock.

Vol-au-vent

A large pastry case made of puff pastry that is usually used as a container for creamed dishes, such as creamed chicken.

Understanding fishes

Marine and fresh water fish were an important part of mans diet long before the cultivation of vegetables or the rearing

of poultry and other domestic animals. Fish provides vitamins and protein, and were easy to catch and prepare – it is even likely that a large proportion was eaten raw. In Egypt, fish was abundant and cheap, cheaper than even bread! Even in early history, people of the Iberian peninsula were catching fish like anchovies and sardines and exporting them to as far away as Asia Minor. In Europe, pike provided both sport and food and in 17th Century Scotland, salmon was so common that it was forbidden by law for employers to give their workers salmon more than three times a week. Carp, a fish that was often reared in ponds and lakes in Europe, the Middle East, China and Japan often provided inspiration for cooks and poets alike! The most valuable fish of all time is the herring, which still constitutes 1/3rd of the worlds catch, approx. 20 million tons. Cod, mackerel and tuna follow close behind.

The introduction of refrigerated air transport in the 1960's precipitated a revolutionary change in the fish industry. This made fresh fish available anywhere a jet could fly. Another revolutionary change in the fish industry is aquaculture. Although it has been practiced in limited forms for centuries, it has expanded widely only in the last few years. Fish is still regarded as an important source of food for man. One cubic acre of ocean can produce 3,000 pounds of edible product, which far exceeds the capacity of an acre of tillable soil. Trout, salmon, shrimps and prawns are now being widely cultivated. Consistency of flavor and texture is a benefit of farmed fish.

Composition & structure

The edible flesh of fish, like that of meat and poultry, consists of water, protein, fats, small amounts of vitamins and minerals. The differences are however more important than the similarities. Fish has very little connective tissue. Therefore:

1. Fish cooks very quickly.
2. Fish is naturally tender.
3. Cooked and uncooked fish must be handled very carefully or it will fall apart.

Classification of fish

Fish and seafood may be grouped into categories by their structure. Depending upon the structure, the method of cooking the various categories of fish will also vary. There are hundreds of varieties of fish all over the world but only a few are acceptable for human consumption.

How to select fish

The following points must be borne in mind while buying fish:

- There should be no unpleasant fishy odor.
- The fish should look fresh and shiny.
- The gills under the dorsal fin should be red, not gray in color.
- The tail should be stiff (you should be able to hold small fish upright!).

- The flesh should be firm and not flabby.
- No impressions should be left when touching the flesh.
- The scales if any should be plentiful.
- The eyes of the fish should be bright and shiny and not sunken.
- If a piece of a large fish is involved, it should not be falling off the bone.
- The flesh of a large piece of fish should not be discolored and yellowish.

In the case of Shell fish:

- They should preferably be bought alive.
- If not, they should be heavy for their size.
- The eyes of crustaceans must be bright and protruding.
- The tail of prawns, shrimp and lobster should be springy and not limp.
- Bi valves such as oysters and clams should be tightly shut.

Storage of fish

Ideally, fish should be consumed as fresh as possible to retain its flavor and texture. However, most fish can be frozen for later use but only after cleaning it of all internal organs. Freezing must take place at 0 F) and must never be re frozen after defrosting. For very short?(-18 C. ?time storage, fish must be stored at refrigerated temperatures of 3-5 Fish should be cooked soon after cleaning and marinating. Certain fish such as clams need special storage (in salt water). Proper attention must be paid to the storage of fish, as it tends to deteriorate and spoil very quickly. When storing fish in the refrigerator, take care that other foods such as milk do not absorb the fishy odors!

Cooking of fish

Boiling:

Can be done to obtain a court bouillon or when the fish needs to be flakes for a salad or for cutlets.

Steaming:

Is ideal for large fish and to retain nutritive value.

Grilling:

Usually oily fish is good for grilling, as it possesses natural fats.

Frying:

White fish and be pan, shallow or deep fried normally with a coating.

Baking:

Is suitable for medium and large fish and can be stuffed.

The cuts of fish

- Fillet
- Darne
- Troncon

- Supreme
- Goujons
- Delice
- Paupiette
- Roulade
- En tresse & En lorgnette

Nutritive value of fish

Doctors suggests that fish, instead of meat, should be used as the protein source several times a week because of the possible benefits of fish oils for coronary artery diseases.

Fish is a high-quality protein. Fish and shell-fish contain about 19% protein that is similar in amino acid composition to that found in muscle meats. The content varies from 1 to 20% depending upon the species and the season of the year. This is a substantially lower fat content than beef.

Fish contains protein of high biological value, essential minerals, vitamins and fats. Shellfish and salt-water fish are rich in iodine and fluorine, in addition to appreciable traces of cobalt, and for that reason make a valuable contribution the diet.

Fish is also a satisfactory source of magnesium, phosphorus, iron and copper. Shellfish generally have a higher calcium and iodine content than fish. Herring and oysters are exceptionally high in zinc.

A serving of fatty fish such salmon, mackerel and sardine will supply about 10% of the daily allowance of Vitamin D. The natural oil found in canned fish should be used, since it too is valuable source of these vitamins. An average serving of either fatty or lean fish will supply about 10% of thiamin, 15% riboflavin and 50% of the niacin required daily.

Fish and shellfish have high levels of poly-unsaturated fatty acids (PUFA), especially Omega-3 fatty acids, which tend to lower blood cholesterol by depressing low density lipoprotein (LDL) concentration Omega-3 fatty acids appear to also reduce levels of plasma triglyceride, in particular very low density lipoprotein (VLDL). The mechanism by which PUFA in diet lowers plasma lipid, especially cholesterol, is unclear.

Fish and shellfish are excellent source of easily digestible protein of high nutritional value. Tests have shown that 85% to 95% of the protein is assimilable.

Based on these facts, it is recommended that fish should be used as the protein source, instead of meat, several times a week because of the possible benefits of fish oils for coronary artery disease. Studies have indicated that by consuming more fish and oils (such as salmon or mackerel), cardiac mortality can be reduced and possible underlying coronary atherosclerosis improved. Fish also contains important vitamins and minerals

Fish is an excellent source of the B vitamin niacin (Niacin assists in the functioning of the digestive system, skin, and nerves. It is also important for the conversion of food to energy) and B12 (Vitamin B12 is critical to building DNA and RNA, the maintenance of the nervous system, fatty

acid synthesis, homocysteine metabolism and energy production), and in general is a better source of Vitamins D and A than beef, pork or chicken. The Vitamin D is vital for the formation of bones. Fish can also contribute appreciable amounts of dietary calcium, iron and zinc, nutrients that tend to be low in people's diets. Fish is among the best sources of dietary selenium.

Fish and allergies

A food allergy is an immune system response to a food that the body mistakenly believes is harmful. Once the immune system decides that a particular food is harmful, it creates specific antibodies to it.

The next time the individual eats that food, the immune system releases massive amounts of chemicals, including histamine, in order to protect the body. These chemicals trigger a cascade of allergic symptoms that can affect the respiratory system, gastrointestinal tract, skin, or cardiovascular system.

At the present time, there is no cure for food allergy. Avoidance is the only way to prevent a reaction.

Allergic reactions to fish and shellfish are commonly reported in both adults and children. It is generally recommended that individuals who have had an allergic reaction to one species of fish or positive skin tests to fish avoid all fish. The same rule applies to shellfish. If you have a fish allergy but would like to have fish in your diet, speak with your allergist about the possibility of being challenged with various types of fish.

Fish-allergic individuals should be cautious when eating away from home. They should avoid fish and seafood restaurants because of the risk of contamination in the food-preparation area of their "non-fish" meal from a counter, spatula, cooking oil, fryer, or grill exposed to fish.



French culinary terms

Objectives: At the end of this lesson you shall be able to

- understand and explain the French words most commonly used in cookery.
-

Allumette

The allumette measures approximately $\frac{1}{2}$ in/2 mm by $\frac{1}{2}$ in/2 mm by $2\frac{1}{2}$ in/6 cm inches. It's also the starting point for the brunoise.

Bain-marie

A roasting pan or baking dish partially filled with water to allow food to cook more slowly and be protected from direct high heat. Used for custards and terrines.

Batonnet

Batonnet translates to "little stick". The batonnet measures approximately $\frac{1}{4}$ in/5 mm by $\frac{1}{4}$ in/ $\frac{1}{2}$ mm x $2\frac{1}{2}$ -3 inches or about 8cm. It is also the starting point for the small dice.

Bavarois

A creamy pudding made with cream and eggs, then set using gelatin.

Beignets

Small dollops of dough that are fried - very much like fritters.

Beurre Manié

Butter and flour mixed together in equal parts and used to thicken stews, soups, and casseroles.

Beurre Noisette

Browned butter.

Bisque

A smooth, creamy soup made from a base of shellfish stock.

Blanch

To place fruit or vegetables in boiling water so the skin can be removed more easily.

Blanquette

A stew made from meat that has not been browned or fried. Usually refers to stews made of lamb, chicken or veal.

Bouchées

Small puff pastry cases with a savoury filling, usually served as an Hors d'Oeuvre.

Bouillon

A broth or stock, usually a meat, some vegetables and a bouquet garni boiled in water.

Bouquet Garni

A mixture of fresh herbs tied together with string and used to flavour stews, soups etc. It refers to a mix of parsley, bay leaf, thyme (and sometimes celery stalk). The bouquet is removed before serving.

Brule

To burn a food to caramelize the sugar on a food's surface.

Brunoise

Vegetables cut into very small diced pieces, based on a julienne cut, but just turned 90° and diced.

Canapé

An appetizer consisting of a small bread or biscuit base covered with a flavoured topping such as Pâté.

Cartouche

Cartouche is a French term which basically means "scroll" or "packet." It's a paper lid that is used to slow down the reduction of moisture in cooking. A lid only lets a little moisture escape, whereas using no lid lets lots of moisture escape.

Chapelux

Browned breadcrumbs.

Chaud-froid

A French term describing a dish that is first cooked and then chilled for service.

Chiffonade

Rolling up herbs, or leafy greens like spinach and cutting them into very fine shreds.

Chine

To remove the backbone from a rack of ribs.

Choux

Choux Pastry, or Pâte à Choux, is a light pastry dough made from butter, water, flour, and eggs. Instead of a raising agent its high moisture content creates steam during cooking to puff the pastry. Amongst others, choux pastry is used to make profiteroles, croquebouches, and éclairs.

Compote

A dessert consisting of fruit stewed in a sugar syrup, originates from the 17th century.

Concassé

A French term for rough chopping ingredients - usually referring to tomatoes.

Consommé

A richly flavoured, clear soup. To achieve this, egg whites are added and the soup is simmered to allow the impurities to be skimmed off.

Coulis

A thick sauce usually made from one main ingredient, such as raspberry coulis.

Court Bouillon

Flavoured liquid used for cooking fish.

Crêpes

Very thin pancakes.



Methods of cooking and its effects

Objectives: At the end of this lesson you shall be able to

- describe transfer of heat to food
 - explain effect of heat on food
 - describe ways to cooking food
 - describe dry ways of cooking
 - explain medium of fat
 - describe roasting
 - describe paper bag cooking
-

Methods of cooking

Transference of heat to food

All methods of cooking depend on one or more of the following principles.

Radiation

Heat passes from its source in direct rays until it falls on an object in its path such as in grilling.

Conduction

This is the transferring of heat through a solid object by contact. Some materials for example metal used for pans, transfer heat more quickly than wood used for wooden spoon. Conduction is the principle involved in the solid electric ranges.

Convection

This is the movement of heated particles of gases or liquid. On heating, the particles expand, become less dense and rise. The colder particles sink to take their place, thus causing convection currents which distribute heat, this principle is used in heating a gas oven and in the heating of the liquids.

The effect of heat on food

Protein

It coagulates in heating. Over heating makes it tough, unpalatable and shrunken. For example when heat is applied to egg white, it thickens, becomes opaque and then firm. This characteristic coagulation of protein when heated is employed in its use as a coating for deep and shallow fried foods and in the development of crust in bread formed by the protein gluten in wheat.

Carbohydrates

MOIST HEAT on starch causes the starch grains to soften and swell. Near boiling point the cellulose framework bursts, releasing the starch which thickens the liquid.

DRY HEAT causes the starch to change color from creamy white to brown and after prolonged heat will carbonize and burn. Water is given off during heating and the starch on the surface is changed to dextrin, a form of sugar, as in toast.

MOIST HEAT causes sugar to dissolve in water more rapidly in hot water than in cold. On heating it becomes syrup; on further heating it colours, then caramelizes and will eventually turn to carbon and ash.

DRY HEAT causes sugar to caramelize quickly and burn.

Fats

They melt to oils when heated. Water is given off with a bubbling noise as heating continues when all the water has been driven off a faint blue haze appears; further heating will result in smoking and burning. The unpleasant smell of burning fat is caused by the presence of fatty acids.

Vitamins

VITAMIN A and CAROTENE are insoluble in water so they are not lost by moist methods of cooking, such as boiling and steaming, or by soaking. Therefore boiled vegetables contain same amount of carotene as raw vegetables.

VITAMIN D is not destroyed by heat or lost by solubility.

THIAMINE (VITAMIN B1) is very soluble in water and about 50% will dissolve in the cooking liquid. High temperatures e.g. pressure cooking, destroy VITAMIN B1 and alkali (Baking powder) will cause some destruction.

RIBOFLAVIN (VITAMIN B2) is soluble in water and will dissolve out in the cooking liquid; some is lost in normal cooking but more losses occur in pressure cooking.

NICOTINIC ACID (NIACIN) is soluble in water and dissolves to some extent in the cooking liquid. It is stable in the presence of heat but is easily oxidized, which means that the chemical process of the products is adversely affected by taking in oxygen.

VITAMIN C is lost or destroyed very easily in cooking. It is soluble in water. Vitamin C oxidizes to form a substance which is useless to the body; to minimize oxidation cook with a lid on. Food containing Vitamin C should be cooked for short periods and must be used as fresh as possible.

Methods of cooking

Moist (Medium of liquids)

1. Boiling

Definition

It is the cooking of prepared foods in a liquid at boiling point. This could be water, court- bouillon, milk or stock.

Purpose

The purpose of boiling is to cook food so that it is:

- Pleasant to eat with as agreeable flavor
- Of a suitable texture, tender or slightly firm according to the food.
- Easy to digest and safe to eat.

Effects of boiling

Gentle boiling helps to break down the tough fibrous structure of certain foods which would be less tender if cooked by other methods. Cooking must be slow in order to give time for the connective tissue in tough meat to be changed into soluble gelatine., so releasing the fibres and making the meat tender. Gentle heat will ensure coagulation of the protein without hardening.

Advantages of boiling

- Older, tougher, cheaper joints of meat and poultry can be made palatable and digestible.
- It is appropriate for large scale cookery and is economic on fuel.
- Nutritious, well- flavoured stock can be produced.
- Labour saving, as boiling needs little attention.
- slowly in cold liquid brought to the boil and allowed to boil gently:
- Helps to tenderize the fibrous structure(meat), extracts starch(vegetable soups) and flavour from certain foods(stocks)
- Can avoid damage to foods which would lose their shape if added to boiling liquid e.g whole fish.

b) Adding food to boiling liquid:

- Seals in the natural juices as with meat.

2. Poaching

Methods

There are two ways of poaching: shallow and deep.

- Shallow poaching. Foods to be cooked by this method, such as cuts of fish and chicken, are cooked in the minimum of the liquid, that is, water, stock milk or wine. To prevent the liquid boiling, bring to the boil on top of the stove and complete the cooking in a moderate hot oven, approximately
- Deep poaching: Eggs are cooked in approximately 8cm of gently simmering water. Whole fish, e.g salmon: slices of fish on the bone e.g turbot, grilled cod, salmon and whole chicken may be deep poached.

Effects of poaching

Poaching helps to tenderize the fibrous structure of food, and the raw texture of the food becomes edible by chemical action.

Temperature & time control

Shallow poaching is just below simmering point (and may be carried out in an oven);

Deep poaching is just below gentle simmering.

3. Stewing

Purpose

Because stewing is both economical and nutritional, cheaper cuts of meat and poultry, which would be unsuitable for roasting and grilling, can be made tender and palatable. Stewing also produces an acceptable flavour, texture and eating quality.

Effects of stewing

In the slow process of cooking in gentle heat the, the connective tissue in meat and poultry is converted into a gelatinous substance so that the fibres fall apart easily and become digestible. The protein is coagulated without being toughened unlike boiling, less liquid is used and the cooking temperature is approximately 5 degree Celsius lower.

Temperature & time control

The ideal cooking temperature for stewing on top of the stove is approximately 82 degree Celsius.

4. Steaming

Methods of steaming

Atmospheric and low pressure steaming?

- Direct: in a steamer or in a pan boiling water (steak and kidney pudding);
- Indirect: between two plates over a pan of boiling water

Advantages of steaming

These include:

- High-pressure steaming enables food to be cooked or reheated quickly because steamed is forced through the food, thus cooking it rapidly;
- Labour saving and suitable for large scale cookery.
- High speed steamers used for batch cooking enable the frequent cooking of small quantities of vegetables throughout the service, keeping vegetables freshly cooked retaining colour, flavour and nutritive value;
- With steamed fish, the natural juices can be retained by serving with fish making the accompanying sauce;
- Steaming is economical on fuel as a low heat is needed and multitiered steamer can be used.

Temperature & time control

For high pressure steaming, foods should be placed in the steamer when the pressure gauge indicates the required degree of pressure. This will ensure that the necessary cooking temperature has been reached.

Cooking times will vary according to the equipment used and the type, size and quality of food to be steamed. Manufacturers' instructions are an essential guide to successful steaming.

5. Braising

A method of cooking food in a closed vessel with very little liquid at a low temperature and for a long time. Braising is used mostly for tougher cuts of meat, certain vegetables (cabbage, chicory (endive), artichoke and lettuce) and large poultry.

Braising is also a method of cooking certain firm fleshed fish (monkfish, carp, and salmon): the fish is poached in the oven, in a small amount of liquid containing herbs, and basted during cooking.

When cooking was carried out directly on the hearth, braising meant cooking slowly in hot embers. The cooking container had a lid with the rim on which embers. The cooking container had a lid with a rim on which embers could be placed, so that heat came from both above and below.

Dry heat methods

1. Baking

Methods

Baking with heat modifications: placing food in a container of water (bain-marie), such as baked egg custard, modifies the heat so that the food cooks more slowly, does not overheat and lessens the possibility of egg mixture overcooking.

Effects of baking

Chemical action caused by the effect of heat on certain ingredients, such as yeast and baking powder, changes the raw structure of many foods to an edible texture.

Advantages of baking

- A wide variety of sweet and savoury foods can be produced
- Bakery products yield appetizing goods eye-appeal and mouth-watering aromas.

Temperature & time control

Accurate timing and temperature control are essential to baking. The required oven temperature must be reached before each additional batch of goods is placed in the oven. This is known as recovery time.

2. Broiling

A method of cooking by intense heat, the nourishing juice being sealed into the meat by the crust formed on the surface. The fuel traditionally used for grilling in France is small charcoal, when thoroughly alight, is spread out to form a

bed in grill pan with a well regulated draught. This bed of charcoal varies in depth according to the size and kind of meat to be grilled. Nowadays there are also gas and electric grills, both of which are very good and extremely practical.

The grill must be scrupulously clean and heated before the meat is laid upon it or under it. The food to be grilled must be basted with clarified butter, oil, or fat, and seasoned. Meat should be gently flattened and trimmed before cooking.

Fish should be scored with a knife, well coated with butter and oil and seasoned. Fish which is rather dry has a tendency to stick to the bars of the grill, and should therefore be floured before being coated with butter or oil. This will form a covering which will enable the fish to cook without becoming dry. Turn grilling meat or fish over once or twice during cooking, and baste frequently with the butter or oil, using a brush.

Grilled food is ready when it resists pressure if lightly touched with the finger tip. Tiny pinkish droplets appearing on the browned surface are another indication that the fish is properly cooked. Grilled white meat should be less browned than red meat and a less intense heat should be used. Grill fish at a moderate heat, and baste frequently.

Grill poultry fish if it is to be cooked in breadcrumbs. When three-parts cooked, cover with butter or oil and roll in the breadcrumbs.

Medium of Fat

1. Grilling

Barbecuing

This is grilling on preheated, greased bars over a fierce heat (gas, charcoal or wood).

Effects of grilling

Because of the speed of cooking there is maximum retention of nutrients and flavour. Grilling is only suitable for certain cuts of best quality meat; inferior meat would be tough and inedible. The effect of fierce heat on the surface of the meat rapidly coagulates and seals the surface protein, thus helping to retain the meat juices. Grilled meats lose less of their juices than meat cooked by any other method provided they are not pierced with a fork while cooking.

General rules for effective grilling

- Smaller, thinner items require cooking quickly.
- Seal and colour food on the hot part of the grill then move to a cooler part to complete cooking.
- Basting of food and oiling of bars prevents dryness.

2. Deep frying

Methods

- Protect the surface of food from intense heat;
- Prevent the escape of moisture and nutrients;

- Modify the rapid penetration of the intense heat.
- Partial deep frying is known as blanching.

Effects of deep frying

Deep frying of items coated with milk or egg seals the surface by coagulation of protein, with minimum absorption of fat.

Advantages

- Blanching or partial cooking, enable certain foods to be held for cooking later, which helps during busy service and saves time.
- Coating foods enables a wide variety to be cooked by this method.
- Foods can be cooked quickly and easily handled for service.
- Coated foods are quickly sealed, thus preventing the enclosed food becoming greasy.

Temperature and time control

Timing is important: if thicker pieces of food are being cooked, the temperature must be lowered to allow for sufficient cooking time otherwise the food will be overcoloured and undercooked. The reverse is also true: the smaller the pieces of food the hotter the frying temperature and shorter the cooking time.

General rules

- Never overfill fryers with fat or oil or food to be cooked.
- When using free standing fryers without a thermometer never allow smoke to rise from the fat; this will give a disagreeable taste and smell to food being fried.
- Reduce frying temperatures during slack periods to conserve fuel
- Restrict holding time to a minimum – fried food soon lose their crispness.
- Oil and fat should be strained after use, otherwise remaining food particles will burn when the fat is next heated thus spoiling the appearance and flavour of the food.
- Always cover oil or fat when not in use to prevent oxidation.

Safety

- Always only half –fill fryers with fat or oil.
- Never overload fryers with food.
- Dry foods, such as potatoes, thoroughly before frying, otherwise they will splutter and cause burns.
- Always place food carefully in the fryer away you. If it is added towards you, hot fat could splash and burn.
- Always have a frying basket and spider to hand in case food is required to be lifted out of the fryer quickly. A combination of the fats being too hot, fat almost ready

for discarding and the food being damp can result in the fat boiling over. If it is freestanding friture on the stove then there is a risk of fire.

- Move free-standing fryers with great care so as not to jar them spill fat on the stove.
- Ensure that correct fire prevention equipment is to hand and that you are familiar with the fire drill procedure.
- Keep sleeves rolled down at all times when handling fryers.
- Use clean, dry, thick, sound cloths when handling fritures.
- Allow fat to cool before straining.

2. Roasting

Cooking meat, poultry, game or fish by exposing it to the heat of a naked flame or exposing it to the heat of a naked flame or grill (spit-roasting) or to the radiant heat of the oven (oven roasting).

Spit roasting is considered best, but it is more difficult. Some cooks consider that oven-roasted meat is spoiled because it is subjected to humidity it is a mistake to add water to roasting pan, because when this evaporate it tends to give a boiled taste to the meat .to ensure that the roast does not dry out or get to brown, particularly when it is to be cooked for a long time, it may be barded .the other preliminary processes are interlarding and larding. Many joints can also be stuffed before roasting.

Whichever method is used, the meat is first exposed to a high heat, which produces a surface crust and concentrates the juice inside the meat, conserving all its flavour .the meat should not be pierced while it is cooking or the juice will run out. The cooking temperature will depend on the type and the size of the joint.

Spit roasting

The intensity of heat must always be proportionate to the type of meat to be cooked : red meat , full of juices, should first be seized and then cooked at a steady heat to make sure that it is cooked right through .for white meat and poultry ,the heat must be regulated so that the inside is cooked without outside getting to brown .the meat should be basted frequently with the fat which collects in the dip tray ,but not with meat juices underneath the fat cooked in this way ,the meat will be tender and a good colour.

Tandoor

Method

Meat (small cuts small joints), poultry (small cuts and whole chickens) and fish, such as prawns usually placed vertically in the oven. No fat or oil is used. The food is cooked quickly and the flavour is similar to that of barbecued food. The distinctive flavour of tandoori-cooked food comes from both the marinade and the cooking process.

Over roasting

The meat should be put into a very hot oven to seal the surface .it should rest on a rack ,to keep it out of its own fat and juices ,and should be basted as for spit-roast meat.

If roast beef, mutton, and game are to be served rare, a few drops of deep pink blood should be basted as for spit-roast meat.

If roast beef ,mutton and game are to be served rare ,a few drops of deep pink blood should be emitted when the surface is lightly pricked :for a medium-rare roast ,the blood should be pale pink .with veal young lamb and pork ,the juices should run clear .poultry should be lifted from the pan tilted over a plate :it is done when the juice runs out clear: if there are still traces of pink ,the bird is not sufficiently cook .

As a rule, a roast should be served, with its strings and barding removed, as soon as it is taken out of the oven or off the spit: in the case of red meat however, it is better to leave the roast to rest for a few minutes in a warm place before serving .the meat then easier to cut.

The accompanying gravy is made by pouring into the roasting pan either a little water or a light stock and scrapping and mixing in all the juices and bits adhering to the pan. Some of the fat is poured of f the gravy is then served separately in a sauce boat with a special spout which retains the remaining fat when the Gravy is poured.

Pot

Pot roasting is cooking on a bed of root vegetables in a covered pan. Known also as poele, this method retains maximum flavour of all ingredients. When pot roasting, place the food on a bed of root vegetables and herbs, coat generously with butter or oil, cover with a lid and cook in an oven. Cheaper cuts of meat are usually pot roasted.

Advantages

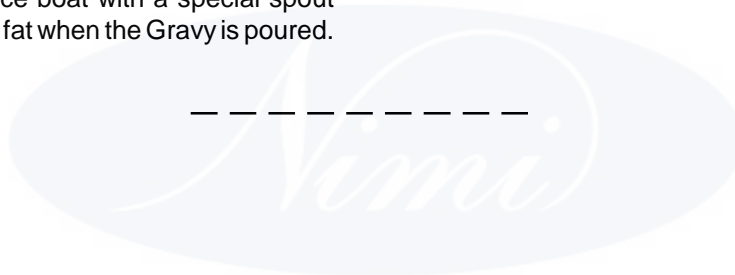
- Maximum flavour retained
- Retains nutrients
- Cheaper cuts of meat can be used
- Vegetables used in pot roasting can be served as an accompaniment

Disadvantages

- Slow method of cooking

Paper bag cooking

Known as papillotte, this is method of cookery in which food is tightly sealed in oiled grease proof paper or foil so that no steam escapes during cooking and maximum natural flavour and nutritive value is retained.



Menu Planning

Objectives: At the end of this lesson you shall be able to

- **describe about menu planning**
 - **describe about different types of menus**
 - **describe about types of establishment**
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Menu Planning

Menu planning means to compose a series of dishes for a meal. Composing a good menu is an art and it needs careful selection of dishes for the different courses. So that each dish harmonies with the other.

The planning of meals in commercial catering establishment is based more on economic considerations and reputation than on the desire to provide nutritionally “balanced diets”. The dishes produced are intended to please the eye and the palate. The planning of menu for school feeding, industrial canteens, hostels, etc. has a different aspect and nutritious and well-balanced foods are compiled.

There are some rules in the gastronomic laws which must be observed if one is to obtain success. As a badly compiled menu will spoil the complete meal. Menu should provide nutritious food, tempt the appetite, and satisfy the guests.

It is essential to have knowledge about the sequence of courses in Western menus, because for Indians menus all the dishes are served at one time in a thali. The modern trend is to give about 4 to 6 courses and a list of various courses has been given. This is to enable one to choose from the sequence.

Sequence of Courses

1. Hors d'oeuvres
2. Soups –thick or clear
3. Fish
4. Entrée
5. Releves
6. Sorbet
7. Roasts/Grills
8. Vegetables /Salads
9. Sweet
10. Savoury
11. Dessert (fresh fruits, nuts)

Coffee (Not a course)

There are different types of menus: Table d'hôte, Carte de jour, A la Carte, special party menu for banquets, buffets, parties formal and informal.

Table D'hôte Table of the Host

A fixed menu planned for a complete meal at a fixed price. It is a meal of three or four courses with a limited choice of dishes, and it is cooked in advance. It is changed daily or may be used in rotation. It is set in the classical sequence starting with hors d'oeuvres or soups and so on. Leftover food items could be used for this type of menu as it helps to economize.

Carte De Jour Daily Card

There is sometimes an insert in a à la Carte menu, which comprises a few special dishes of the day to vary the la Carte menu for regular customers. Some establishments have a set pattern for their Carte de jour, e.g.

Roast Chicken Monday

Fish and Chips Tuesday

Curry and Rice Wednesday

A La Carte by the Card

To your choice

A la Carte means the presentation of a long sequence of dishes and courses. Each dish is individually priced. Dishes are cooked to order and the portions are larger than a table d'hôte menu. The customer has a wide choice and should be prepared to wait for this service.

Many dishes and sauces are prepared in advance except for the final finishing touches and cooking.

This type of menu is normally permanent, until either prices or change of management makes it out of date.

Banquet

Usually the menu is composed for a number of people and it is necessary to know the reason for the banquet. It is usually a formal affair and dishes should be compiled to suit the occasion. The dishes chosen should be such that will not require last minute dressing. The menu is elaborate and of a high-class quality. It is fixed menu with no choice. It is not usual to include farinaceous or eggs and stews. The service as a rule is faster and takes the following form:

First Course Fruit cocktails, smoked salmon, hors d'oeuvres, or soups.

Second Course Fish-Fish Bonne Femme, Fish Duglure, etc. but without the complicated garnishes.

Third Course Entrée (excluding stews and rechauffe dishes) roasts grills or cold meats with vegetables and potatoes or salads.

Fourth Course Sweet dishes with emphasis on the hot variety, or Bombes.

Fifth Course Cheese and biscuits.

Coffee Always served.

Buffets

There are two main types of buffets, e.g. the Light Buffet and the Fork Buffet (lunch and supper). This buffet table is attractively displayed. The food served is colourful and attractive, tastefully decorated. A large variety of dishes are offered for everyone to choose.

Light Buffets are given for various reasons to augment a long function i.e. late in the evening, also could be given for tea dances and supper dances.etc.

The Fork Buffet will also provide a variety of dishes and the food item can be easily eaten with a spoon or fork, while standing. The popular dishes chosen are chicken mousse, balloting, terrines, salads, etc. A list of dishes that can be offered for buffets are – savoury finger toasts, cold or hot canapés, chipolata, sausages, cheese, game chips, patties, sandwiches, smoked salmon, eggs, ham, trifles, jellies, fruit salads, ice-cream, pastries, gateaux, etc. Coffee, tea or punch.

The modern trend is buffet lunches or dinners. The elaborate well-decorated dishes are displayed. The price is fixed. Western and Indian dishes are displayed together and the guests can take both or either. The dishes displayed are –

Salads, soups, roasts, fish fried, vegetables, ragouts, fricassees, potato dishes and puddings of different kinds. The Indian dishes are pulaos, biryanis, kormas, roghanjosh, jhalfareze, bhajees, bhurtas, raitas, papads, pickles, salads, nans, bhaturas, cholc, tandoori chicken, seekh kababs, etc.

Cocktail

The main ingredients are actually drinks. Very tiny savoury snacks are served such as stuffed olives, gherkins, walnuts, gamechips (wafers) salted almonds, chipolata, sausages, bacon rolls, cheese fritters, cheese straws, canapés bouchees, shami kababs (small), mini seekh kababs, aloo ki tikkis, chiwdas, sev, etc.

Points to Consider When Planning Menus

1. Type of meal

The different types are – Breakfast, luncheon, dinner, supper, tea, etc.

Breakfast

There are three types – Continental, English, and Indian.

Continental --- It is a light breakfasts, comprises brioche, bread, croissants or French loaf, jam, jelly or marmalade and coffee or tea.

English --- It is on a larger scale and comprises fruit – fresh or stewed, cereals, bacon and eggs to order, or fish, preserve, breads and beverages.

Indian --- Popular breakfast comprises stuffed parathas and curd or potato bhajee and poories, or besan cheelas curd or dosas and chutney and pickles, and beverages like tea, coffee, lassi or milk.

Luncheon Menus

Menus are usually shorter than dinner with fewer courses and simpler dishes but more choice within each course. The emphasis is placed on stews, roast joints, grilled meats, cold buffets, and steamed puddings. Luncheon is a quick affair and dinner taken more leisurely. A six-course sequence of dishes is given:

Sequence of Dishes

- First Course - Appetizer – Fruit or Shellfish cocktails, delicacies such as caviar, oysters, etc. Smoked fish or hors d'oeuvres.
- Second Course - Soup – Thin or Thick soups.
- Third Course - Fish – Without complicated garnishes. The fish could be steamed, grilled or fried.
- Fourth Course - Meat/Chicken – Stews, Blanquettes, fricassees, goulash, cutlets, rechauffe dishes, braised or roasted meat. Served with vegetables and potatoes. Salads can also be served.
- Vegetables – A choice of vegetable dishes is given for vegetarians such as augratin, cutlets, vegetable bombe, Kiev's, etc.
- Fifth Course - Sweet – Hot puddings, pancakes, pies, flans, milk puddings, ice-cream, fruit salads, bavaois, cold soufflés, etc.
- Sixth Course - Dessert – Fresh fruit, nuts, etc.
- Coffee

Dinner Menu

Dinner menus comprise highly garnished, classical dishes. Here one has a scope of showing one's skill of compiling menus with a choice of the most esteemed and rarest and exotic of dishes. Large joints could be carved in the restaurant in front of the customers or flambé dishes could be served. Balance must be perfected throughout the long complicated number of dishes.

Dinner Menu Courses

- First Course - Appetizer –Cocktail, caviare, oysters, snails, etc. Smoked salmon, foie gras, hot hors d'oeuvres.
- Second Course -Soups – Consommé, cream soups, bisques, bortsch, etc.

- Third Course - Fish – Deep poached salmon, trout with sauce and garnishes. Coquilles St. Jacques (shellfish cooked with sauce served in a shell), grilled lobster, lobster thermidore. Fish meuniere with garnish for sole turbot, trout, salmon, and Fried whitebait. Cold fish always in aspic.
- Fourth Course - Entrees/Relevés – Tournedos, noisette, vol au vents, large joints, chicken poele, grilled beef fillet, chicken en casserole, encocotte, served with vegetables and potatoes.
- Fifth Course - Sorbet – In a long menu, diners refresh their appetite with a light sherbet, flavoured with champagne or liqueur.
- Sixth Course - Roast – Roast game and poultry served with a salad.
- Seventh Course - Sweet – Cold or hot – soufflés, pancakes, crepe Suzettes, Melba ice cream, baked Alaska.
- Eighth Course - Dessert – Fresh fruit and nuts.
- Coffee

Indian Menu

There is no difference between lunch and dinner menus. All the courses are served together on a thali. A list of Indian dishes is given to make the planning of menus easier:

Meat - Chicken Jhalfraizie, chicken badam, pasanda chicken, tandoori, gosht kaliya, korma, roganjosh, keema matar, mutton koftas, pork vindaloo, mutton bafat.

Fish Dishes - Fish patiala, patiya, masala machi, machi jhal, Goan fish curry.

Vegetarian - Malai kofta curry, aloo dum Bhojpuri, paneer jhalfraizie,

Dishes paneer pasanda, paneer matar.

Lentil dishes - Rajma shahi, sabut urad dal, makhana, khatte chole, Peshawari chole, besan kadhi, sambhar, amti.

Sukhi sabzi - Aloo matar, bhindi masala, karela stuffed, brinjal, Patiala, aloo and tomato, beans foogath.

Raitas - Mint, potato, tomato and onions, boondi, bhallas and gunjia.

Rice dishes - Tomato and coconut pulao, zer biriyani, Kashmiri pulao, keema pulao, lime rice, curd rice, aloo ki tahari, pea pulao, etc.

Indian bread - Nans, parathas, roomali roti, tandoori roti, bhaturas, kulchas, etc.

Supper

A full buffet is given for supper. All the dishes are very well decorated, giving a good display.

2. Type of Establishment

Menus will vary according to the type of establishment:

- 1) Hotels
- 2) Restaurant
- 3) Hostels
- 4) Hospitals
- 5) Industrial canteens

The menus for restaurants and hotels will be A la Carte, Buffet, Banquet, or Table d'hôte. The dishes will please the eye and palate and will be determined by the customers' appetite and pocket. On the other hand the hostels, hospitals, and canteens will have a set pattern and will offer meals to provide nutritionally balanced diets within a limited budget. As there will be no choice and food will be eaten daily, a variety given will minimize the monotony and food preference must be seen.

3. Type of Customer

Customers can affect the type of food served because of the following factors: age, sex, and occupation. The young boys will need substantial meals whereas the young girls would prefer dainty and small-portioned dishes. A group of farmers, who are used to eating well, will need a good quantity of food, and the emphasis will be on palatability and wholesome food.

4. Season of the Year and Availability of Ingredients

Season is important in the choice of food. Cool, crisp and fresh foods are ideal in summer. For the cold weather, heavier, richer foods high in calorific value are welcomed. Although in these days of cold storage foods are available all year round, foods in season should be included in menus, as they are fresh, plentiful, and the colour and flavour are good. They are available at a reasonable price. Foods selected should be easy to obtain locally.

5. Occasion

Special dishes for certain days or time of the year should be considered. For example, roast turkey at Christmas, special eggs for Easter, halwa for Baishaki, sweet rice for Basant, sheer kurma for Id, are the seasonal and occasional expectation.

6. Capabilities of Kitchen Staff

The kitchen staff's capabilities have to be seen, whether they will be able to cope with the high class cookery, whether they are experienced and have skill and the knowledge. If the staff is not capable, it will be difficult to produce good meals. Equally important is the serving staff, if they are efficient, the well-dressed and garnished dishes could be served in a neat and presentable manner. If the waiters are untrained, the selection of dishes should be given if the waiter is highly skilled.

7. Equipment of the Kitchen

While planning the menu, it is important to see that the kitchen is well equipped as to be able to cope up with the preparation of various dishes. Care should be taken to see that the method of cooking is not repeated otherwise certain equipment's would be overloaded.

8. Price of Menu

Always give value for money. The food cost should not exceed 40% of the selling price at an average, e.g. if the food cost per head were Rs. 2/- then the suggested selling price would be –

$$5 \times 100 = \text{Rs. } 5/-$$

$$\text{Cost of food} \times 100 = \text{Selling price of dish from } 100 = \text{food percentage}$$

Gross profit subtracted

The proposed charge per head is obviously an important factor to consider for selecting food for any menu. If the price of the meal is Rs. 10/-, expensive items cannot be considered. If asked to produce meals for a good price, say over Rs. 30/- per head, then good value for the price charged, should be given.

9. The Balance of Menus

This is particularly important, when compiling menus and special menus, the following points should be considered.

- a) Repetition of Ingredients: The basic ingredient on the menu should never be repeated, as it becomes monotonous. For example, if the soup is of tomatoes, then the tomatoes should not reappear in any other course on the same menu. When using classical garnish in any other course on the same menu, see that any vegetable, which is included in the garnish, is not repeated as a vegetable.
- b) Repetition of colours: Wherever it is possible, this should be avoided to make the menu exciting. If the menu consist of celery soup, fricassee of chicken, turnips and creamed potatoes, vanilla ice-cream, which is all white, is bound to look dull.
- c) Repetition of Words: Avoid the repetition of the same word on the menu as it seems the planner has a limited knowledge and makes the menu less interesting, e.g.
 - Cream de tomate
 - Fried fillet of sole
 - Grilled fillet steak
 - Creamed potatoes
 - Fraisse à la crème
- d) Avoid Overbalance of Menus: If many courses are served, then care must be taken to ensure that they are neither too light nor too heavy.

e) Texture of the Courses: Some food should be soft whilst other food should require thorough chewing. Avoid menus with same texture. Offer food with varied texture. E.g.

- Cream of tomato soup
- Roast chicken
- Buttered peas, game chips
- Baked Apple Flan

f) Seasoning: Do not over season the food. If strong herbs are used in one dish, never repeat them in another dish in the same meal

g) Garnishes: Must be correct. Garnish attractively and simply.

h) Food Value: Special attention should be paid to the different requirements of different groups of people. The manual worker requires more substantial food than an office worker. Meals served to children, old people, invalids, adolescents, and expectant mothers should be nutritionally balanced.

i) Colour: Sensible use of colour in dishes will give them an "eye appeal". Deep vivid colours should be avoided. Drab looking dishes can be improved by an attractive, colourful garnish.

j) Wording of Menus: When compiling menus, the following points must be considered:

- 1) Select language, which the customer can understand.
- 2) If the menu is in French, give English translation.
- 3) Never use a mixture of languages for the courses of a menu
- 4) Spelling of the words should be correct.

In the past few decades, people ate in restaurants occasionally to celebrate a special event such as an anniversary, a birthday, or an achievement. It was an outing to look forward to, and if one indulged, it did not matter as these outings were rare.

Today, the scenario is different. Eating out has become a way of life. Education and employment has taken many of us away from home, and the mother's role now has an added responsibility of contributing to the family income. Modern day compulsions have made eating out a necessity. No longer does one find time for the traditional fare of yesteryears and depends on the caterer for the following:

1. Food for festivals and celebrations
2. Meals at the work place
3. Ready-to-eat meals picked up on the way home from work
4. Snacks and sweetmeats for daily consumption

5. Preserves, pickles, papads, etc.
6. All meals served in institutions such as hospitals, school/college cafeteria, mess or dining hall, and boarding schools.

The number of reported cases of diabetes, hypertension, obesity, heart attacks, etc. is on the rise and so is the number of meals consumed away from home. This is not surprising because if one indulges practically every day, it is bound to result in ill-health because of malnutrition. The caterer's role has become more significant as the responsibility now lies with the caterer for planning nutritionally adequate meals. Menu planning is the key to overcoming this problem.

DEFINITION

Menu planning is defined as a simple process which involves application of the knowledge of food, nutrients, food habits, and likes and dislikes to plan wholesome and attractive meals.

The caterer who is responsible for providing meals has to decide on various aspects such as:

1. Menu
2. Serving size
3. Food cost
4. Suppliers and quantities to be purchased
5. Standardized recipes to be followed
6. Type of service
7. Meal timings
8. Clientele

The aim of menu planning is to:

1. Meet the nutritional needs of the individuals who will be consuming the food
2. Plan meals within the food cost
3. Simplify purchase, preparation, and storage of meals
4. Provide attractive, appetizing meals with no monotony
5. Save time and money
6. Minimize overhead expenditure, i.e., fuel, electricity, water, labour.

Menu planning is the most important aspect of planning and organization in the food industry. It is an advance plan of a dietary pattern over a given period of time.

Menus are of the following types:

Table d'hôte or fixed price menu It includes two or three courses at a set price. Each course may offer a choice of dishes.

A la carte On this menu, dishes are individually priced and the customers can compile their own menu which may be one, two or more courses.

Banquet menus These are special menus for banquets or functions.

Institutional menus Hospital menus, boarding school menus, and Industrial canteen menus.

Menu may be cyclic which means they are compiled to cover a specified period of time. The length of the cycle may vary and is decided upon by the management. A number of menus are set up and repeated. They are often modified to take into account variations, which may arise for a number of reasons.

FACTORS INFLUENCING MEAL PLANNING

Many factors influence the acceptability of a meal. Customers select what appeals most to them from a menu card based on individual likes and dislikes, budget, popularity of items, etc. However, while planning meals the following factors need to be considered.

- **Nutritional Adequacy**

The most important consideration in menu planning is to ensure that the meal fulfils the nutrient needs of the individual consuming the meal. For example, if the meal is planned for an Industrial worker, it must meet the RDAs for that age group. Foods from all basic food groups should be included in each meal so that the meal is balanced and nutritionally adequate. Nutrient needs may be modified for hospital diets (therapeutic diets).

- **Economic Considerations**

The spending power of the clientele has to be kept in mind and meals have to be planned within the budget. Low cost nutritious substitutes should be included in the menu to keep the costs low. The food cost should be maintained, if the organization has to run profitably.

- **Food Service**

Menus should be planned in relation to the type of food service, whether it is cafeteria, seated service, buffet, etc.

- **Equipment and Work Space**

The menu should be planned keeping the available equipment and workspace in mind. Deep freezers, refrigerators, grinders, dough kneaders, deep fat fryers, boilers, etc. should be adequate.

Leftover Food

An effective manager should consider as to how leftovers could be rotated to obtain maximum profit. Adequate storage space and hygienic standards should be ensured to minimize the risk of contamination and spoilage of food.

Food Habits

Food habits of the customer is another important criteria which needs to be considered as food served has to be acceptable to the customer. Special attention should be paid when a particular type of community is catered to. Religious considerations should be known to the meal planner.

Availability

Some fruits and vegetables are seasonal. During the season the cost is reasonable and quality is better. Today, practically all fruits and vegetables are available throughout the year because of advanced preservation technology. However, seasonal fruits and vegetables should be given preference. Regional availability influences menu planning. For example, fish and sea food is fresh and cheaper in coastal areas.

Meal Frequency and Pattern

The meal timings and number of meals consumed in a day, whether meals are packed or served at the table, also influences the selection of food items on the menu. The age, activity level, physiological state, work schedule, and economic factors need to be known before planning meals for institutional catering.

Variety

This is one of the most important considerations while planning meals. A variety of foods from the different food groups should be included. The term variety means

1. Variety in food ingredients
2. Variety in recipe
3. Method of cooking
4. Colour, texture and flavour
5. Variety in presentation and garnish.

A meal should look attractive and be appetizing. A judicious blend of flavours, attractive colour combinations and different textures make food enjoyable and interesting. The method of cooking used for different items on the menu should vary.

For example, two deep fried items would make the meal heavy. Simple processes such as fermentation and sprouting not only contribute to improved flavour and digestibility, but also enhance the nutritive value of the meal.

A well planned meal which is nutritionally adequate would have a good satiety value and prevent the occurrence of hunger-pangs before it is time for the next meal. The nutritional adequacy of a meal in an a la carte service depends on the food choices made by the customer. It is the duty of the caterer to offer adequate, nutrient dense foods to the clients, to choose from.

PLANNING BALANCED MEALS

Meal planning involves proper selection of food to ensure balanced meals. In Chapter 20 on balanced diets we have studied how food is classified into five basic food groups to help us plan balanced diets. We have also read that food can be classified on the basis of its source, the nutrients present in it, or on the basis of its functions into 3 – 11 groups. These food groups help us in planning balanced meals which supply all essential nutrients. In this chapter we will study the three basic food groups classified on the basis of functions performed by nutrients as this is the simplest way to ensure adequate nourishment to the body.

The three main functions performed by food are:

1. Providing energy
2. Body building and maintenance
3. Regulation of body processes and protection against infection.

On the basis of functions performed, food is classified into the following three groups.

1. Protective/regulatory foods
2. Body building foods
3. Energy giving foods

Protective/Regulatory Foods

All fruits and vegetables – green leafy and other vegetables and all fruits are included.

Green leafy vegetables, Rich in carotene and

Orange, yellow and red ascorbic acid. Also

Fruits and vegetables, contain minerals, fibre,

Citrus fruits. And carbohydrates.

Body Building Foods

Foods rich in protein are included in this group. Nuts and oilseeds also provide fats.

All animal proteins Protein, vitamin and mineral

Pulses, nuts and oilseeds Protein, vitamin, mineral, fibre, oils.

Energy Giving Foods

This group provides mainly carbohydrates and fats, along with proteins, some vitamins and minerals, and essential fatty acids. Foods included in this group are :

1. Cereals and millets, Carbohydrate rich roots and tubers. with other nutrients.
2. Sugars and jaggery Only carbohydrates.
3. Fats and oils Mainly fats.

While planning meals one should ensure that foods from all three groups is included in each meal. This classification is simple and easy to use for menu planning.

STEPS IN PLANNING BALANCED MEALS

1. Collect information regarding the customer with respect to
 - Age
 - Gender
 - Activity level
 - Religion
 - Socio-economic background
 - Food habits

2. Check the RDAs for energy and proteins
3. Prepare a food plan, i.e., list number of servings from each food group to meet the RDA.
4. Decide on number of meals.
5. Distribute servings for each meal.
6. Select foods within each group and state their amount.
7. Plan a menu.
8. Cross check to ensure that all food groups are included in requisite amounts.

Using the above steps, plan a balanced diet for a day.

Example : planning balanced meals for college students residing in a hostel.

1. Basic information

Age : 16 – 18 years

Gender : Male

Activity : Moderate

Religion : Hindu

Background : Urban, middle income families

Food habits : Cosmopolitan

2. Recommended Dietary Allowance for

Calories : 2640

Protein : 78g



Stocks

Objectives: At the end of this lesson you shall be able to

- explain stock & its classification
- explain about preparation of stock
- describe about types of stocks
- describe about storage of stocks

Stock, broth or bouillon is used as the basis for most soups, and in many dishes as a flavouring or base (e.g. risotto). Stock is made by cooking ingredients such as meat, poultry, fish or vegetables in water to flavor the water. The ingredients are removed at the end. Because the flavour of the ingredients is the only thing that matters, stock is often made with left over-ingredients and by-products such as bones, that couldn't be used elsewhere.

Stock can be made with a stock cube or extract, but for best results, make your own. If you cannot, a jar of fond (condensed stock) is the next best thing.

Vegetable Stock

Most non-vegetarian stocks will use some amount of vegetables as well, to add depth to the flavor, Home-made vegetable stock will have a relatively weak flavor, but a strong aroma.

The basic ingredients for a vegetable stock are onion, carrot, leek, and celery. It is perfectly possible to make a good stock without any of these, but they are the classic 'backbone' of making stock and almost all vegetable stocks will contain at least two. Other ideas for vegetables are:

- tomato
- bell pepper
- fennel. Be careful, fennel can easily overpower a stock.
- broccoli
- any kind of mushroom will greatly enhance the aroma and flavor.
- garlic
- pepper

Keep the following in mind when choosing ingredients:

1. Do not use beet roots, because they will turn your stock black.
2. About 750 grams/26 ounces of vegetables per liter of stock should suffice.
3. To 'round off' the flavour of the stock some herbs and spices are usually added.

4. Some of these will dissolve (like salt), for others it's best to create a little 'bag' - for example by wrapping the herbs in a leek-leaf with a bit of string - so you can easily fish them out later. Such a bag is called a 'bouquet garni'.

5. Some good herbs to use are:

- bay leaf (about 3 per liter of stock)
- black peppercorns (about 6 per liter of stock)
- salt (a pinch, you can add salt to taste later, this is essential for most stocks)
- rosemary
- thyme

Preparing stock is as simple as putting the ingredients in a pot (preferably large and thick, like a Dutch oven). Pouring over cold water (it needs to be cold). Bringing the water to a simmer and waiting anywhere from 30 minutes to an hour, depending on how much stock you're making, and how strong you want it to be. Do not let vegetables simmer for more than an hour or the flavour will become wilted and sour. Some additional notes:

- Do not chop your ingredients too finely. Just halve or quarter them, so the water can reach the inside of the vegetable as well as the outside.
- Put the peels of onion and garlic in the stock as well. This will help with the color of the stock.
- It's a very good idea, especially with vegetable stock, to caramelize your ingredients first. This can be done by pan frying them lightly in oil or butter, until they turn brown, but the oil will coat the ingredients, which will keep the water out and you'll have to defat the stock later to get the fat out again (if you want a perfect stock). The best way to caramelize your ingredients is to put them in the oven, on a tray, until they start to brown.

The stock should be tasted to see if it's ready. When it is, pass it through a sieve to get rid of the large ingredients. If the sieved stock isn't clear yet, put a wet tea towel in the sieve (or a cheesecloth if you have one) and pass the stock through it again. Instructions for clarifying the stock further and getting rid of the fat are given below.

Fish

Fish stock should generally be made using "white" fish bones like haddock, flounder, cod or snapper, although some Japanese recipes use tuna or similar species for a highly flavored specialized stock. Shellfish stock is generally made the same way as fish stock. Combine fish bones or shellfish shells with cold water to cover and add some diced mirepoix (carrots, celery and onion). Bring to a simmer, skimming as necessary and simmer for 40 minutes. Strain the stock and cool it. There are many options:

- Sweat (cook in hot oil and/or butter without browning, often covered) the bones or shells and mirepoix before adding the cold water. This is called fish "fumet".
- Replace part of the water with dry white wine or vintage dry cider.
- Use white mirepoix (no carrots, add white part of leeks, mushroom trimmings and, optionally, parsnips)
- Add aromatics such as herbs and spices (thyme, bay leaf, peppercorn, parsley stems). These may be added directly to the stock or tied in a cheesecloth (known as sachet d'épices). Add any other aromatics to impart a particular flavor.
- Salt is usually necessary, add toward or at the end, to taste

Poultry

Place the chicken carcass in a pressure cooker or a large saucepan, and add enough cold water to cover. Add some fresh herbs, roughly chopped onion, a carrot and a stick of celery, and bring to the boil. Pan drippings are very good to add, as long as they are not too burned.

If you use a pressure cooker cook at pressure for 30-40 minutes, in a saucepan let the stock simmer very gently for at least three hours (but no longer than four lest the bones cloud the stock and overpower the flavour). Drain the liquid through a sieve into another pan. You can use the stock immediately, or cool it as quickly as possible (stand the pan in a bowl of cold water) and refrigerate or freeze it.

Meat

Beef, mutton and pork broths are made by slowly simmering meat (do not remove gristle - it contains collagen) with vegetables and flavourings. Do not add salt at this stage, it should only be added when the stock is being used in a recipe. Use cold water and warm slowly - this prevents the meat from sealing.

If bones are used in stock they may be roasted and cracked before simmering.

In a pressure cooker broth takes 45-60 minutes, stock with bones 75-120 minutes. If an open pan is used the liquid should barely be moving, and certainly not boiling fast, and times of several hours for broth and 7-10 hours for bone stock are not excessive.

Defatting and Clarifying

To get most of the fat out of a stock, you can simply chill it. The fat will harden and float on top of the stock where it can be scooped off easily. One can also use a fat separator, which is like a big measuring cup with a siphon from the bottom, which allows you to pour the stock out while trapping the fat.

To completely clarify stock, use the following method:

- Beat egg whites to soft peaks, one for each quart/liter of stock.
- Crumple the eggshells and mix them through the egg whites.
- Stir the mixture in to the stock and bring it to a simmer, do not let it boil. The egg-whites will coagulate, rise, and take any particles and cloudiness out of the stock.
- Keep a close eye on the simmer (push the coagulated egg-whites to the side a bit to see) and let it simmer for about ten minutes.
- Remove the pot from the heat and let it sit for another ten minutes.
- Finally, sieve the stock again through a tea towel.

Fond and Consommé

A fond is made by reducing a stock down (gently, stocks shouldn't boil) to about half of its original volume. Fonds can be used as a basis for sauces, or simply to facilitate storage, and turned in to stock again by adding water.

A consommé is made by flavouring stock again with more ingredients and condensing it greatly. Consommé is almost always made with meat. It will usually become gelatinous in substance, because of the collagen in the meat.

Storage

Stock will keep for about a week in the refrigerator. Frozen stock will keep for around six months.

Curry Chicken and Rice

- 3 lb. skinless chicken, cut up medium portions
- 2 lg. potatoes, peeled and quartered or smaller
- 1 tbsp. curry powder
- 3 stalks chives, diced and put aside for garnish
- 1 lg. garlic, crushed and diced
- 1/2 tsp. coriander - Italian seasoning
- Salt to taste
- 1 c. chicken consommé
- 1 pt. plain yogurt or light sour cream
- 1 tsp curry powder

Season chicken and potatoes with 1 tablespoon curry powder, garlic, coriander and salt; mix well. In medium sized Dutch oven, saute chicken and potatoes in light oil or butter until done and golden color. Drain excess fat. In large bowl combine consommé, yogurt and 1 teaspoon

curry powder for sauce; mix well and pour over cooked chicken. Simmer until meat is tender and sauce thickens. Serve over rice and garnish with chives. Use a Mango Chutney as condiment. Serves 6.

Stock is a flavored liquid, which forms the basis of many dishes, particularly soups and sauces. Stock is prepared by simmering particular vegetables or meats along with herbs in water, to extract flavor.

Classification

- Fond de Cuisine (Kitchen Stock); Fond means 'bottom' or 'foundation'.
- Fond de vegetal or Fond de Legumes (Vegetable Stock). Also known as Neutral stock or Fond maigre; simmered for 30-40 minutes.
- Fond Blanc (White Stock) made from chicken, beef or veal bones; simmered for 3 hours.
- Fond Blanc de Mouton : - White Mutton Stock
- Fond Blanc de Volaille: - White Chicken Stock
- Fond Blanc de Veau: - White Veal Stock
- Fond Brun or Estouffade (Brown Stock) made from chicken, beef or veal bones; simmered for 6 hours
- Fond de Poisson or Fumet (Fish Stock) made from non oily fish bones ; simmered for 30-40 minutes
- Fond de Champignon (Mushroom Stock) made from roughly chopped mushrooms ; simmered for 30-40 minutes
- Fond de Gibier: - Game Stock

Culinary Terms Associated With Stock:

- Bouquet garni / Faggot: - A bundle of herbs and aromatics tied within sections of leek with cooking twine and simmered in stock to add flavor and aroma. Can also add celery, fresh thyme, parsley stems and bay leaves.
- Sachet de Epices: - A small cheesecloth sack containing herbs and spices used to flavor stocks, translates literally to "a bag of spices".
- Mirepoix: - Roughly cut vegetables like onions, carrots and celery in the ratio of 50:25:25 respectively.
- Depouiller: - day – poo – yay; This term signifies the process of skimming a stock for the first time while it is simmering.
- De-glazing: - A technique by which liquid is poured into the pan and heated, stirred with a wooden spoon to remove the caramelized residue after roasting the meats and vegetables, and then adding the floating residue to the simmering stock.
- Broth / Bouillon: - When any meat, poultry, game or fish stock is simmered with a fresh round of nutritional and aromatic ingredients, the result is an ultra clear, highly flavored broth.

- Consommé: - Clarified clear stock or broth is known as consommé. Clarification takes place by adding egg whites and minced meat to the simmering stock or broth.
- Aspic: - When a consommé is reduced by 30%, this reduction effectively increases its gelatin content and flavor. Combined with a wine such as Madeira, Port or Sherry, consommé gets converted to Aspic. Aspic is used to coat individually served foods such as pate, poached eggs, cold cuts etc.
- Glazes (Fr. Glaces): - When a consommé is reduced by 90% to such a consistency that it coats a wooden spoon evenly when dipped in the reduced consommé, the final product obtained is known as a Glaze.
- Essences: - An essence is made by simmering a liquid with the addition of an aromatic ingredient. Typically essences are created using celery, garlic, mushrooms, tarragon and truffle. Liquid + aromat are reduced by 75% and the essence is used to impart finishing touches to the particular dish.
E.g. Celery essence is used to finish cream of celery soup.
- Remouillage: - ray – moo – yay; A second stock preparation, prepared using the same ingredients of the first stock. This results in a weak stock but is flavorful than water. It can be used to cook products which require a mild flavor.

Principle Steps During Preparation of Stock

Although the ingredients are simple and the method simplistic, you must use great care. This is a base from which you will create a wide variety of dishes, so the stock must be right. As with any other preparation, you must start with quality stock are:

The four principle steps in producing stock are:

1. Start with cold liquid.
2. Allow natural clarification to occur.
3. Skim carefully.
4. Simmer, do not boil.

Cold liquid to start

Beginning with a cold liquid prevents the sealing of the items. This makes it possible to release the flavours of the food, enhancing the liquid. This is a form of cooking by interchange. The flavours of meat, bones, poultry, etc. are transferred to the liquid surrounding them.

This interchange occurs whether the bones and vegetables are browned or not. However, when they are browned an additional flavour is added. This is caused by the caramelization of the natural sugars, which occurs during browning. It adds a richness of flavour and colour, not achieved otherwise.

Natural Classification

A high quality stock has a clear clean appearance. This requires that it be clarified. Pouring the cooked stock through a fine sieve is not the kind of clarification that we mean here. It is the removal of the many minute particles, which form, in the cooking process. Albumin is a protein complex found in muscles, blood, milk, egg white, and many vegetable tissues, such as leeks. It is soluble only in cold water. Albumin is valued for its property of clarification by coagulation (forming a mass) when exposed to heat. The slower the application of heat, the better the removal of cloudiness from liquid. Bringing stock slowly to a boil gives the albumin time to pass into the solution. As its proteins coagulate, they attract particles in the liquid.

The action is similar to that of a magnet. However, as with the magnet, when disturbed they will drop the particles. Cloudiness normally is the result of stock being boiled for too long and fast over high heat. This extended boiling breaks down the texture of the bone fibers. When this happens, the particles become blended and suspended in the liquid. This makes it difficult, if not impossible, to clarify. A slight amount of cloudiness is normal in stock. The lack of blood in the bones used in stock creates a lack of albumin. There is not sufficient protein to all the particles.

Skimming

As the stock cooks and the albumin coagulates, fat and scum will rise to the top of the pot. It is important to remove all of it. This removal is called skimming, carefully lifting fat and scum from the surface. The mirepoix of vegetables is finely cut for the best flavour extraction. This and the aromatics float on the top of the pot. This can make it difficult to skim properly. To make it easier to skim, add the mirepoix and the aromatics after about $\frac{1}{4}$ of the cooking time has lapsed. The largest accumulation of fat and scum will occur in the early cooking of the stock. Once the mirepoix and aromatics are added, do not skim unless necessary. Let the stock cook undisturbed.

Simmering

This very simple operation is often misunderstood. Improper application of it generates most of the burned stocks and sauces. Simmering is when liquid is hot enough to form small bubbles that rise from bottom of the pan. The bubbles break, just below the top surface of the liquid. As they rise and break a slight turbulence occurs. When the temperature is too high, this turbulence is too great. If the temperature is too low, there is little or no movement in the liquid.

Simmering, when correct, creates a slight roll in the liquid. Simmering is important in the cooking of sauces, when the slight roll of the simmer is not present, the coarser particles and sediments will settle on the bottom of the pan. This creates an insulating layer between the heat and the stock, which will burn. When it burns, it imparts an unwanted burnt flavour to the stock. Too much action in the liquid can harm stock.

The heavy rolling action of a high boil will break up the scum and fat. This makes it difficult to skim the stock. The fast rolling action also does not allow the albumin to gather the fine particles. Improper placement of the pot on the fire can limit the simmering action and make it difficult to skim the stock.

Glaze Uses

Glazes serve four basic purposes in cooking. In most cases, there are advantages to be gained from using a glaze instead of an essence.

1. Glazes give a brilliant shine and moist coating to a finished dish.
2. They reinforce the quality and tone of sauces.
3. Glazes strengthen the flavour and body of preparation made from weak stock.
4. Glazes can act as sauces when used properly buttered or creamed to match the dish they are to be used with.

Court Bouillon

Court bouillon is not actually a stock preparation. However, it is used in a similar manner. It is a flavorful poaching liquid used for fish and shellfish and some other items, such as sweetbreads. A court bouillon is made up of these elements: Aromatics and spices; salt, and liquid. The mixture is not complete in nutritional elements. The flavor of the bouillon is created when fish are poached in it, it is then reduced and added to the sauce or possibly kept for future poaching.

The 7 principles of stock making:

1. Cold water: Cover the ingredients with clean, cold water. Starting in this manner allows the blood and proteins to dissolve. As the temperature rises, the proteins coagulate (solidify) and float to the surface where they can be skimmed off. If they were started in hot water, the proteins would solidify, stick to the bones and then disperse into the stock making it cloudy and "muddy tasting".
2. Simmer, never boil: A stock should be brought to a boil and then immediately reduced to a simmer. (approximately 185 f) at a simmer, the ingredients release the maximum flavor without breaking down into particulate matter. If a stock boils for even a few minutes, the fat will emulsify into the stock and the stock will become cloudy, making for a poor performance, a "muddy taste" and a "greasy" finish. This type of texture will spoil soups and sauces.
3. Skim frequently: Skimming the coagulated masses off the surface of the stock throughout the cooking process, decreases the likelihood of "clouding" the stock.
4. Strain carefully: This involves a china cap set inside of a chinois. In order to use the stock, you must separate the solids from the liquid. While doing so it is important not to disturb the solids in the bottom of the pot.

Use the following procedure:

- A. Skim the fat from the surface
 - B. Remove the stock from the heat and carefully ladle the stock out of the pot without stirring the stock.
 - C. Pour the stock through a china cap set inside of a chinois, into a sanitized metal container.
5. **Cool quickly:** It is of the utmost importance that stocks are cooled quickly and with a minimum amount of agitation.
6. **Store properly:**
Store in a plastic storage container and label the container indicating the contents, date and the session that started the stock. (Ex: 1 dec. /intro am /vegetable barley soup)
Store in the container in the refrigerator. (as the stock chills the remaining fat will rise and solidify, forming the fat cap. The fat cap provides an extra barrier against contamination and aerobic bacterial growth.)
7. **Degrease:** Before using the stock, carefully lift the fat cap off of the surface of the stock, scraping off all the small bits of fat. It is always easier to degrease your stock when it is chilled. All preparations depend on the use of fat-free stocks!

Type of stocks

- White beef stock white stocks should have no color and sometimes use a white mirepoix where carrots are replaced by parsnips and leeks replace half the onions. Blanching the bones is also common. Blanch by bringing bones and water just to the boil then skim the surface and discard the water.
- Brown beef stock brown stocks rely on good color. To achieve this color the bones and mirepoix are caramelized (caramelization is the browning of surface sugars and occurs around 310°) if the color is not right a onion burlee, (burnt onion), is used to darken the stock.

- Vegetable stock
- Chicken stock
- Fish stock

Storage of Stocks

When cooked stocks must be strained and cooled within 90 minutes and stored in a fridge, stocks can be frozen.

All stocks must be re-boiled after storage prior to being used.

Tips on stocks

- Never season a stock.
- Never boil a stock.
- Never add potatoes, swede, turnip etc.
- Always re-boil stocks.

Faults in stock production

Stock cloudy.?

- Incorrect ingredients, poorly prepared.
- Incorrect cooking.
- Stock not skimmed.
- Old stock.

Stock lacks flavour.?

- Incorrect ratio of ingredients to liquid.
- Cooking time too short.

Sauces

Objectives: At the end of this lesson you shall be able to

- describe about sauces & their classification
- state about importance of sauces in food production
- describe about derivatives of basic sauces

Sauces

Sauces are liquids or semi-liquid mixtures. A keen sense of smell, delicate sense of taste, a light, strong hand for the blending-all contributes to the perfect sauce. Long ago, Grimande de la royere, philosopher and gastronome wrote: "the sauce is to culinary art, what grammar is to language." A perfect sauce has a colourful appearance, is glowing in its rich smoothness, its texture is that of velvet, and it has a definite taste. It has a natural flavour and complements the food it accompanies, rather than mask its taste. It provides moisture, colour and shine to food.

Classification of Sauces

1. Mother Sauce

These are the main basic sauces from which all the other sauces are derived.

- Béchamel (classic white sauce) : Sauce consist of milk and thickened with white roux. Béchamel sauce is named after " Marquis Louis de Béchamel"
- Espagnole (brown sauce): Espagnole meaning "Spanish" in French was the original brown sauce and still is one the glories of the French kitchen.
- Velouté(white stock sauce): It literally means velvet. It is a very light blond coloured sauce, made from chicken, fish, or veal stock , thickened with a blond roux.
- Tomato (classic tomato sauce): The traditional French tomato sauce is thickened with a roux.
- Hollandaise (butter sauce): A warm emulsified sauce is based on egg yolk and clarified butter. Hollandaise is French word meaning " Dutch Style". This sauce is a versatile sauce and is served as a topping on a dish and gratinated to give colour.
- Mayonnaise (cold sauce): It is a cold emulsified sauce based on egg yolk. If it is not handled carefully it will separate giving a curdled appearance.

2. Proprietary Sauce

These sauces are industry made.

- Soya sauce
- Worcestershire sauce
- H.P. Sauce
- Barbeque Sauce
- Ketchup

3. Contemporary Sauce

These sauces are simple, less rich and easy to prepare. These are more likely to be specifically tailored to be given food or techniques.

- Beurre Blanc
- Pesto Sauce
- Compound Butter

Importance of Sauces In Food Production

- It provides moisture, colour and shine to food.
- Enhances flavours, Sauce add flavour to the dish.
- Some sauces help in digestion, e.g. Mint sauce, apple sauce etc.
- Add colour to food.
- Enhance nutritional value of the dish.
- Sometimes gives the name to the dish.
- Served as an accompaniments, sometimes gives a contrast taste to another food.
- Dresses and complement food that needs some additional quality and makes the food more palatable.

Thickening Agents

1. Roux

It is a cooked mixture of fat and flour, measured in equal parts by weight (not volume).

The fats to use: Clarified Butter: The best fat. Makes the "cleanest" sauce.

Margarine: Most commonly used in food service, not as good as clarified butter but less expensive with a "butter" taste.

Animal Fat: Use what is appropriate for the dish. Duck fat, however, is mild and can be used with other meats.

Shortening/Vegetable Oil: Leaves a "fuzzy" taste. The melting point is higher so these fats leave tiny particles of "un-liquefied" fat in the sauce and are detectable on the tongue.

There are three basic types of roux, each contain the same basic ingredients but differ in coloration which is a result of the cooking process. The darker the roux the longer it has been cooked

- White Roux
- Blond Roux
- Brown Roux

2. BEURRE MANIE

- This is an equal mixture of Flour & Butter.
- Kneaded together and then whisked into the liquid in small quantities, thickening as it cooks out.
- This is also known as a cold roux or pounded butter.

3. STARCHES

- Cornflour, Arrowroot, Potato Flour, Rice Flour & Barley Flour.
- These are used as a thickening agent.
- Arrowroot & cornflour are the most commonly used .
- The starch must be mixed with cold water before adding to the hot liquid

4. Egg yolks and Cream (LIAISON)

They are used differently in different recipes.

- Breadcrumbs
- Blood: jugged hare
- Agar agar: seaweed
- Gelatin
- Curd etc.

Roux and its types

Among all the classic French techniques, making a roux is not only the simplest, but also the most useful. It forms the base for everything from a creamy mac n' cheese to Cajun gumbo.

Broth or milk is then whisked in, the starch molecules in the flour absorb the liquid, and the whole mixture thickens into a sauce.

Making Roux

The process for making roux is extremely simple. Just place equal parts of flour and fat, (traditionally clarified butter), in a sauce pan and cook over medium heat. There are basically three types of roux which are differentiated by the degree to which they are cooked.

White Roux

White roux is really more of a yellow roux that you basically cook for just a few minutes until the fat and flour are evenly mixed together and start to froth. You want to cook out the raw taste of the flour, but stop cooking the roux before it starts to turn color. White rouxs are used for white sauces that are cream and milk based such as bechamel.

Blond Roux

Blond roux is cooked a little longer than a white roux, just until it starts to slightly turn color. Blond roux is used for white sauces that are stock based, such as veloutes.

Brown Roux

Brown roux is traditionally used for brown sauces, which are sauces based upon brown roasted stocks such as the mother sauce Espagnole. The key to a good brown roux is

to cook it over low heat so that it browns evenly without scorching. Some chefs will even dry roast their flour in the oven first before making it into roux.

A good brown roux will have a rich and nutty aroma, and is great for thickening brown sauces and gravies. Just remember that a dark brown roux will have about a third of the thickening power of a blond or white roux.

Incorporating Roux Into a Sauce or Soup

Roux can be added to a sauce either warm or cold, but never hot. A sizzling hot roux will separate and break when it hits a cold sauce, causing lumps and the loss of the roux's thickening power.

Once the roux is added into the liquid you wish to thicken, whisk vigorously to incorporate and bring sauce to a simmer. Most roux thickened sauces are simmered for at least 20 minutes to cook out any starchy taste created by the flour. During this simmering, it is a perfect time to skim off any scum or fat that rises to the top.

The exact amount of butter and flour varies: the more roux you make, the thicker your sauce. For a thin sauce or soup base, use one or two tablespoons of each for every one cup of liquid you're planning to add. For a thicker base you can bump it up to three tablespoons.

Melt the butter first and then add the flour. It will be clumpy at first, but keep stirring it into a smooth, thick paste.

You only need to cook the roux for a minute or two--you're not actually going for color. Pour the liquid in slowly, whisking constantly to avoid clumps and so the liquid is absorbed evenly.

If you're adding veggies, saute them in the butter before adding the flour.

Keep in mind that the longer a roux is cooked, the more it loses its ability to thicken.

Mother sauces and its derivatives

BECHAMEL SAUCE

Sauce Bechamel is a milk based French Mother Sauce. It is used as a simple base to make popular secondary sauces such as Sauce Mornay, Cheddar Cheese Sauce, or even a simple cream sauce.

Standard Bechamel Recipe

- 4 oz/125 grams white roux
- 1 qt/1 L milk (Any milk will use but whole milk is preferred)
- 1/4 white onion, skin peeled off
- 1 whole clove
- 1 whole bay leaf
- Salt, White Pepper and Nutmeg To Taste
- Start by making a white roux.
- In a separate pot, heat up milk to a simmer.
- Add roux to the milk, making sure that both the milk and the roux are not too hot.

- Whisk the roux and milk together and bring to a simmer.
- Stick your bay leaf to your white onion with your whole clove, and place in simmering milk.
- Simmer for about 30 minutes, and thin with milk if necessary.
- Season with salt, white pepper and nutmeg to taste. The nutmeg should not be prevalent, but instead should add depth of flavor.
- Finish by straining through a chinois.

Bechamel Based Secondary Sauces

Almost any milk or cream based sauce that you will make, will be based on classical Bechamel. Below are some popular secondary sauces that are based on this recipe. Each recipe below is based on 1 qt/1 L of Bechamel sauces

1. Standard Cream Sauce

- Add 4-8 oz of heavy cream, heated or tempered
- Season with salt, white pepper and lemon juice to taste
- Add your favorite herbs and spices to taste
- Strain through a chinois to insure a smooth, creamy texture

2. Mornay Sauce

- Stir in 4 oz of Gruyere and 2 oz of Parmesan cheese, both grated
- Turn off heat and swirl in 2 oz of raw butter
- Adjust consistency with warm milk as necessary

3. Cheddar Cheese Sauce

- 8 oz cheddar cheese, grated
- 1/2 teaspoon dry mustard
- 2 tablespoons Worcestershire sauce
- Stir all ingredients into warm Bechamel until cheddar cheese is melted

4. Simple Mustard Sauce

- Stir in 4-6 oz of good dijon mustard
- Finish off the flame by swirling in 2-4 oz of raw butter
- Strain through a chinois

Mayonnaise and its Derivatives

Like many of the mother sauces, a well made mayonnaise is the base to an endless possibility of cold, emulsified sauces. Although now days there are many good quality commercial mayonnaise available, understanding how to make a mayonnaise is basic knowledge that every cook or chef should have. Not to mention, that with the selection and use of high quality products, fresh made mayonnaise can have a far superior flavor to that of its commercial counterparts.

Some Guidelines for Making Mayonnaise

- Use a blender, food processor or a stand-top mixer with a whisk attachment. Not only will it ensure that your arm doesn't fall off from hand whisking, but the shearing power of these devices is capable of breaking the oil into much smaller droplets, making a more stable emulsion.
- Have both your egg yolks and oil at room temperature before starting. It will make the emulsification process much easier.
- Use the freshest eggs possible, preferably organic from a farmer's market. If cooking for children or the elderly, pasteurized egg yolks are always recommended.

Standard Ratio for Mayonnaise

Mayonnaise is simply a neutral oil emulsified into egg yolks. The ratio for a basic mayonnaise is:

- 1 yolk per 1 cup of neutral oil (canola, safflower, grape seed).

Although many classical recipes call for the addition of other ingredients, egg yolks and oil are all you need to make a mayonnaise. Some additional ingredients that are used to season mayonnaise are:

- Vinegar
- Salt
- Pepper (usually white)
- Dry Mustard
- Cayenne Pepper
- Lemon Juice

Standard Recipe For 1 liter of Mayonnaise

1. 8 egg yolks
 2. 25 ml of vinegar
 3. 1/2 teaspoon salt
 4. 1gm dry mustard
 5. Small Pinch cayenne
 6. 1 lt Salad Oil (canola preferred)
 7. 25ml Vinegar
 8. 1 nos Lemon
1. Put ingredients 1-5 into a blender, food processor with a whisk attachment and mix well.
 2. Very slowly at first, start streaming in your oil, a little at a time until your emulsification starts to form.
 3. Use the 1 tablespoon of vinegar to thin the mayonnaise if it starts to become too thick before the emulsification is complete.

4. Once all the oil is incorporated into egg yolks and the mayonnaise is finished, it should be thick enough to be turned upside down without the mayonnaise coming out of the mixing container.
5. Adjust the final seasoning with the lemon juice, salt and pepper (white, cayenne or black pepper depending on preference).

MAYONNAISE BASED SECONDARY SAUCES

1. Aioli

The difference between mayonnaise and aioli is the simple fact that aioli is made with extra virgin olive oil and has the addition of crushed garlic. So to make aioli, follow the standard recipe above, but instead, substitute the canola oil for extra virgin olive oil and add 1 tablespoon of fresh minced garlic to the egg yolks during the blending/ beating process.

The simplified ratio for Aioli is:

- 1 egg yolk + 1 cup extra virgin olive oil + 1 teaspoon of crushed garlic = Aioli.
- This ratio can be seasoned with lemon juice, salt and pepper to yield a simple and traditional Aioli.

2. Remoulade

Another very traditional mayonnaise based sauce is Remoulade which is traditionally served with fish. To make a traditional remoulade you will need:

- 2 Cups of Mayonnaise
- About 1 tablespoon of good Dijon
- 1/4 cup finely chopped cornichons (Tiny, French, Sweet Pickles)
- Tablespoon chopped capers
- 1 anchovy fillet, finely chopped
- 3 tablespoons chopped parsley
- 1 teaspoon chopped fresh chervil
- 1 teaspoon chopped fresh tarragon

Mix all ingredients together and serve with fish. This is a great dipping sauce for fish and chips!

3. Thousand Island Dressing: 2 cups of mayonnaise, 1/2 cup chili sauce, 1/2 ounce minced onion, 1 ounce finely chopped green pepper, 1 ounce drained pimiento.

4. Louis Dressing: same as Thousand Island with the addition of 1/2 cup heavy cream.

5. Russian Dressing: 1/2 cup chili sauce or catsup, 1 ounce fresh horseradish, 1.2 ounce minced onion.

Espagnole Sauce

Espagnole is a classic brown sauce, typically made from brown stock, mirepoix, and tomatoes, and thickened with roux. Sauce Espagnole is one of the Five French Mother

Sauces, and is the classical precursor to modern day sauces such as Demi-Glace. It goes great with any sort of roasted red meat, and is the base for many popular classic French Sauces including Sauce Robert and Sauce Bordelaise,

Classical demi glace is one part Brown Sauce (Espagnole) and one part Brown Stock (Such as Roasted Veal Stock), combined in a pot and reduced by half. However, modern day menus that list a "Demi-Glace" as their sauce are usually referring to a stock that has been reduced by at least half, or until it coats the back of a spoon. The gelatin contained in the stock itself is what thickens the sauce. No other thickening agent such as roux is used.

Modern chefs prefer "full reduction" sauces over a classical demi-glace because they have a much more intense flavor, and the classical thickening agent of a roux makes the sauce heavy and effects its taste.

Recipe For Classical Sauce Espagnole (Brown Sauce)

- Mirepoix: 4 oz/112g onions, 2 oz/56g celery, 2 oz/56g carrots
 - 2 oz/56g butter
 - 2 oz/56g flour
 - 2 oz/56g Tomato Puree
 - Sachet Containing: 1/2 Bay Leaf, 2-3 Sprigs of Fresh Thyme, 2-3 Sprigs Parsley
 - 1.5-2 qts/1.5-2L Roasted Veal Stock
- 1 Start by roasting your mirepoix over medium heat, in the bottom of a heavy bottom sauce pot with the butter, until the mirepoix turns a nice golden brown.
 - 2 Once your mirepoix has browned, add in your tomato puree and continue roasting for 2-3 more minutes.
 - 3 Sprinkle in your flour, and cook until the flour is well incorporated into the other ingredients (about 5 more minutes).
 - 4 Add your roasted veal stock and sachet.
 - 5 Bring to a simmer, and gently simmer for about 2 hours, reducing the entire sauce down to 1qt/L. If necessary, add more stock if too much evaporates during the cooking process. Skim sauce as needed.
 - 6 **Tip:** While simmering your sauce, pull it half way off the burner, so that all the scum will collect on one side of the pot, making it easier to skim.
 - 7 Once your sauce is finished cooking, pass it through a fine chinois a couple of times to insure a smooth, consistent texture.

Secondary Sauces (Derivatives) Made From Espagnole

1. Classical Demi-Glace

- Combine Sauce Espagnole and Roasted Veal Stock at the Ratio of 1:1, and reduce by half.

- Strain through a fine mesh strainer (chinois).

2.Sauce Bordelaise

To yield 1 qt/L combine in a sauce pan:

- 1 cup/236ml red wine
- 2 oz/56g chopped shallots
- Fresh cracked black pepper to taste
- 2-3 sprigs fresh thyme
- 1/2 a bay leaf

Reduce these ingredients by half, and then stir in 1 qt of demi-glace (see above) and simmer for about 15-20 minutes. Strain through a chinois and then finish by swirling in 2 oz of raw butter. Sauce Bordelaise was traditionally garnished with diced bone marrow that had been poached in salted water.

3.Sauce Robert

To yield 1 qt/L:

- Sweat 4oz/112g of diced white onion with some butter over medium low heat for 5-10 minutes, or until soft and tender.
- Deglaze with 1 cup/236ml of dry white wine, and reduce by two-thirds.
- Add in 1 qt/L of demi glace and simmer for about 10-15 minutes.
- Strain sauce through a chinois and finish with 2 teaspoons of dry mustard, a pinch of sugar, and squeeze in the juice of half a lemon.
- Check seasoning for salt and pepper.

Hollandaise Mother Sauce

Hollandaise is by far the most finicky of all the French Mother Sauces. Hollandaise is an emulsified sauce in which egg yolks not only serve as the emulsifier, but also as a thickening agent. The final viscosity of the sauce will be determined by how much fat is emulsified in and to what degree the egg yolks are cooked. The more the egg yolks cooks, the thicker the hollandaise will be. However, the more you cook your egg yolks, the more chance you have of ending up with scrambled eggs instead of sauce.

To prevent their eggs from scrambling, a lot of less experienced cooks will heat their egg yolks in a stainless steel bowl placed over a pot of gently simmering water (aka double boiler). The gentle heat of the steam is much more forgiving than a direct flame.

Guidelines for Making Hollandaise

Eggs start to curdle at around 160-170°F/71-76°C. The trick is to heat your egg yolks enough to get them thick, but stop right before they reach this temperature.

Acid (usually in the form of lemon juice and/or vinegar) will help to keep your egg yolks from coagulating. If the PH in you egg mixture is around 4.5, then the curdling temperature of the yolks is raised to about 195°F/90°C. This is why

most classical version of hollandaise call for the addition of a vinegar reduction to be cooked with the yolks.

When making hollandaise, some chefs use whole butter while others use clarified. Although it really comes down to personal preference, just remember that whole butter is about 15% water whereas clarified butter is straight butter fat. Because of its water content, more whole butter is needed to thicken a hollandaise than just straight clarified butter.

Make sure your acid reduction is cool before the egg yolks are added or they may curdle.

The fresher your egg yolks, the easier it is for you to make your emulsion.

Use a stainless steel, round bottom bowl. The round bottom will make it easier for you to beat the egg yolks evenly and the stainless steel will not react to the acid and discolor your hollandaise.

When adding your butter to the egg yolks, make sure that it is warm (about 130°F/55°C) but not hot. If your clarified butter is too hot it will instantly curdle your egg yolks.

Whenever making any type of emulsion, always add the fat or oil slowly at first, a couple drops at a time. Hollandaise is no different. If you add the butter too fast, then it will give the fat a chance to "coalesce," which will cause your sauce to separate.

Another common reason why hollandaise will break is the addition of too much fat. The standard ratio is 6 egg yolks to 1lb of clarified butter.

If concerned about the consumption of raw egg yolks, heat yolks to at least 165°F/74°C or use pasteurized egg yolks to make your hollandaise.

Classical Hollandaise Recipe

To make 2 cups of hollandaise, you will need:

- 1 1/4 lbs of butter, clarified (you should end up with about 1 lb of clarified butter)
- 1/8 teaspoon Peppercorns, crushed
- 1/8 teaspoon Salt, (kosher preferred)
- 1.5 oz White Wine Vinegar
- 1 oz cold water
- 6 Egg Yolks
- 1-2 tablespoons of lemon juice
- Salt and Cayenne Pepper to taste

Hollandaise Procedure

- Clarify your butter.
- Place salt, vinegar and crushed peppercorns into a sauce pan and reduce by 2/3. Remove from heat and add water.
- Transfer reduction to a stainless-steel mixing bowl.
- Add egg yolks and beat over a simmering pot of water until the egg yolks become thick and creamy. (If unsure about the thickness, monitor with an instant

read thermometer and make sure the eggs do not exceed 150°F/65°C).

- Once the egg yolks have reached the desired thickness, remove from heat. Using a ladle, slowly drizzle in the warm clarified butter, starting with just a few droplets first to get the emulsion going.
- Continue streaming in the clarified butter until it is completely incorporated. If the hollandaise becomes too thick before all the butter is emulsified in, thin the hollandaise with a couple drops of warm water.
- Finish by seasoning your hollandaise with salt, lemon juice and cayenne pepper to taste. Add just enough cayenne to help cut through the fat of the hollandaise and to add depth of flavor; your hollandaise should not be spicy.
- Adjust final consistency with a little bit of warm water to both lighten the sauce and give it better flow.
- Keep warm over a double boiler (ban-marie) until ready to serve. The best holding temperature is about 145°F/63°C. This temperature both discourages the growth of bacteria and is hot enough to keep the fat in your hollandaise from solidifying. For both food safety and quality control, hollandaise should not be held any longer than two hours.

How to Fix a Broken or Curdled Hollandaise

If your hollandaise breaks or curdles, it's not the end of the world. Simply follow the steps below to salvage your sauce.

- Pass through a chinois to strain out any curdled portions of the hollandaise.
- Make sure to keep the whole strained portion of the sauce warm.
- Add 1 yolk plus 1 tablespoon of warm water to a new stainless-steel mixing bowl and whisk in your strained hollandaise.

Sauce Tomato

Sauce Tomat, better known as tomato sauce, is a French Mother Sauce based on tomatoes. This base can consist of fresh tomatoes cooked down into a liquid, canned tomatoes, tomato puree or even tomato paste. "Sauce Tomat" is an incredibly versatile base sauce that can have any number of variations.

Sauce Tomato Recipe

This recipe will yield 2 quarts

2-3 oz (56-84 g) Salt Pork. Salt pork comes from the belly portion of the pig, just like bacon. However, unlike bacon, salt pork is never smoked, and the fattier (more white), the better.

3 oz (84 g) Carrots, peeled and medium diced

3 oz (84 g) White or Yellow onion, medium diced

2 oz (56 g) whole butter

2-3 oz (56-84 g) Flour, All Purpose

5 lbs (2.25 Kilos) Raw, Good quality tomatoes, quartered

1 qt (1 lt) White Veal Stock

1 clove freshly crushed garlic

Salt and Pepper To taste

Pinch of Sugar

1. fry the salt pork in the butter until the pork is nearly melted
2. To render out the salt pork properly, place the salt pork in a heavy bottom saucepan with a tablespoon of water, cover with a lid, and place over medium heat. Check in about 5 minutes. The steam from the water will allow the fat to render out of the salt pork before it starts to brown or burn.
3. After the salt pork is nice and rendered out, add in your butter, carrots and onions, and sweat over medium heat for about 5-10 minutes, or until they become nice and tender and start to release their aromatic aromas.
4. Sprinkle the flour over the carrots and onions and continue to cook for another few minutes. You're essentially using the residual fat from the butter and salt pork to make a blond roux.
5. Add in your raw tomatoes. Roast with other ingredients until they start to soften and release some of their liquid.
6. Add in your white veal stock and a clove of crushed garlic.
7. Cover the pot with a lid, put it in a moderate oven, which is about 350 degrees F or 175 C. If your sauce pot won't fit, you can always just simmer it on your stove top. Bake in oven or simmer for 1.5-2 hours.
8. Blend it in a blender, and then press it through a chinois.
9. Once you have passed your sauce through the chinois, finish by seasoning it with salt, pepper, and a pinch of sugar.
10. **Note on Sugar:** The addition of sugar is used to balance the natural acidity of the tomatoes. Your tomato sauce should not taste sweet, unless you enjoy putting ketchup on your pasta.

Modern Variations on Escoffier's Sauce Tomat

The major difference between Escoffier's version of sauce tomat and modern variations that are taught in culinary school are two fold. (1), The Roux is omitted and instead of using fresh tomatoes, canned tomatoes and tomato puree are used in the respective ratio of 2:1 and, (2) Instead of using white veal stock, modern recipes call for the simmering of a roasted ham bone.

Other than that, the process is pretty much the same as discussed above. Follow the same recipe and process, except use 3lbs of canned tomatoes and 2lbs of tomato puree instead of the 5lbs of fresh tomatoes. Simmer for two hours with the addition of a roasted ham bone and omit the

veal stock since the tomato puree and canned tomatoes offer plenty liquid for simmering the sauce.

Another modern touch is the common use of aromatic fresh herbs including bay leaves, thyme, basil and oregano. Add these at your own discretion, at the end of the cooking process so that the flavor of the fresh herbs does not break down.

1. Basic Light Tomato Sauce

If you're looking for a lighter version of tomato sauce to serve with a more delicate dish such as poached fish, use the ratios and procedure below.

- 1 part mirepoix, (Onions, Carrot and Celery, at a 2:1:1 Ratio), small dice
 - 4-5 parts fresh or canned tomatoes
 - Fresh Chopped Garlic and Herbs To Taste
 - Olive Oil
 - Salt and Pepper To Taste
 - Butter and Heavy Cream to finish (Optional)
1. Start by sweating your mirepoix over medium heat in a sauce pan with a little bit of olive oil.
 2. Once the mirepoix becomes nice and soft, and starts to release its sweet aroma (about 5-10 minutes) add in your tomatoes and fresh chopped garlic.
 3. Simmer for 1.5-2 hours. Season with salt, pepper, and a pinch of sugar. Add fresh herbs to taste.
 4. At this point, if you desire a smooth texture, you can blend your sauce and then pass it through a chinois.
 5. Finish with swirling in some heavy cream and whole butter off the flame. This is optional, but if you're not averse to butter and cream, it will add a nice flavor and mouth feel.

Sauce Veloute and Its Derivatives

Sauce Veloute is a very simple member of the Five French Mother Sauces that is used for a base to make many different secondary sauces and leading sauces.

Standard Ratio and Recipe for Sauce Veloute

- 4 ounce blond roux (2 ounces clarified butter and 2 ounces all purpose flour)
 - 1 1/4 quarts hot, White Stock (Veal, Chicken, or Fish)
1. Heat up your white stock in a heavy bottom sauce pan.
 2. In a separate pan, cook roux to a blond stage.
 3. Allow roux to cool slightly before adding it to the gently simmering stock.
 4. Whisk stock and roux together and bring to a gentle simmer.
 5. Allow to simmer for about 45 minutes to 1 hour.
 6. Adjust consistency by adding more hot stock if necessary. Recipe should yield 1 qt of sauce at the "napé"

stage, meaning the sauce should thinly coat the back of a spoon.

7. Finish by straining through a chinois or a strainer lined with cheesecloth.

Do not season your Veloute. Veloute is always used as a foundation for other secondary sauces and small sauces, at which time you will season the sauce as a whole.

Sauce veloute and its derivatives

1. Sauce Vin Blanc (White Wine Sauce)

Sauce Vin Blanc is a variation of secondary sauce based on fish Veloute. Not surprisingly, the White Wine Sauce goes great with just about any type of fish or seafood dish.

- 4 oz dry white wine
 - 1 quart fish Veloute
 - 4 oz heavy cream
 - 1 oz butter
 - Salt, White Pepper and Lemon Juice to taste.
1. Reduce your white wine by half and then add your fish Veloute.
 2. Reduce your Veloute until it coats the back of a spoon. This consistency is referred to as "napé."
 3. Temper cream and stir into the Veloute.
 4. Right before serving, swirl in your butter and season with salt, white pepper and a couple drops of lemon juice.
 5. Strain through a chinois and serve.

2. Sauce Supreme

Sauce supreme is a very simple variation based on Chicken Veloute. Since this sauce is so simple, it's very important to make sure that your chicken stock is made properly and of high quality. Use heavy whipping cream and European butter if you can find them. This sauce is traditionally served with poached or steam chicken, or any other type of poultry dish with delicate flavors.

- 1 qt chicken Veloute
 - 1 cup heavy cream, warm
 - 1 oz butter
 - Salt, White Pepper and Lemon Juice to taste.
1. Reduce Chicken Veloute by 1/4.
 2. Add in warm, heavy cream.
 3. Swirl in butter
 4. Season with salt, white pepper and lemon juice to taste.
 5. Strain through a chinois and serve.

3. Sauce Allemande

Sauce Allemande is another simple sauce based on Veal

Veloute. But with the richness of the Liaison and the brightness of the fresh lemon juice, this sauce is simply amazing. This is a perfect sauce for Veal Scallopini.

- 1 qt of Veal Veloute
- 2 egg yolks (for liaison)
- 4 ounce heavy cream (for liaison)
- 1 tablespoon lemon juice
- White Pepper and Salt to taste

4. Sauce Poulette

- Simmer 8 ounces of white, button mushrooms with when making 1 quart of Veloute of your choice.
- Use Veloute to make Sauce Allemande and then strain out mushrooms.
- Finish with 2 tablespoons of chopped parsley and lemon juice to taste.

5. Sauce Bercy

- Reduce by two-thirds: 2 ounces chopped shallots and 1/2 cup white wine.
- Add 1 quart Fish Veloute and simmer for about 10-15 minutes, reducing slightly.
- Turn off heat and finish sauce by swirling in 2 ounces raw butter.

- Season with chopped parsley and lemon juice to taste.

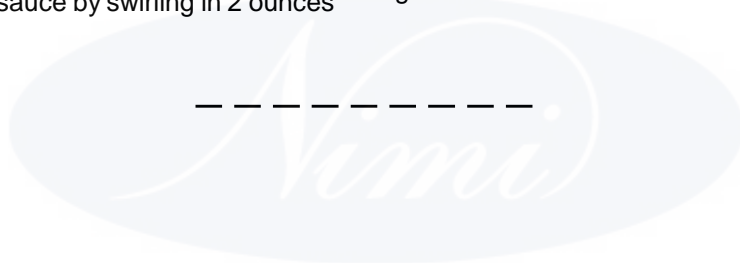
6. Sauce Normandy

- Bring 1 quart of Fish Veloute to a simmer.
- Add 4 ounces of mushrooms and 4 ounces of oyster liquid or fish fumet.
- Reduce by 1/3.
- Finish with a liaison of 4 egg yolks and 1 cup heavy cream.
- Strain and swirl in 3 ounces of raw butter off the heat.

Butter Sauces

They are served melted, in a liquid form or as hard butter sauces. Butter is mixed with different ingredients, set and cut in fancy shapes and served with food items. They are placed on the hot food items, just before serving and allowed to melt. It can be served separately, along with the dish in a sauce-boat and crushed ice. The other name for butter sauces is compound butter, e.g. anchovy, Colbert, brown butter, Garlic butter etc.

Gravy is made from meat juices which congeal and caramelize in the bottom of roasting pan. For red meat gravy should be dark brown and for poultry it should be a golden colour.



Soups

Objectives: At the end of this lesson you shall be able to

- explain soups & their classification.

Soup

Soup is a primarily liquid food, generally served warm (but may be cool or cold), that is made by combining ingredients such as meat and vegetables with stock, juice, water, or another liquid. Hot soups are additionally characterized by boiling solid ingredients in liquids in a pot until the flavors are extracted, forming a broth.

Traditionally, soups are classified into two main groups: clear soups and thick soups. The established French classifications of clear soups are bouillon and consommé. Thick soups are classified depending upon the type of thickening agent used: purées are vegetable soups thickened with starch; bisques are made from puréed shellfish or vegetables thickened with cream; cream soups may be thickened with béchamel sauce; and veloutés are thickened with eggs, butter, and cream. Other ingredients commonly used to thicken soups and broths include egg, rice, lentils, flour, and grains; many popular soups also include carrots and potatoes.

Classification of Soups

Soups can be divided into three basic categories: clear or un-thickened soups, thick soups, and special soups that don't fit the first two categories. Most of these soups, no matter what their final ingredients may be, are based on stock. Thus, the quality of the soup depends on the stock-making skills.

Clear soups

Clear soups are all based on a clear, un-thickened broth or stock. They may be served plain or garnished with a variety of vegetables and meats.

- Broth and bouillon are two terms used in many ways. In general, they both refer to simple, clear soups without solid ingredients. We have already defined broth as a flavorful liquid obtained from the simmering of meats and/or vegetables. E.g. Scotch Broth
- Vegetable soup is a clear, seasoned stock or broth with the addition of one or more vegetables and, sometimes, meat or poultry products and starches.
- Consommé is a rich, flavorful stock or broth that has been clarified to make it perfectly clear and transparent, a well-made consommé is one of the greatest of all soups. Its sparkling clarity is a delight to the eye, and its rich, full flavor, strength, and body make it a perfect starter for an elegant dinner.

Thick soups

Unlike clear soups, thick soups are opaque rather than transparent. They are thickened either by adding a thickening agent, such as a roux, or by puréeing one or more of their ingredients to provide a heavier consistency.

- Cream soups are soups that are thickened with roux, beurre manié, liaison, or other added thickening agents, plus milk and/or cream. They are similar to velouté and béchamel sauces—in fact, they may be made by diluting and flavoring either of these two leading sauces. Cream soups are usually named after their major ingredient, such as cream of chicken or cream of asparagus.
- Purées are soups that are naturally thickened by puréeing one or more of their ingredients. They are not as smooth and creamy as cream soups. Purées are normally based on starchy ingredients. They may be made from dried legumes (such as split pea soup) or from fresh vegetables with a starchy ingredient. Such as potatoes or rice added. Purées may or may not contain milk or cream. E.g. Puree de lentils
- Bisques are thickened soups made from shellfish. They are usually prepared like cream soups and are almost always finished with cream. The term bisque is sometimes used on menus for a variety of vegetable soups. In these cases, it is really a marketing term rather than a technical term, so it is impossible to give a definition that covers all uses.
- Chowders are hearty soups made from fish, shellfish, and/or vegetables. Although they are made in many ways; they usually contain milk and potatoes. E.g. Calm Chowder
- Veloute is a thick soup, which is thickened with a blond roux, prepared in the same way as a veloute sauce and liaison is added.

Specialty and national soups

This is a catch-all category that includes soups that don't fit well into the main categories and soups that are native to particular countries or regions.

Minestrone : Italy

French Onion Soup : France

Gazpacho : Spain

Scotch Broth : Scotland

Specialty soups are distinguished by unusual ingredients or methods, such as turtle Soup, gumbo, peanut soup, and cold fruit soup.

Cold soups are sometimes considered specialty soups, and, in fact, some of them are. But many other popular cold soups, such as jellied consommé, cold cream of cucumber Soup, and vichyssoise (vee shee swahz) are simply cold versions of basic clear and thick soups.

Standard portion sizes

Appetizer portion: 6 to 8 oz (200 to 250 ml)

Main course portion: 10 to 12 oz (300 to 350 ml)

Temperature

Serve hot soups hot, in hot cups or bowls.

Serve cold soups cold, in chilled bowls or even nested in a larger bowl of crushed ice.

Commonly used garnishes for soups

- Croutons dices or other shapes made from bread, toast, pastry.
- Profiteroles prepared from choux paste. They are miniature cream puffs which may be filled or used plain.
- Cereals rice or barley.
- Cheese cheese balls, or grated parmesan served with croutons on one side.
- Cream unsweetened whipped cream or sour cream.
- Meats usually small dices or juliennes.
- Poultry same as meat.
- Seafood diced or flaked. Large enough pieces distinguishable.

- Pastas noodles, spaghetti, other pasta products such as star letters, cornets, etc.
- Vegetables cut in various sizes, shapes-juliennes, round slices, dices of spring vegetables

Consommé (basic)

Consommé are clear soups made using beef, veal, poultry, and game or fish stocks. They are often made using a combination of beef or veal and poultry. Having clarified the soup (as below) the consommé should be fat free, crystal clear, amber in colour with good flavour. To avoid producing too dark a consommé a combination of white and brown stock may be used

Do not use vegetables such as cabbage, turnips, potatoes, swedes or parsnips when producing and clarifying consommé, as they will spoil the clarity and flavour. To some extent they may be used as garnish items. During the preparation, cooking and final stages of making consommé there are several faults, which may occur if proper care and attention is not paid to the recipes and methods used.

Consommé Variation :

Name Ingredients / Garnish

- Consommé Royale Dices savory egg custard
- Consommé Julienne Julienne of vegetables
- Consommé Brunoise Brunoise of vegetables
- Consommé Celestine Julienne of thin pan cake
- Consommé Breton Juliennes of celery, onion and leeks
- Consommé Dubbary Floweret's of cauliflower
- Consommé Florentine Juliennes of blanched spinach
- Consommé St. Germain Fresh green peas
- Consommé Cereals Rice and barley



