Professional Cookery Skills

MANUAL

Skills for Inclusive Growth

Contact Person

Farheen Khurrum - Contract Representative
Scope Global
Level 5, 12 Pirie Street, Adelaide, SA, 5000, Australia
Tel: +61 8 7082 1431
Farheen.Khurrum@scopeglobal.com

Copyright

Copyright of this document remains the property Scope Global Pty Ltd. The contents of this document may not be reproduced in whole or part without the prior express consent of a duly authorised representative from Scope Global Pty Ltd, excepting for the internal use of the client. This document may only be used for the purposes of examination and evaluation with a view to entering into a contract with Scope Global Pty Ltd, for the purposes of carrying out the work, which is the subject matter of this agreement.

No other use whatsoever is to be made of this document or any recommendations, information, matter or thing, without the express permission of Scope Global Pty Ltd.

Version V1.0 (September 2021)

Certified System
Quality
ISO 9001
SAI GLOBAL

Acknowledgements

The Skills for Inclusive Growth (S4IG) program is an initiative of the Australian Government in collaboration with the State Ministry of Skills Development, Vocational Education, Research & Innovations . S4IG is working with the skills development system to re -position skills development and strengthen training approaches to support employers across the tourism value chain with job ready skills that result with improved employment outcomes and income levels for graduates. Better skills across the workforce improves workplace quality which is a key contributor towards increased revenue for enterprises, especially those that depend on visitors purchasing products and services. A world class tourism industry has to provide world class products and services. A well functioning tourism sector (the visitor economy) can significantly contribute towards inclusive growth across Sri Lanka generating improved revenues and better jobs for Sri Lankans.

This Professional Cookery Skills Workbook & Manual in Tourism and Hospitality has been designed for enterprises, training providers and trainees engaged in food preparation and cooking. The training package uplifts the skills of professional cooking to international standards whilst promoting Sri Lankan cuisine and styles. This Professional Cookery Skills Workbook and Manual is an initiative of the S4IG Program coming out of the successful ' Supreme Chef' television competition which placed a spotlight on cooking as a career and the benefits of this occupation in promoting Sri Lanka's unique and authentic ingredients and food specialties. The workbook is a user friendly tool to guide trainees through to completion of the Governments NVQ Level 4 requirements. The Workbook and Manual also supports employers to deliver quality services and products and links their occupational and workplace requirements. This strengthens the role of training providers and ensures that future training will be relevant to kitchens across the industry.

S4IG is proud to be able to support the tourism industry and support implementation of Government tourism, employment and skills development policies. Modules are developed based on the NVQ Level 4 Professional Cookery National Competency Standards (NCS) and satisfy government requirements for quality. The workbook and manual are industry recognized giving added value and surety of quality to employers and trainees looking to improve cooking skills and the performance of enterprises across the tourism and hospitality value chain. S4IG has started working with the Vocational Training Centers and Training Providers to implement this upgraded training to support the industry with better professional cooking services. S4IG is firmly committed to the principle of **Better Skills, Better Jobs, Better Business and Better Futures through tourism.**

S4IG acknowledges the tremendous support extended by TVEC Officials towards accreditation of this program. The development of this training package has been driven and supported by the Chefs' Guild of Sri Lanka who provide industry expertise and leadership in professional cooking in Sri Lanka. S4IG looks forward to partnering with the Chefs Guild to support widespread implementation of these training resources across workplaces in Sri Lanka and with selected training providers. This cooperation will enable the Chef Guild to work with training providers to train those interested in future employment as well as upskill the existing workforce across the industry. On behalf of the S4IG program I further extend our sincere gratitude to all those who worked tirelessly to prepare this training package and learning resources. This product delivers world class skills for the tourism and hospitality industry ensuring professional cooking and food preparation services are available for visitors nationwide.

David Ablett
Team Leader
Skills for Inclusive Growth (S4IG)

Vocational Training Authority

To Future Chefs of Sri Lanka,

I write to you with confidence that this course will provide you with all the tools, skills and expertise to embark on a professional career in cookery.

The Vocational Training Authority (VTA) fully embraces this course and is excited by the impact it will have on the quality of the training we can deliver for Professional Cookery. It is our vision that youth throughout Sri Lanka should have access to the best training available. I believe that this course satisfies this vision, offering trainees in Sri Lanka international standard material, backed up with international standard training.

The Manual and Workbook are presented in a simple and attractive fashion but the content is detailed and comprehensive. It is the kind of material to which any course should aspire.

The materials and course have been expertly developed by the Chefs Guild of Lanka (CGL). CGL will also take responsibility for the training of trainers and manage the roll out of training throughout the country in support of VTA. We very much appreciate this collaboration and hope, in time, it can be developed further. Working with the best in the industry to produce high quality trainees is a model we are determined to make succeed for the good of the youth in the country.

I am thankful to Skills for Inclusive Growth, a project of the Australian Government, for their vision and commitment to creating these materials and their close co-operation with CGL.

To you, Professional Chef in waiting, I wish this course to be a stepping-stone to a successful and prosperous career in hospitality. A career I sincerely hope you develop in Sri Lanka before taking on the world.

Best of luck!
Eranga Basnayake
Chairman
Vocational Training Authority of Sri Lanka

National Apprentice and Industrial Training Authority

Dear Apprentice,

I am writing to confirm that the National Apprentice and Industrial Training Authority fully endorses this training package.

In reading these materials I am reminded of the immortal words of Leonardo da Vinci “Learning never exhausts the mind.” I am humbled by how much a professional chef needs to learn to be able to embark on a career in cookery. At the same time, I am excited by how practice and experimentation in culinary arts can result in such a variety of high quality outcomes.

Immense credit should be extended to the Chefs Guild of Lanka who have put in considerable time, effort and expertise to develop these fantastic materials. It is of importance and significance that this package should be produced, and implementation supported by the industry in which trainees will be employed. In truth, only industry can know what is needed to succeed in it; only industry can know which knowledge and skills are essential to those who wish to begin a career in it; and only industry can keep abreast of changes or adaptations that may be required to keep a training package relevant. Therefore we embrace this relationship with the Chefs Guild of Lanka and look forward to their continued guidance in making the course a success.

I would like to extend my thanks to Australian Aid and their skills development programme in Sri Lanka, Skills for Inclusive Growth, for facilitating the development of these materials and overall training package. I am happy that an international bilateral relationship such as this has encouraged the flowering of a much needed partnership between the public and private sector.

Most of all, I would like to encourage the apprentice who undertakes this training to not be intimidated by the amount of information it seems you must take in to complete this course. In your efforts to become a professional chef you will become energised, not exhausted. The world will become your oyster.

Yours sincerely,
Tharanga Naleen Gamlath
Chairman
National Apprentice and Industrial Training Authority (NAITA)

National Youth Services Council

To our young trainees,

The mission of The National Youth Services Council (NYSC) is to empower the youth of Sri Lanka to face life's challenges by making use of local and global opportunities.

I am happy to say that this new training material in Professional Cookery NVQ Level 4 will empower the trainees who use it and provide them with excellent opportunities to peruse a career locally and globally.

At NYSC we are fortunate to have excellent kitchen training facilities at our main campus in Maharagama and in other centres around the country. Our fantastic staff have produced some great young chefs through our training programmes. Now, with a detailed, colourful, and easy to follow training package designed by the Chef's Guild of Lanka we can be sure to raise standards even higher and guarantee a uniformity in the quality of training given.

It is a source of great satisfaction when I travel around the country and see NYSC alumni working in top class hotels and restaurants. However, the truth is that we need to attract more young people into this profession if the country is to satisfy the expected rise in numbers of tourists from over the world coming to Sri Lanka. We also need to provide them with an international standard menu with the quality and variety they would expect from other top international tourist destinations. This course and the accompanying training of trainers that the Chef's Guild will manage is a great way to achieve this vision. Quality training will attract a higher number of quality trainees, quality trainees will improve the quality of our top hotels and restaurants, quality hotels and restaurants will attract more tourists.

The National Youth Services Council is delighted and honoured to be among the first to use these materials. We will utilise them to their full and our young trainees will benefit immensely.

Yours faithfully,
Damith Wickramasinghe
Director General/Chairman
National Youth Services Council

Chefs guild of lanka

Gerard Mendis
CGL Chairman

Madhawa Weerabaddhana
Course Development and
Training Coordinator

To Whom It May Concern,

The Chef's Guild of Lanka (CGL) is proud to endorse these training materials for the NVQ Level 4 Course in Professional Cookery.

One of the ambitions of the CGL is to help lift the consistency of cookery training throughout Sri Lanka. To do this, training materials must meet a high standard of quality. Thus, these materials were developed with the full oversight of CGL's training experts. With an ongoing feedback and editing process firmly in place, we can attest that these materials fulfil the standards elevated by the CGL to meet international training standards.

Over the duration of 6 months the trainees will undertake rigorous theory and practical training which covers basic industry knowledge, 40 sessions of practical menu production training in Continental, Ethnic and Sri Lankan cuisine and intensive sessions in Functional English Language training.

The course materials offer the trainee a user-friendly and practical tool for learning (the Workbook), the required basic knowledge (the Manual), a path to on-the-job training and a path to on-the-job evaluation. The course materials have been translated into Sinhala and Tamil, to allow all trainees full access to the information and knowledge inside these books.

These materials contain all the information necessary to successfully complete the National Competency Standard, designed by TVEC. As such, the training course and course materials can be utilised to the maximum to support trainees when they undergo job placement to join our industry.

As these materials and this course offers the trainee hours of practical input that goes above and beyond that required of the National Curriculum Standard, we are elevating the standard of cookery training and thus fulfilling our ambition of improving the skills of trainees that work in professional kitchens island wide. If completed successfully, this course will produce trainees who are not only fit for industry but have the knowledge and skills to forge a successful career in professional kitchens in Sri Lanka and beyond.

We recommend that these materials and this course be adopted by training institutions, hotels, guest houses and homestays around the country to move towards a national standard of excellence in basic cookery training.

We are committed to improving the contents of the materials and the course over time and we look forward to incorporating feedback we hope to receive from users of the materials (trainers and trainees alike), and any emerging theory and practical training concepts.

We hope trainees and trainers can enjoy using these materials.

We hope these training materials will boost the trainees' confidence in cooking as well as their passion for cooking.

Gerard Mendis
CGL Chairman

Madhawa Weerabaddhana
Course Development and
Training Coordinator

CONTENTS

Section 01

PROFESSIONAL COOKERY SKILLS MANUAL

Hygiene Standards

HYGIENE STANDARDS

In this section you will learn what your responsibilities are as an employee within the hospitality and food handling industry, specifically concerning safety, health and hygiene.

First you must understand WHY Personal Hygiene, Health and Safety are important.
The two most important reasons are:

1. EMPLOYEE RESPONSIBILITY

When working in the commercial kitchen you must take personal and public health and hygiene very seriously. This is because you are responsible for, not only your own health and safety, but also that of your colleagues (co-workers) and very importantly, your customers.

Why is personal and public hygiene important?

Most people carry harmful bacteria or harmful particles on their bodies and can transport these bacteria or harmful particles to food. Touching your mouth, nose, hair or even your clothes can spread bacteria and cause contamination.

What is Contamination?

Contamination means the spread of harmful bacteria or particles.

What is Cross Contamination?

Cross contamination occurs when bacteria (or viruses) or chemicals/poisons or objects contaminate food, working surfaces, equipment or even your bare hands because it has been transported from one surface to another. Cross contamination can happen at any time or place and can lead to disease, food poisoning, sickness and serious injury.

See the table below:

Type of Contamination	Example	What could happen
Microbiological	bacteria, viruses, fungus and mold.	Microbiological contamination can lead to disease.
Physical	sand, stones, hair, glass pieces, wood pieces, soil	Physical contamination can lead to injury.
Chemical	pesticide, herbicide, tobacco, soap, detergent	Chemical contamination can lead to sickness/poisoning.

CROSS CONTAMINATION OF FOOD can happen in very obvious ways and in ways that you may not notice. It can happen:

- When you shake hands with someone before handling food.
- When you pet a dog or a cat before handling food.
- When you touch raw food with a cut finger.
- When you use a dirty cloth to wipe tables.
- When sand blows from the beach into dining areas.
- When you use the same knife to cut raw meat and fruit.
- When you sneeze or cough into your hand before handling food.
- When you touch your face or hair before handling food.

Be mindful of your behavior and movement and monitor your immediate surroundings so that you can take the necessary precautions (washing hands, using clean and the correct equipment, keeping areas tidy and sanitary) to avoid cross contamination.

(Also see information on Cross Contamination – Food Safety and Cleaning Sections)

2. THE IMPACT OF POOR HYGIENE PRACTICES

What would happen if you as an employee or your employers or your co-workers did not practice a high standard of Hygiene and safety?

- Food poisoning outbreaks (deaths, suffering, bad reputation)
- Food contamination and customer complaints
- Pest infestations
- Waste food due to spoilage
- Closure of premises/prohibition of processes
- Fines from court action
- Civil action from ill or annoyed customers
- Loss of production (whilst cleaning/checking)
- Decontamination (time to clean and remove contamination)
- Lower profit

Finally – loss of your job, establishment loses license to operate, loss of your co-workers jobs, loss to the community.
These are very serious consequences. Let us look at the ways we prevent these negative impacts.

Below are the five areas in which you should achieve a very high standard of health and hygiene plus safety and security. You will also look at how to do achieve these standards.

A: Take care of your own hygiene, health and safety.
B: Kitchen Hygiene
C: Help make your workplace safe. (Workplace Hygiene)
D: Equipment and Utensil Hygiene
E: Food Hygiene

A: TAKE CARE OF YOUR OWN HYGIENE, HEALTH AND SAFETY.

Even healthy people must practice good personal hygiene to eliminate or minimize the risk of cross-contamination. It is your responsibility to maintain personal hygiene as well as a good appearance. This helps maintain kitchen and workplace hygiene.

Personal Hygiene

Below is a table showing the different ways to maintain personal hygiene and why each is important.

How to maintain personal hygiene	Why doing this helps
Shower every day.	Prevents body odor, maintain a healthy look.
Wash my hair.	Prevents odors and infestation from lice.
Shave.	Prevents hair falling into food, etc..
Brush your hair.	Removes loose hair.
Tie long hair away from your face.	Prevents hair fall into food.
Keep fingernails short and clean.	Prevents dirt and bacteria from collecting under the fingernails.
Remove nail polish and artificial nails	Prevents nail polish or artificial nail from falling into food.
Avoid wearing strong perfume or aftershave.	Prevents food from smelling strange.
Any cuts or open wounds must be covered/ dressed.	Prevents wound from getting infected and leading to more serious disease. Also prevents spread of bacteria.
Remove jewelry such as earrings, rings, necklaces and bracelets.	Prevents items such as gemstones, metals and pins from falling into food.

Remove your watch.	Prevents loss of watch or watch falling into food.
Wear clean clothes to work.	Maintains a good image, and prevents cross-contamination.
Wear a clean uniform.	Maintains a good image and prevents cross contamination of food.
Wear kitchen clogs.	Prevents accidents.
Wash your hands.	Prevents cross contamination.
Brush your teeth.	Prevents bad breath and helps maintain a good image and good health.

Hand Washing

Improper handwashing is one of the leading causes of food contamination and is responsible for the spread of deadly bacteria such as Salmonella, E. coli, and Norovirus, as well as dangerous respiratory infections such as Adenovirus and Hand-Foot-Mouth disease. In fact, The CDC (Centres for Disease Control and Prevention) estimates that throughout the world over 2.2 million children under the age of 5 die each year from diarrhea and respiratory infections caused by improper food preparation.

Even if hands look clean, they can still harbor harmful germs and bacteria so correct hand washing is absolutely paramount when working with food.

→ Know how and when to wash your hands.
Hands should be washed:

- Before starting work
- Before handling food at any time
- After going to the washroom
- After handling waste/garbage
- After smoking
- After handling money
- After handling animals
- After handling raw meat
- After handling hazardous chemicals
- After taking a break
- After touching your face, nose, hair – after sneezing or coughing
- After cleaning a wound or a cut
- After being outside
- After handling dirty linen

→ How hands should be washed:

1) Wet hands preferably with warm/hot water.

2) Lather with soap (preferably liquid soap). Try to avoid or limit the use of bar soaps as they can harbor bacteria. If you do need to use bar soap, then ensure that it is stored in a container that allows for self-drainage and is cleaned regularly.

3) Scrub/Rub the palms, back of your hands and between each of your fingers for 20 seconds – 30 seconds

4) Clean your nails by scratching the centre of your palm.

5) Rub your thumbs and wrists.

6) Rinse preferably with warm/hot water, pointing down to the drain.

7) Turn tap off with the paper or elbow. Taps can be a breeding ground for bacteria when people turn them on using dirty hands, so try to use a paper towel to turn the tap off.

8) Air dry hands or use per towel. Do not use a tea towel or your apron as that will contaminate your hands again. Use paper towel to open the door. Where possible avoid touching door handles after washing hands.


Wet hands with water.


Apply enough soap to cover all hand surfaces.


Rub hands palm to palm.


Right palm over left hand with interlaced fingers and vice versa.


Palm to palm with fingers interlaced.

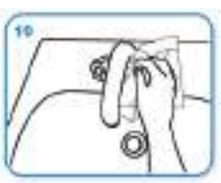

Backs of fingers to opposing palms with fingers interlocked.


Rotational rubbing of left thumb clasped in right palm and vice versa.


Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa.


Rinse hands with water.


Dry thoroughly with a single-use paper towel.


Use paper towel to turn off faucet.


…and your hands are safe.

→ Hand washing stations must be equipped with :

Hot and cold running water, antibacterial soap, method to dry hands hygienically, waste container.

→ Role of Employers:

Food businesses/establishments are required to provide hand washing facilities to all food handlers including clean running water, soap and drying facilities. They must also ensure that these hand washing stations are used exclusively for washing the hands, arms and face and not the preparation of food.

Behaviors in the workplace

Our behavior in the kitchen may also be a source of food contamination, and some things you may do without thinking can be seriously harmful.

When moving around the workplace try the following tips:

- Avoid all unnecessary contact with ready to eat foods such as salads, cooked meat or fruit. This has been proven to significantly reduce the risk of food contamination.
- If you cough or sneeze into your hands, always ensure you wash your hands thoroughly and replace any gloves.
- Never touch your face, hair, jewelry or clothing while preparing food.
- Do not taste food with your fingers or with utensils that are then returned into the food.
- Do not smoke. If you do need to smoke, always ensure it is done well away from all food preparation areas, and ensure your hands and face are washed thoroughly afterwards.
- Wipe perspiration from your face away using a cloth or paper towel, then wash your hands thoroughly.
- Avoid chewing gum while preparing food.
- Replace any protective clothing such as aprons and gloves when moving from one area of the kitchen to another.
- Always know your company policies regarding moving between workstations.
- By eating well, sleeping well, being clean, washing hands thoroughly helps prevent sickness.
- By knowing what to do if you are sick or injured helps prevent more serious sickness or injury.
- By avoiding dangerous activity in the kitchen helps prevent injury.
- By knowing what to do in an emergency helps prevent any risks to personal health and safety.
- By reading important notices, signs, posters, information about health, hygiene and safety can help prevent risks to personal health and safety.
- By using the kitchen and everything in it correctly can reduce any risks to personal health and safety (cleaning chemicals, broken utensils, electrical plug points are all risks).

Clothing

Dirty clothing is one of the leading causes of cross contamination in the kitchen as is can carry bacteria from one place to another.

It is important that all clothing be laundered and stored correctly to prevent the spread of bacteria. Clothing must also be microbial clean, meaning that the microbes on the garment have been reduced to a safe level. Always use good quality cleaning products and be sure to store clean clothes in a clean, dry place, away from any possible sources of contamination.

Many protective items such as gloves and hairnets are designed to be used once only, and must be disposed of after use and never re-used. Long hair should always be tied back and preferably contained using a hair net. Jewelry should also be kept to a minimum.

→ Wear your kitchen uniform

Your kitchen uniform is another way prevent cross-contamination. You should wear a uniform even when you are training to be a chef/cook. These uniforms have practical value and were created specifically to address what chefs face daily in the kitchen.

→ Chef Safety

Safety is the most important basis for much of the uniform's design. Every piece of clothing, including the apron, is constructed to prevent hot liquid and food, as well as steam, from landing on the chef's body and causing injury. The material is either very thick, such as with the jacket, or very baggy, such as with many varieties of pants.

Even the buttons on the chef's jacket are usually of a material other than plastic or metal. Since plastic could melt and metal could become very hot, very quickly -- both making it difficult to whip off the jacket if it caught fire, for example, or if scalding liquid soaked a sleeve.
Non-slip shoes, of course, are necessary in any kitchen to reduce the risk of slipping on wet floors.

→ Cook Comfort

Cooking means that person is dealing with hot appliances and flames, possibly in summer when the air conditioning might be overwhelmed. The uniform might be made of thick material, but it is not tight, so there is some air circulation.

The very tall chef's hat you see in some kitchens allows for heat, both external kitchen heat and body heat, to rise up and away from the chef's head. There are shorter versions of a chef's cap, but these too have some space above the skull. Those non-slip shoes have good support and boxy toes that ensure the chef's feet do not start to hurt after several hours on that kitchen floor.

→ Food Hygiene

The uniform also protects the customer and food; in other words, it contributes to good food hygiene/ safety. The hat contains loose hairs and sweat, which no one wants dripping into the food; the same goes for the neckerchief, the scarf like piece of material you see so many cooks wear. The uniform material -- usually cotton -- is absorbent and helps catch and stop any errant sweat droplets.

Even the white color of most chefs' uniforms helps with comfort and hygiene. The white color reflects heat away from the chef's body, and it lends the kitchen a clean appearance. It is not unusual for that white to become spattered with food, of course, but it is easier to see spills and clean up bits of food that may have clung to the uniform. It's become more common to see restaurants use different colors for cooks' uniforms, but white remains the standard look.

→ Community Belonging

The uniform creates for the training chefs/cooks a sense of community belonging. While "community" and "belonging" may not spring to mind when the student is chopping several onions in a hot kitchen, that uniform signals to others that the trainee is part of the crew and that they belong in that kitchen with everyone else. And it reminds the trainee that their training is leading to a real world career in a celebrated profession.

→ Parts of the Kitchen uniform:

01. A Chef Coat or Chef's Jacket

A typical chef coat is also known as VEST BLANC in French. It is made out of thick white cotton fabric. It is one of the most important part of chef uniform. The main function of the chef coat is to prevent or protect the chef from the heat of the cooking ranges. The coat is always double breasted so that it will avoid any chances of burns and injuries to chef.

02. A Chef Pant or Trouser

A chef pant or trouser is either BLACK or CHECKERED depending upon the position. The checkered pants are designed such to cover-up spills or to hide the dirt. These are also made of thick cotton fabric, to protect the chef from the heat.

03. A Chef Cap /toque

One of the most important parts of chef uniform. The main purpose of this cap is to prevent hair fall in the food. It is also designed to absorb the sweat generated while working in kitchen. It is also worn to add distinction to the person working as chef.

04. A Scarf

A chef scarf is usually worn around the neck area of the chef and is usually knotted in the front. These are traditionally designed to absorb the perspiration and sweat around your neck area. These scarves are also used to indicate the levels of chef in the organization by different colour codes.

05. An Apron

It is usually made of thick cotton fabric and is worn around the waist area of the chef. The apron should reach below the knees to give maximum protection to the chef from heat and hot liquids. It also prevents your uniform from getting dirty.

06. Shoes

It is mandatory for all kitchen professionals to wear shoes while working in the kitchen. They should be black and non-slippery. They prevent or protect your foot from getting hurt by any falling hot liquids or objects.

07. Kitchen Dusters

These are not considered part of the uniform but they are very important for a chef to work properly. These are thick cotton material cloths which are used by chefs - mainly for wiping equipment, tables, utensils, food commodities, etc.

Personal Health

- You should never prepare food for others if you suspect or feel that you may be sick. Food handlers are prohibited from working with food when they are sick as there is a high chance of contamination. Some viruses can be transmitted through food just as bacteria can, and may be able to survive on food for long periods of time. That is why it is so important that any food handlers who may be sick stop working with food immediately.
- Illnesses that would prevent you from working with food include, typhoid, cholera, hepatitis A, tuberculosis and gastroenteritis. You should not work with food when experiencing symptoms such as diarrhea, vomiting, stomach cramps, sore throat or a fever.
- If you suspect that you may be sick, then you must inform your supervisor right away and stop working with food immediately. If you have to miss work due to illness, then you may need a medical certificate from a doctor to confirm when you are able to return safely.
- It is not just illnesses that may stop you working with food. Any food handlers suffering from cuts, sores or boils must ensure their wounds are covered using clean, good quality dressings and bandages, and ensure that they are changed regularly. Signs of wound infection or discharge from the eyes, ears, or nose must be reported immediately, and the food handler must stay away from any food handling areas in the workplace.
- Have a checklist for personal health:

Do not come to work when you are sick. Call your Manager to let him/her know. If you are very sick at work, especially with stomach pain or fever, jaundice, diarrhea, vomiting or sore throat – YOU MUST report it to your supervisor or manager and then go home immediately. If you have visibly infected skin lesions/open wounds (boils, cuts, etc.) or discharge from ears, eyes, nose YOU MUST report it to your supervisor or manager and then go home immediately.	Prevents further sickness. Prevents germs from spreading to colleagues and guests. Prevents contamination of food.
Do not engage is Smoking, Spitting, Chewing or Eating, Sneezing or Coughing over unprotected food.	Prevents the spread of bacteria which could lead to sickness.

Personal Safety

In a properly organized workplace, you should be able to perform your duties with the least possible mental or physical stress. Working in a commercial kitchen is exciting, but it is also hard work. It is important to be aware of hazards, risks and potential accidents that can happen.

Possible scenarios and their consequences:

Scenario	**Consequence to self**	**Consequence to hotel**
Workplace injury	Lost income due to inability to work	Loss of labor leading to loss of income
Sickness	Loss of job	Loss of labor leading to loss of income
Mental stress	Inability to work, loss of job	Loss of labor leading to loss of income
Lack of sleep	Inability to work safely or well	Loss of labor leading to loss of income

Here are specific example of workplace accidents:

Situation	**What could happen in these situations?**
A greasy or wet floor	*Falling, broken bones*
Mixing cleaning chemicals	*Chemical poisoning*
Bullying in the workplace	*Lose motivation to work*
Moving heavy tables or furniture	*Falling, back injury*
Aggressive guests	*Fear of coming to work*
Leaving bags in the hallway	*Tripping*
Leaving work tools out	*Causing injury*
Carrying things up and down stairs	*Falling, injury to the body*
Broken glass	*Cuts and infection*
Broken light fixture	*Electrocution*
Cooking with hot oil	*Burns, Fire*

Kitchen tools left on the counter	*Injury to the body*
Chopping vegetables in a hurry	*Cut to the hand*
Blocked staircase	*Falling, injury to the head or body*
Faulty plug point	*Electrocution*
Blocked emergency exit	*Cannot escape fire emergency, death*
Overworking	*Fatigue, Stress, loss of motivation*

How to avoid dangerous situations and accidents

1) Be aware of areas of the body that can be easily hurt– shoulder, back, wrists, ankles, knees, feet and toes (lifting/carrying) forearms, hands and fingers (burns and cuts)

2) Use correct lifting techniques
Lifting or carrying heavy items is hard and dangerous. It can lead to back, upper limbs and knee injuries. These injuries take a long time to heal. When lifting an item please follow procedure to avoid such injuries.

PLAN THE LIFT
When planning the lift ask yourself the following questions:

Can I do it by myself or do I need help/a team/ a trolley?
Can I break a large load into smaller loads?
Where am I taking this load? Which path should I take?
Can I move the load by trolley to the destination before lifting?

↓

GET INTO POSITION
Do not bend your back. Keep your back straight. Bend your knees.
Do not start from a sitting position/Start in a good posture.
Get a good hold of the load.

↓

LIFT AND CARRY
Turn your feet and not your back when turning direction.
Keep load at waist level so you can see where you are going.

↓

PUT THE LOAD DOWN
Do not bend your back. Keep your back strainght. BEnd your knees.

3) Eat and sleep well. An injury or illness is more likely if you are overly tired or work too hard. Skipping meals can lead to illness and fatigue.

4) Wear protective clothing (see Chef's Uniform).

5) Do put your personal items in a locker or in a secure place in the staff room. This prevents loss or theft. It also helps keep the hotel tidy and remove items that endanger the guest by blocking a hallway or doorway.

6) Do not come to work if you have taken drugs or alcohol.

7) Do any kind of training that builds hazard awareness or safety and hygiene awareness. Educate yourself.

8) Learn First Aid if you can.

9) Know exactly what you will need to clean a surface – the correct amount of cleaning agent, the correct protective clothing, the correct cleaning tools.

10) Practice in a safe environment before attempting to do something by yourself.

11) Ask for help when necessary.

12) Learn about your working environment and the equipment you are expected to use. Get someone to teach you.

13) Know what to do if you see any damaged equipment. Know who to report to if you see a problem with electrical equipment.

14) Be careful when using electrical equipment.
Electrical equipment, when handled incorrectly, can lead to serious injury such as electrocution, hot water burns and hand/wrist injury.
Read the manuals carefully when operating any electrical equipment.
Ask senior staff to help you learn how to use electrical equipment carefully and correctly.

15) If you do get involved in a workplace incident/accident follow your hotel's procedures/protocol. Inform the relevant people immediately and ensure that the incident/accident is recorded for future reference.

Aside from the physical incidents that may occur you should also be aware of the mental hazards that can affect your safety and health.

Examples of mental hazards and how to prevent them:

Mental Hazard	Potential risks	How to prevent
Aggressive guest	Risk of bodily injury. Risk of mental stress.	› Keep calm. › Report to supervisor or the Manager immediately.
Bullying among colleagues	Risk of mental stress/trauma and loss of work efficiency.	› Do not suffer in silence. › Report to supervisor or the Manager.
Sexual Harassment	Risk of physical assault and mental stress/trauma and therefore loss of work efficiency.	› Do not suffer in silence. › Know your rights. › Report to supervisor or Manager or to an organization that can help and support you.
Fatigue and stress from overwork.	Risk of bodily injury/further fatigue and stress. Risk of mental stress. Loss of work efficiency.	› Take regular breaks. › Discuss scheduling with your Manager.

Consider the health and safety of your colleagues and your establishment's guests.

What is public safety?

It is the safety of your colleagues and your guests in the hotel.

How can you ensure public safety?

- By following the personal safety advice (see above) / house rules / establishment procedures.
- By understanding what hazards are and the risk they pose.
- By assessing which hazards you can deal with personally.
- By understanding the importance of reporting potential hazards, accidents or near accidents. Reporting helps prevent someone from getting hurt or property from being damaged.
- Knowing who you need to report potential hazards to in your hotel.
- Recording potential hazards so that the hazard can be systematically dealt with.

- Warning others of a potential hazard.
- By knowing where safety equipment can be found: Fire Extinguishers, First Aid Boxes, Defibrillators, etc.
- By being aware of your surroundings.
- By learning about fire safety and practicing fire drills.

Hazard Awareness and Risk Management

What is a hazard?

A hazard is a physical or mental situation or condition that creates the possibility of danger, accident, etc.

What is Hazard Awareness?

Hazard awareness is a way to train yourself to be conscious of your surroundings. Look, listen, notice what is going on around you.

What is Risk Management?

This is a system to help prevent the hazards from turning into dangerous accidents.

Examples of physical hazards and how to deal with them:

Physical Hazard	Potential risks	How to prevent
- A burning cigarette thrown into a dustbin - a blocked entrance/ exit - a fire extinguisher that does not work - a lack of smoke alarms or fire extinguishers - a frayed wire/cable - a faulty plug point - a faulty electrical appliance	All fire hazards pose the threat of a fire. Any fire can cause injury or death by smoke inhalation, or by burns. Any fire can cause serious damage to property.	- Keep ashtrays in rooms and public spaces. - Do routine checks of entrances and exits and remove any blockages. - Keep all public areas clear and clean. - Do routine checks of plug points in all areas of the hotel. - Invest in fire safety posters/signs, fire extinguishers and smoke alarms and maintain them properly. Have these items in relevant locations within the hotel. - Check and maintain all electrical appliances, wires and cables.

▸ hot cooking oil ▸ A gas/electric stove that has not been turned off.		▸ Be careful when cooking with oil and wear and apron. ▸ Check that all gas stoves or electric appliances are switched off when not in use. ▸ Do routine fire drills. ▸ Learn about fire safety. ▸ REPORT ANY HAZARDS TO THE RELEVANT PEOPLE.
▸ Pests (mosquitoes, cockroaches, rats) ▸ Pest infestation of food storage areas	Mosquitoes carry diseases such as dengue or malaria. Cockroach droppings can cause food contamination or allergies. Rats and rat droppings also carry diseases and their presence can lead to food contamination and/or illness. Pest infestation of food storage areas can lead to serious food contamination, loss of food products and therefore loss of money as food has to be thrown away. This affects the revenue of the establishment.	▸ Monitor all public areas and waste management areas for signs of pests. ▸ Invest in screens, nets, cockroach and rat traps. ▸ Keep mosquito repellant (electrical) in guest rooms. ▸ **Do not use rat poison or insect sprays as this can cause serious food contamination and a danger to the health of anyone working near the poison.** ▸ Do not allow guests or other staff into areas of pest infestation. ▸ REPORT ANY INFESTATIONS TO THE RELEVANT PEOPLE.
▸ Slippery/wet floors and long electrical cables from cleaning equipment.	People can slip, fall and sustain bad injuries such as broken bones.	▸ Use a sign to warn of a slippery floor. ▸ Use a sign to warn a floor is being waxed or cleaned.

Hot water accidents - › Malfunctioning water heater, water dispenser, or kettle › Spilt hot beverage	Hot water accidents can cause serious burns. Spilt liquid can lead to slips and falls, causing bodily injury.	› All water heating equipment should be well-maintained and checked carefully before use. › Practice handling tea and coffee pots correctly before service. › Know how to use electrical equipment correctly. › Clean spills up immediately.
› Broken glass › Damaged or broken kitchen utensils and equipment	Broken glass poses the risk of cuts and wounds, some of which can be life threatening. Damaged items pose the risk of cuts and wounds.	› Remove and dispose of any broken glass immediately and correctly. › Monitor/Check all areas where glass/ damaged or broken items are present and remove immediately. › REPORT ANY HAZARDS TO THE RELEVANT PEOPLE.
› Untidy, unsanitary and cluttered public areas.	Such areas can lead to cross contamination or injury through accident.	› Tidy up, clean and disinfect public areas / floors regularly.
› Overflowing waste/ garbage bins	Overflowing bins invite all kinds of pests and animals. This risks food contamination and a danger of injury to the people in the hotel. (Reference: Waste Management Section)	› Dispose of waste correctly and immediately. › Keep bins lidded. › Have a waste management schedule
› Hazardous cleaning chemicals	Risk of poisoning (inhalation) and food contamination.	› Store in a secure place and store in the correct fashion. › Read the manufacturers' instructions on how to use the chemicals correctly. › Wear protective clothing and ventilate the area well when using chemicals.

- The key to personal and public safety is not to panic, do not run in public spaces, and know what to do in many different situations. Be competent.
- Have the emergency numbers for your locality readily available at all times.
- Keep all areas of your working spaces clean.

B: KITCHEN HYGIENE

Kitchen hygiene looks at how to keep the kitchen and your workstation (your main work space) clean and sanitized. Here are some basic rules:

1. Wash hands - Making sure your hands are clean is at the top of the kitchen hygiene rules list. It is easy for bacteria to be transferred from our hands, so wash your hands throughout preparing and cooking food.
2. Thoroughly cook food – Ensure food is cooked properly. If undercooked, harmful bacteria could lead to food poisoning. Use a food thermometer to check internal temperatures of food.
3. Correct food storage - Another one of the most important food hygiene rules in the kitchen is safe storage. Make sure leftovers or open food packets are covered with cling film or sealed in a plastic container. Do not put warm food into the fridge, and keep your fridge clear of any items that are out of date.
4. Wipe down counter tops - Wiping kitchen counter tops after every use is one of the easiest (and most essential) basic kitchen hygiene rules. You will not only be keeping things clean and tidy, you will be stopping the spread of bacteria, too. Maintaining good kitchen hygiene is all about spot-cleaning. Keep a roll of extra absorbent kitchen paper or extra absorbent cloths to quickly mop up spills.
5. Use different boards for cutting fish, meat, veg, dairy or bread (different colour boards can help with this), and never leave edible food next to raw meat.
6. Clean your chopping board after use - Bits of food left on a chopping board will soon breed bacteria, so scrubbing down your board immediately after use is vital to stop them spreading.
7. Empty your bin regularyl - Regularly changing your bin is a key aspect of kitchen hygiene. Old food in a bin will soon decompose and bacteria will start to form, so take your rubbish out on a daily basis to avoid any funny smells.
8. Clean grease and oils correctly – Clean grease and oils with a separate cloth, using the correct detergent. If you do not do so the grease and oils can be transferred from your cloth to every other surface in the kitchen. Try using a piece of absorbent kitchen paper towel instead.
9. Keep the refrigerator clean – Spills and decaying food can contaminate other food items. Regularly clean your refrigerator, store food items correctly.
10. Scrub your sink daily - Your sink is used regularly throughout the day, so it will become grimy and covered in bacteria quickly if it is not kept clean. Wipe up any pooled water or spillages round the sink to keep it hygienic between scrubs.

C: WORKPLACE HYGIENE AND SAFETY

Workplace Hygiene and Safety refers to the wider area of the kitchen -that includes the other wash-up areas, dry storage areas, cold storage areas, waste disposal areas, etc.

Maintaining a clean work environment is critical in preventing foodborne illness. Bacteria can grow on unsanitary surfaces and then contaminate food. Just because a work surface looks clean does not mean that it is sanitary.

To maintain a high standard of workplace hygiene and safety, you and your establishment should have clear plan / procedure and schedule. By doing so you will greatly reduce the chance of contamination.

Cleaning Procedures and Schedules

A cleaning and sanitation plan is important in any food service preparation area. It ensures that all surfaces are cleaned on a regular basis and reduces the risks of transferring bacteria or other pathogens from an unclean surface to clean equipment such as cutting boards or tools. A sanitation plan has two components:

1. A list of cleaning and sanitizing agents or supplies with instructions on their safe use and storage

2. A cleaning schedule, outlining how each item needs to be cleaned, who is responsible, and how frequently it happens.

Below is an example of a daily cleaning schedule:

Daily Cleaning Schedule. Date: _____

Item	Frequency	Method	Responsibility	Supervisor Initial
Upright Mixer	Prior to use if mixer not used in previous 2 hours Immediately after use when task is finished	1. Lock out machine (unplug) and remove attachments and bowl. Send through dishwasher. 2. Wash down all surfaces with a clean cloth immersed in clean warm water and detergent. 3. Wipe down all surfaces with a second clean cloth immersed in sanitizing solution (100 ppm chlorine or 28 mL bleach per 4.5 L water). 4. Allow to air dry prior to reassembly and next use.	Pastry cooks	_____

Daily Cleaning Schedule. Date: _____

Item	Frequency	Method	Responsibility	Supervisor Initial
Meat Slicer	Prior to use if slicer not used in previous 2 hours Immediately after use when task is finished	1. Lock out machine (unplug) and set slicer to zero. 2. Remove blade guard. Send through dishwasher. 3. Carefully wash down all surfaces with a clean cloth immersed in clean warm water and detergent. 4. Carefully wipe down all surfaces with a second clean cloth immersed in sanitizing solution (100 ppm chlorine or 28 mL bleach per 4.5 L water). 5. Allow air dry prior to reassembly and next use.	Garde manger	_____
Dry Storage	Monday after dinner service.	1. Remove food from shelves one shelf at a time. Store rolling rack in dry storage while cleaning shelf in place. 2. Wash down all surfaces with a clean cloth immersed in clean warm water and detergent. 3. Wipe down all surfaces with a second clean cloth immersed in sanitizing solution (100ppm chlorine or 28 ml bleach per 4.5 L water). 4. Allow to air dry prior to replacing food on shelves.	Grill Cook	_____

Item	Frequency	Method	Responsibility	Supervisor Initial
Reach in Freezer	Tuesday after dinner service	1. Remove food from shelves one shelf at a time. Store rolling rack in cooler while cleaning shelf in place. 2. Wash down all surfaces with a clean cloth immersed in clean warm water and detergent. 3. Wipe down all surfaces with a second clean cloth immersed in sanitizing solution 4. Allow to air dry prior to replacing food on shelves.	Garde Manger	_____

Dishwashing Procedures

Effective dishwashing ensures that all equipment is sanitary and ready for use when required. Using soiled or dirty china is not only dangerous, but it will tell customers that the establishment has little or no regard for customer safety. The table below shows the proper procedures for both manual and automatic dishwashing.

Before washing, scrape dishes and pre-soak any items with hard to remove residue. Then follow the procedure in the table below, depending on whether you are using a high- or low-temperature dishwasher or you are washing dishes manually.

Dishwashing procedures table:

Step	meat	mirepoix	acid products
Wash	Use a commercial detergent and 45°C (113°F) water.	Wash cycle must reach at least 60°C (140°F).	Wash cycle must reach at least 60°C (140°F).
Rinse	Rinse in clean hot water.	Hot rinse cycle.	Warm or cold rinse cycle with sanitizer.
Sanitize	Sanitize for 2 minutes with an approved sanitizing solution.	Rinse cycle must reach at least 82°C (180°F) for at least 10 seconds.	Final rinse must have concentration of 50 ppm chlorine or 12.5 ppm iodine.

Dry	Drain boards should be sanitized and sloped for drainage. Never towel dry.	Drain boards should be sanitized and sloped for drainage Never towel dry.	Drain boards should be sanitized and sloped for drainage Never towel dry.

- Did you notice that we use different cloths for cleaning and sanitizing?
- Did you notice that air drying is preferred to towel drying?

WORKPLACE SAFETY

Safety vs Security

Personal and public safety is covered in previous pages but it is worth to review what hazards can be found in a workplace and how to minimize the risk of hazards creating a threat to your safety or the customer's safety.

Security means knowing that you work in a secure environment. Being able to work/stay in a secure environment is paramount for the peace of mind of the employee, the employer and the customers.

Maintaining public security can mean the following:

a. Having establishment procedures in place for customer property that has been left, lost or stolen:
- return left / lost items immediately if possible
- keep a lost property box
- keep a record of what and where and when item was found

b. Having procedures in place to prevent theft, fraud or fraudulent behavior:
- keeping passport records, ID records, phone numbers,
- use secure payment systems, security boxes, etc.

c. Knowing how to deal with customer property:
- handle with care (no dropping or dragging)
- always ask for permission before touching

d. Ensuring safe transport to and from the establishment.

e. Hiring security personnel.

Maintaining personal security can mean the following:

a. Understanding what harassment means.

b. Reporting any kind of harassment. DO NOT SUFFER IN SILENCE.

c. Understanding that sexual harassment is illegal in Sri Lanka.

d. Having a procedure in place for dealing/reporting with harassment cases (report to the Police, the Assistant Commissioner of Labour in your district, etc.)

e. Knowing your rights – get legal assistance if you need it (volunteer organizations such as Women in Need and Sooriya can help with legal assistance).

f. Keeping your valuables in a secure location.

g. Ensuring safe transport to and from work.

h. Knowing you have the right to a safe working environment and suggesting ways to ensure this.

First Aid Box

As mentioned it is your responsibility to help maintain personal and public safety. This can be done in many different ways as can be seen from the information in previous pages of this section. In addition to prevention methods, learning more about safety, health and hygiene is essential.

- One way to do this is to undergo First Aid training. If your hotel has a pool it is important for some staff to have life-saving training. Some staff may undergo Fire training.
- At the very least it imperative that First Aid Boxes be kept in your establishment and maintained regularly.
- A First Aid Box should contain band aids, gauze, surgical tape, roller bandages, tweezers, a small pair of scissors, a clinical thermometer, antiseptic cream/lotion, Dettol, a First Aid Book.

If a guest or colleague has incurred an injury, follow your hotel procedure. If you are trained to handle the situation do so immediately. The main thing here is to make the guest or colleague safe and comfortable as quickly as possible until professional help arrives. Accidents and injuries must be reported and recorded for future reference.

Where to get more information

You can get information concerning hygiene, safety and emergency procedures from any number of sources.

- Your Manager
- Senior Staff
- Colleagues
- Code of Conduct/ procedures or guidelines
- Posters/Leaflets/Manuals
- Training Courses
- the Internet – websites for the Department of Labour (Sri Lanka), International Labor Organization (ILO), National Institute of Occupational Safety and Health

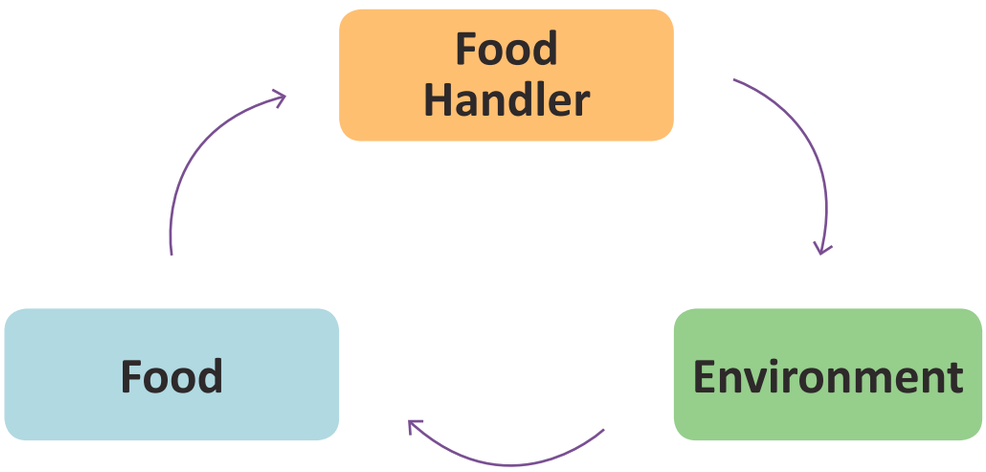
D: EQUIPMENT AND UTENSIL HYGIENE

Routine Equipment Maintenance

Most kitchen equipment is intended to be disassembled for cleaning. Refer to the manufacturer's instructions and training provided by your employer or instructor on how to do this safely. Some equipment is intended to be cleaned in place. This should be identified in your sanitation plan and cleaning schedule.

All equipment must be routinely cleaned and inspected. Older equipment may have nooks and crannies where dirt and bacteria can hide, which can be difficult to clean effectively. Proper cleaning procedures must be established and followed at all times with regular review to ensure that procedures are working. If equipment is replaced or cleaning materials change, the process may have to be adjusted. If you notice any safety concerns with the equipment while cleaning it, such as a frayed cord, missing guard or loose parts, let your supervisor know immediately.

It is imperative for safe food-handling outcomes for all workers to be familiar with standard sanitation and hygiene practices. Figure 1 shows the cycles of transmission of micro-organisms. One of the basic principles is to break the cycle by avoiding cross-contamination, which can be achieved by ensuring personal hygiene practices are followed.



Cleaning with Gloves

There are disposable gloves and re-usable gloves.

Disposable gloves must be disposed of correctly after single use. However, this does create a lot of waste. Re-usable gloves have to be washed and dried thoroughly before use.

- Do not use the same gloves across different cleaning areas. For example, gloves used for cleaning equipment should not be the same gloves used for cleaning surfaces.
  This is to prevent cross-contamination.
- Do not use gloves that have touched raw ingredients for other purposes.
- Do not use gloves that have touched waste/garbage for any other purposes.

How to clean and sanitize utensils and tools:

Cleaning includes the following:

Cleaning simply means removing dirt, dust, unwanted objects. It is NOT the same as sanitizing and disinfecting. Cleaning is to maintain industry standards of sanitation and hygiene, to maintain appearance and presentation and to prevent premature aging of items and surfaces.

Sanitization includes the following:

It is also necessary to sanitize. Cleaning will remove any dirt or grease, but will not necessarily kill any bacteria or other pathogens. Only a sanitizer will kill bacteria and ensure the area is safe for food preparation.

Leading sanitizers used in the food service industry are chlorine solutions (bleach), quaternary solutions (quats), and iodine. Use these materials according to the manufacturer's instructions that accompany the product and that are found on the material safety data sheet (MSDS) using the appropriate personal protective equipment.

Cleaning utensils

Some of us have been to establishments where we had to return utensils due to lingering food material or even rust. There are even some instances where the storage of food service utensils leaves an obvious path for contamination to occur. Think about how the customer will feel if they receive such unclean utensils. Think about what will happen if there is cross-contamination between food and dirty utensils / food preparing tools.

Food processing, preparation and handling areas are perfect breeding grounds for harmful bacteria and subsequent cross-contamination.
It is therefore is extremely important that we pay close attention to how we clean, sanitize and store our utensils; whether they are metal, wooden or plastic. General washing with soap and a scrubbing pad is not always enough. Here are some additional areas that you may be neglecting when it comes to keeping your utensils free of harmful bacteria.

→ Pre-cleaning

Some utensils and kitchen equipment are constructed in such a way that food residue may get stuck in areas that might not be easily removed with a scrubbing pad, such as scoops, curved canisters, colanders (drainers), sieves, forks, whisks, food processors, blenders. Pre-cleaning can be hard work, but start by doing the following before you wash.

Pre-soak to loosen food residue. Scrape off excess residue that is left behind after soaking.

Ensure you have the right cleaning tools available such as brushes and a heavy-duty scouring pad. If your utensil comes with detachable parts make sure you take note of what these parts can withstand — keeping in mind that not all parts can be immersed in water.

If you happen to have special equipment such as an espresso machine or brewing gadgets in your kitchen, ensure that you purchase the required cleaning kit for special parts.

→ Washing and sanitizing

Use food-grade detergent or soap to wash your equipment, using a heavy-duty scouring pad to remove stubborn residue. If you are unable to effectively remove all residue you may need to soak for a longer period or use a different tool to wash.

Rinse thoroughly with clean water after cleaning, then sanitize. This can be done by adding one tablespoon of bleach to one gallon of warm water to make a sanitizer solution. And soaking equipment or utensils in the solution for two minutes once it's safe to do so.

Alternatively, you can use a vinegar solution to spray on equipment after washing by heating it in a saucepan to about 65° Celsius and transferring to a spray bottle for application. It is important to note that the sanitizer solution will not be effective if there is food residue on your equipment.

Important - Allow your utensils to air-dry completely before you reuse them, to avoid contamination of your food with the sanitizer solution.

Quick Tip - When using utensils with raw animal products such as knives, cutting boards and utensils, they must be washed, rinsed and sanitized after use to prevent cross-contamination when being used for other food items.

→ Storage

Always store kitchen equipment and utensils in drawers or cupboards to prevent them from accumulating dust. You can retrofit storage drawers with storage trays for organization purposes; however, you must ensure that cupboards, shelves, and organizers are cleaned and sanitized prior to storage. Additionally, make sure you clean and sanitize these areas periodically with the above-mentioned methods and schedules.

Maintenance versus cleaning

Do you know the difference between maintenance and cleaning?
Maintenance includes the following:

✓ Checking (electrical and otherwise) equipment that is broken and fixing the problem.

✓ Checking lighting fixtures and electric hand dryers that are broken and need immediate replacing.

✓ Checking ventilation equipment such as ceiling fans, ventilator fans and ventilation units to make sure they are working correctly.

✓ Re-applying paint.

✓ Checking smoke alarms and fire extinguishers regularly to make sure they are working correctly.

✓ Checking kitchen equipment such as refrigerators and hot cupboards when they are not working properly and fixing the problem.

✓ Checking air conditioning units, fixing problems or servicing the units on a regular basis.

✓ Checking electrical outlets (plug points) on a regular basis, fixing any problems.

Maintenance of the machines usually is the job of the maintenance team. However, if it becomes your job, READ THE MACHINES' MANUAL to know how to properly clean parts, which parts cannot be cleaned under a tap, which parts need to be wiped down, which parts need to be emptied, etc. Do not attempt to disassemble a machine if you do not know how to re-assemble it.

If you are not on the maintenance team that means you have not received the proper training required to do any kind of maintenance. Therefore, DO NOT ATTEMPT TO DO ANY MAINTENANCE without first seeking advice and/or permission. If you do so it may lead to accident, injury or further damage of the item.

Cleaning a refrigerator or freezer:

The following are instructions for cleaning a refrigerator or freezer that is not made of stainless steel.

1. Collect your cleaning equipment and the correct cleaning agent.
Do not use disinfectant or undiluted bleach!
(This may lead to chemical cross contamination of the food.)

2. Wear gloves.

3. Remove all food and drink items from the interior and store in an appropriate place.

4. Remove all shelves and drawers and soak in warm water and dishwashing liquid.

5. Wipe down the interior of the fridge with sponge or wet cloth.

6. Wipe down the interior with a dry cloth.

7. After cleaning and rinsing the shelves and drawers, dry them completely before replacing them in the refrigerator.

8. Put food and drink items back.

9. Wipe down the exterior of the refrigerator. For the exterior, disinfectant can be used. Clean the handles thoroughly.

10. Inspect the refrigerator and make a record in cleaning schedule.

For stainless steel refrigerators and freezers, learn and follow the manual instructions or your establishment's protocols. Below are some basics for cleaning anything that is made of stainless steel:

The Do's of Cleaning Stainless Steel

01. Always start by cleaning with warm water and soft cloth.

02. Use dishwashing liquid and warm water to clean tougher stains and dirt.

03. Use a stainless steel cleaner to remove stains if needed, but always read the directions and test a small spot on the appliance first.

04. Wipe in the direction of the grain to avoid leaving streaks.

05. Always towel dry after cleaning to prevent water spotting. You can consider this the easiest way to polish stainless steel if you can wipe away all of the water streaks.

The Don'ts of Cleaning Stainless Steel

01. Never use steel wool or steel brushes. They will scratch the surface of your stainless steel and make it more susceptible to rusting and staining.

02. Abrasive cleaners will scratch the surface and should always be avoided.

03. Bleach will stain and damage stainless steel. Do not use cleaning sprays or solutions that contain bleach WHEN CLEANING.

04. Dirty water and cleaning solutions can leave a residue that can stain and damage the surface, so don't forget to rinse and dry.

E: FOOD HYGIENE

What does Food Hygiene mean?

Food Hygiene is a part of Food Safety. You will learn more about this in the Food Safety Section.

Food Hygiene can be defined as handling, preparing and storing food or drink in a way that best reduces the risk of consumers becoming sick from the food-borne disease.

The key elements of food hygiene are:

- **Personal hygiene.** This includes handwashing, protective clothing, illness procedures, and other duties (such as avoiding smoking).

- **Preventing cross-contamination.** This includes preventing bacterial, physical, chemical, and allergenic contamination, particularly by having appropriate equipment in place (such as separate cutting boards).

- **Cleaning procedures.** Thorough cleaning of the kitchen, equipment, and kitchenware (including plates and cutlery) is vital.

- **Allergen control.** All businesses must clearly explain which foods are allergenic and must prevent allergens from cross-contaminating other food.

- **Safe storage of food.** This includes storage locations and containers, a FIFO system, labelling, and temperature control.

- **Cooking temperatures.** Businesses must ensure they cook and hold food at appropriate temperatures to prevent bacterial risks.

- **Having a good knowledge of food ingredients.** Knowing about the different types or composition of food ingredients will dictate how such ingredients are safely stored or cooked.

Food hygiene is important for the following reasons:

1. Food poisoning can lead to gastroenteritis and dehydration or potentially even more serious health problems such as kidney failure and death.
2. This risk is especially significant for those in the high-risk category: Small children/ babies, pregnant moms, the elderly and immunocompromised, especially HIV infections and cancer patients.
3. To prevent the accidental injury or death through allergen-containing food items.
4. Food hygiene and safety prevent germs from multiplying in foods and reaching dangerous levels.
5. Keeping one healthy and preventing the additional cost of buying medication and medical check-ups. This is especially important is business. Companies worldwide lose billions of dollars per year due to staff downtime.

Understanding food that can be hazardous:

There are some food items that have natural toxins (poisons) which are harmful to us. There are food items that have natural, physical parts that are harmful to us. There are food items that cause an allergic reaction in some people.

It is your job to learn and understand what these natural, food hazards are as well as how to reduce the harm these food items can do.

→ Dealing with allergy-inducing food

Allergies are the body's response to something in the air or food or drink, or something the body touches, that causes the person to itch, cough, sneeze or develop rashes or even get sick. Your establishment is responsible for the health of your customers when they consume food at your establishment so it is important to know if your customers have any food or drink allergies.

Sometimes the guest will inform the establishment before arriving but usually customers inform staff of allergies when they are ordering food during food service. So it is important to know about the ingredients of the dishes your establishment serves. If you do not know this information, you run the risk of making your customers very ill. This will be bad for the establishment. Some allergies can cause death.

Here are some allergy-inducing ingredients: milk, eggs, nuts (eg. almonds peanuts,etc.), seafood, lentils, pineapple, tomatoes. The following are dishes you might see on your menu but contain the allergens above.

Food / Drink	**Contains Allergen**	**What ingredient?**
Mango lassi	Yes	Milk
Kiribath	Yes	Milk
Fruit Salad	Yes	Pineapple

Kokis	Yes	Eggs
Pittu	No	---
Devilled cuttlefish	Yes	Seafood, tomatoes
Curd	Yes	Milk
Black tea	No	---
Wade	Yes	Lentils
Coconut Roti	No	---
Ice Cream Sundae	Yes	Peanuts

→ Natural Toxins

Name	**Contains Toxins**	**Effect of Toxins**	**How to avoid hazard**
Wild Mushrooms	Yes	Vomiting, diarrhea, hallucinations	Do not use wild mushrooms. Use only mushrooms that have been identified as non-poisonous or purchased from reliable source.
Potatoes Sprouts	Yes	Stomachache, vomiting diarrhea	Store potatoes in a dark, cool and dry place. Do not eat if it turns green or sprouts.
Kidney Beans (and other dried beans)	Yes	Stomachache, vomiting diarrhea	Dried beans must be soaked for at least 12 hours and then boiled thoroughly.
Cassava (manioc) and bamboo roots and almonds	Yes	Rapid breathing, dizziness, headache, stomachache, vomiting diarrhea, convulsions	Add a bit of turmeric and cook very well.
Mussels, scallops and oysters		Stomachache, vomiting, diarrhea, paralysis	Make sure purchased raw items are fresh, stored correctly and cooked appropriately. Frozen items should be thawed correctly.

→ Natural, Physical Hazards:

Food items that have bone parts, scales, such as fish, and bone parts and cartilage, such as poultry, and meat, can be hazardous if the parts are not removed/processed correctly.

Leaving such sharp or bony or chewy parts in the food can lead to cuts in the mouth and choking.

→ Hazardous Food

And finally here is a list food items that need special care because their composition allows for easy contamination by bacteria. Whether during preparation, transporting, cooking, storing or serving be aware of the actions to take to prevent contamination by bacteria:

- raw and cooked meat/poultry or foods containing raw or cooked meat/poultry; for example burgers, curries, kebabs, pâté and meat pies
- foods containing eggs (cooked or raw), beans, nuts or other protein-rich food, for example batter, mousse, quiche and tofu
- dairy products and foods containing dairy products, for example milk, dairy-based desserts, bakery products filled with fresh cream or with fresh custard (yoghurt is not included here as it is an acidified product)
- seafood (excluding live seafood) and foods containing seafood, for example sushi
- sprouted seeds, for example of beans and alfalfa
- prepared fruits and vegetables, for example cut melons, salads and unpasteurised juices
- cooked rice and both fresh and cooked pasta
- foods that contain any of the above foods, for example sandwiches, pizzas and rice rolls.

Picture of allergic reaction to allergens:

Section 02

PROFESSIONAL COOKERY SKILLS MANUAL

Food Safety

FOOD SAFETY

What is Food Safety?

Food safety refers to **the management systems that establishments must have in place** if they sell food. These systems are to help establishment comply with Food Handling Laws. It means employing all the measures necessary to ensure the safety and suitability of food at all stages of the food chain.
Every country will have a Food Standards Agency - the governing body that works with local authorities to ensure businesses meet these laws. In particular, they measure a business's food safety system based on three key aspects: hygienic food handling, the physical condition of the business, and food management systems.

(Refer to Section 1: Hygiene and Safety)

Why is Food Safety important?

Impact of Poor Food Safety

Wasted food due to contamination and spoilage. Spoiled food is unfit for human consumption.

- Food poisoning outbreaks and sometimes deaths
- Civil action taken by food poisoning victims.
- Fines and accumulation of demerit points due to contravention of Hygiene Regulation.
- Closure of food premises by the municipality.
- Loss of production and revenues.

Benefits of Good Food Safety Practices

- Increased shelf-life of food.
- Excellent food quality to the satisfaction of customers and patrons
- Results in good reputation and increase in business activities
- Compliance with the relevant laws and regulations.
- All of these contribute to the increase in revenues and results in higher profit
- Good working conditions, higher staff morale.

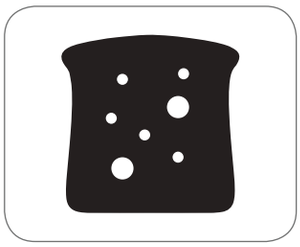
How do we ensure the safety and suitability of food along the food handling and food production chain? First you must understand the hazards that can happen at any point on the food handling and food production chain.

(Refer to Section 1)

What are the hazards when dealing with food?

Key Definitions

A food safety hazard is something that has the potential to contaminate food and cause harm. There are four main categories of contamination hazards, all of which will be covered throughout this course:



A microbiological hazard is where a food becomes contaminated by micro-organisms, such as bacteria, moulds and parasites.

A physical hazard is the presence of a foreign object in food products, such as pieces of glass, hair or pins.

A chemical hazard is the presence of harmful substances in food such as pesticides, cleaning chemicals, toxins and environmental contaminants.

An allergenic hazard is the presence of an allergen in food, such as peanuts, eggs and sesame seeds. Any food can contain an allergen, but some are more common than others.

If you consume food or drink that has been made in an unhygienic place or in an unhygienic manner, or the food or drink has been stored incorrectly and has spoiled you can get food poisoning. This means being sick or catching diseases from food that contain germs, dangerous chemicals or objects. To understand how such contaminants enter food is to understand how cross contamination occurs.

Type of Contamination	Example	What could happen
Microbiological	bacteria, viruses, fungus and mould.	Microbiological contamination can lead to disease.
Physical	sand, stones, hair, glass pieces, wood pieces, soil	Physical contamination can lead to injury.
Chemical	pesticide, herbicide, tobacco, soap, detergent, bleach	Chemical contamination can lead to sickness/poisoning.
Allergenic	Foods containing allergens such as peanuts, eggs and milk.	Sickness and death.
Perishables	Rice, pasta, dairy products	Sickness
Natural Toxins	Mushrooms, kidney beans, shellfish	Sickness
PESTS	Rat droppings, cockroach droppings, ants	Sickness, food wastage, financial cost

Factors Affecting Bacteria/Fungal Growth

Warm Temperature
The best temperature for the growth of food bacteria is 37 degrees Celsius. To prevent their growth food must be stored in temperatures below 5c or above 65c. The temperature range of 10c to 65c is known as the “DANGER ZONE”.

Time
If there is sufficient time, a small amount of bacteria can increase to such an extent that there are enough present to cause food poisoning. For this reason, it is essential that high risk foods are not left in the temperature danger zone longer than is absolutely necessary.

High Risk Perishable Foods
High Risk foods are those foods that are most likely to be the vehicles of the food poisoning organisms. They are usually ready to eat foods and / or they are usually high in proteins, and so require strict temperature control and protection from contamination.

High in protein content	Ready to eat Food
Milk and Dairy Products	Cold Meats
Eggs and Egg Products	Cold Desserts
Meat and Poultry	Salad bar Selections
Fish and Shellfish (sushi)	Rice
Lobster and crabs	Pasta

The following situations allow high risk foods to become contaminated:

- Food prepared too far in advance and stored at room temperature
- Cooling food too slowly prior to refrigeration
- Not reheating food to a high enough temperature, to destroy food poisoning bacteria.
- The use of cooked food contaminated with food poisoning bacteria.
- Under-cooking which leads to bacteria surviving in the food.
- Not thawing frozen poultry for sufficient time.
- Storing hot food below 65c.
- Infected (sick) food handlers.
- Improper use of leftovers.
- Cross Contamination

Be aware of how cross-contamination happens:

How can contaminants enter food? Here are some examples:

Person to Person – shaking hands with someone who has not washed their hands after going to the toilet, being near someone who is coughing and sneezing

Person to Food – touching food or drink without washing hands, or touching food without covering up open wounds, touching food after touching garbage or animals or chemicals, not tying hair up, wearing nail polish, smoking in food preparation areas, spraying pesticide in food preparation areas

Food to Food – raw meat or egg touching cooked food or cut food, cooked/hot food placed next to raw food such as fruit or salad (food splatter), allergen-containing food (for example nuts) entering food.

Linen to Food – wiping hands on a dirty towel or handkerchief and then touching food, wearing dirty clothes/apron, using dirty table cloths

Equipment to Food – using the same knife to cut meat and vegetables or fruit, a storage item has broken/is faulty and the food has spoiled, using dirty cutlery/dishes/blenders/water dispensers.

Chemicals to Food – spraying pesticide around the food preparation area, cleaning agents being kept close to food preparation or food storage areas, leaving cigarettes near food preparation areas.

Other hazards to think about:

- People
  People commonly harbor food poisoning bacteria in the nose, mouth, intestine, by sneezing or coughing, or by being in contact with a contaminated product or sources.
- Water
  Contaminated water, e.g. sewerage water can cause serious contamination. All water to be used within the premises should be suitably treated e.g. by chlorination
- Other animals and birds
  Just like rodents, other animals, whether they be wild or domesticated, are capable of contaminating food products through various means e.g. feathers and hair which are transferred through contact. It is best to keep pets away from food and its storage.
- Garbage and waste food
  It will be best if waste and other near spoiled food products are discarded and are not allowed to accumulate near other food products as they are capable of contaminating those around it. Once disposed, food handlers should wash their hands.
- Damaged Equipment
  Damaged tools, utensils and equipment can also pose risks to food preparation areas and food items. Broken plates and glasses can cause injury or harbour germs in the cracks. Damaged tools and equipment that are not tended to immediately can cause serious injury and if used can contaminate food items by releasing particles such as rust and plastic.

Here are some examples of what to do should you find damaged equipment or surfaces in food preparation and food service areas:

	Why it is dangerous	**What action to take**
Hot cupboard or bain-marie that is not working	Food that must be kept warm or hot will become cold and increase the risk of bacterial contamination.	Inform the Manager immediately. Remove the broken item for fixing
Grease covered exhaust fan	The grease may drip down onto kitchen surfaces and contaminate food. The grease may prevent the fan from working correctly.	Inform the Manager. The fan should be cleaned by someone who knows how to do it.
Cracked tiles	Chemical agents, bacteria and germs can enter the cracked areas which can lead to cross contamination of food.	Inform the Manager. Tiles will have to be replaced by a professional.

Broken cupboard handle	It can cause an accident and pose a danger to the health of employees.	Inform the Manager. Anything broken must be fixed immediately.
Surface mold (wall/cupboard)	Mold can be highly dangerous to employees health, guests health and food safety. It can cause disease, allergies and toxic poisoning.	Inform the Manager. Mold damage must be dealt with by a professional.

How can you avoid cross contamination and bacterial growth?

Consider the Food Safety Pillars

The Food Safety Pillars are:

→ Good Personal Hygiene (See Section 1)

- The first pillar is probably the most important in terms of eliminating cross-contamination. Hand washing and clean hands awareness are critical to food safety.

→ Cleaning and Sanitizing Procedures and Schedules (disinfecting) (See Section 1 and 6)

- The second pillar in creating a food safety system is understanding fundamental aspects of cleaning and sanitizing.
- It is vital to have cleaning schedules to maintain safety standards.
- Clean as you go.
- Know how to clean food storage areas, chillers, dishwashers.
- Dealing with Pests.

→ Good Food Storage Practices

- The third pillar looks at supply and delivery chains, food labelling, best before dates, safe food storage, dry foods storage, fruits and vegetable storage, chilled food storage, frozen food storage and stock rotation.

→ Temperature Control

- The fourth pillar of food safety is a fundamental principle in preventing the growth of bacteria and ensuring the quality of food is maintained.

→ Food Handling

- The fifth pillar of food safety related to how food is handled during storage and preparation. Food Handling carries the greatest risk when dealing with cross-contamination.
- Activities such as thawing frozen food, cooking and re-heating, taking food temperature, cooling food, hot-holding, cold-holding and food service.

- Food handling also includes correct labelling of food items, using different (labelled) cutting boards and knives for different food items and constantly checking that crockery (plates) are clean before plating food. It is also important to check that food has no foreign particles in it before serving.

→ Kitchen Layout and Waste Management (See Section 3 and 4)

- The last pillar is the layout of the working space is also critical when thinking about Food Safety. If the kitchen space is disorganized or not well-thought out, if the workstations are poorly designed, if utensils and equipment are not kept in convenient locations, then the risk of accident, injury, and cross contamination becomes very high.

When dealing with food it is useful to have a checklist of the areas that need to be clean/prepared in order to prevent contamination of food.

Consider these questions:	Why it is important
→ Am I clean? (e.g. Is my hair out of the way, Have I taken off jewelry or my watch? Have I been outside? Have I touched any pets?) → Am I sick? → Am I wounded?	Being clean prevents contamination via bacteria which may be on our hair, our jewelry, our watches. Also it is unhygienic for hair to be found in food. If you are sick DO NOT be in contact with food or food preparation areas at all. Go home and get well. This is to prevent contamination via bacteria and avoids the spread of disease. If you have a cut on your hand or finger, determine how badly you are hurt and inform your manager. Deal with the wound immediately. If you can continue to work, WEAR GLOVES. This is to protect the food and your hands from contamination via bacteria.
→ **Are my hands clean?**	It is vital to wash hands thoroughly before handling food or preparing for food service. See the section on Safety and Hygiene to learn about when and how to wash your hands.
→ Are my gloves clean?	Your hands should be clean even if you wear gloves. If you use reusable gloves check that they ae clean and dry before use. This is to prevent contamination of any food you touch.
→ Is my uniform/apron clean?	If you have been washing dishes or dealing with waste it is likely there is bacteria on your apron or uniform. Therefore it is vital that you wear a clean apron before handling food or preparing for food service.

→ Have I touched any raw meat?	Raw meat contains a lot of bacteria that can be transferred from your hands to cooked or other raw food. Always wash your hands after touching raw meat. During food preparation, if you are handling raw meat DO NOT handle other raw food or cooked food until you have thoroughly washed your hands. This advice is the same even if you are wearing disposable or reusable gloves.
→ Are the food preparation areas clean and cleared of obstruction (i.e. no equipment or food items on the floor)?	It is important to keep a clean and safe environment in order to prevent accidents from happening in the food preparation areas.
→ Is the food preparation equipment clean? → Am I using the correct equipment for my tasks?	This is to prevent cross contamination of food and therefore preserve the health of you and your customers. It is important to use the equipment meant for the task at hand. Do not mix equipment up.
→ Are the food storage areas/equipment clean and clearly labelled?	This is to prevent cross contamination of food and therefore preserve the health of you and your guests. If anything in the food preparation area is not clearly labelled MISTAKES can happen and food can easily be contaminated by bacteria, objects and chemicals/poisons.
→ Are the cutting boards clean and sanitized?	Washing and disinfecting the cutting boards properly prevents bacteria and mold from growing.
→ Are there any dangerous chemicals in the food preparation areas? Have the correct detergents and sanitizers been used?	This is to prevent contamination via chemicals and poisons into food and therefore preserve the health of you and your guests
→ Are all the storage equipment working properly? → Are all food storage areas clean and clear of pests?	It is important to routinely check that refrigerators, freezers, hot cupboards, bain-maries, etc. are working properly. If they are not working properly this will lead to food spoiling and becoming a health hazard. This is to prevent contamination of food and therefore preserve the health of you and your guests.
→ Is all waste being dealt with correctly and efficiently?	Food waste or non-food waste should be managed correctly in order to maintain hygiene and prevent cross contamination.

GOOD FOOD STORAGE PRACTICES

First consider what the different food types are:

What is perishable foods?

- Foods that spoil easily, for example, all dairy products and eggs
- Ready-to-eat food such as salads, sandwiches, desserts, cooked meats and fish, cooked rice, cheese
- Meat, poultry, fish and seafood, un-cut vegetables and fruit
- Any raw food

What is semi-perishable food?

- Potatoes, apples, oranges, bread

What is processed food?

- Food that has been salted or fermented or preserved in vinegar or brine or oil, such as ham, smoked fish, sausages, pickles, etc.

  Follow the manufacturer's guidelines for storage if package or tin is unopened.
  If the package or tin is opened, follow your establishment's guidelines or S.O.P.
  S.O.P - Standard Operating Procedures: this means the rules and regulations of your workplace or establishment.

  (Generally, opened tins/cans should not be stored in the refrigerator as you risk chemical contamination. Place contents of opened tins/cans into a suitable storage container before putting into the refrigerator.)

What is prepared food/ingredients?

- Cut up vegetables, fruit, marinated meat, salted fish, chopped garlic or ginger, spices, table salt, pepper powder, etc.

What is dry food?

- Flour, sugar, pasta, rice

What are frozen foods?

- Food that has been frozen fresh or processed and frozen, for example, frozen vegetables, French Fries

<u>Specific Storage Practices</u>

Dry Foods

Store dry foods in a dry cupboard. Any dampness would damage the food – it would make the sugar stick together .Always use the tinned food, pasta or rice that you already have in the cupboard first – not the new packet you have just bought. This should stop out-of-date food gathering at the back of the cupboard!

Semi perishable foods

These foods do not need to go in the refrigerator. They include bread, which we often store in a bread bin. We can store root vegetables and most fruits in a cool cupboard or rack.
Perishable foods and Prepared foods

These foods should be kept in the refrigerator
Remember that raw food should go on the bottom shelves; and cooked foods should go on the upper shelves.

Frozen foods

These should be kept in the freezer at -18ºC.
All frozen foods need to be defrosted, thawed safely.
Never refreeze frozen foods.

Here are some suggestions of how food can be stored:

Food items	Easy to spoil or not	Container	How to store	Temperature
raw chicken	O	lidded container	refrigerator	Below 5 degrees
marinated chicken	O	lidded container	refrigerator	Below 5 degrees
box of cornflakes	X	box	store room	---
un-opened box of cornflakes	O	resealed/box	refrigerator	Below 5 degrees
ham	O	lidded container	refrigerator	Below 5 degrees
chocolate mousse	O	covered container	refrigerator	Below 5 degrees
tinned mushrooms	X	tin	store room	---
cooked rice for serving	O	In cooking container	At cooking heat	Above 60 degrees
potato salad	O	lidded container	refrigerator	Below 5 degrees
eggs	O	Carton or egg rack	Cool room or refrigerator	45 degrees or below
tin of biscuits	X	tin	store room	---

How to receive different food items

Food Delivery

- Receiving temperatures
  Chilled goods: 0 - 5° C , tolerate up to 8° C
  Frozen food: - 18° C

- Delivery reception area should be kept clean and free from waste and any risk of infestation by pests.

- Placed in appropriate storage within 15 min of delivery
  Check for freshness, good color, good smell, contamination (spills, dirt, soil, sand, damage), infestation (pests) and temperature

General Storage Room Requirements:

Requirement	Reason
Store at 15 cm off the floor and 5 – 7.5 cm away from walls.	To prevent contamination from dust, dampness and pests.
Store at 45 cm from sprinkler heads	To prevent contamination from water.
Do not store under unprotected water or sewer lines.	To prevent contamination from sewer water.
Keep storerooms, coolers, freezers neat, organized and clean.	To prevent cross contamination.
Doors of cold rooms should only be open for a short time	To prevent contamination from condensation, pests (flies) and people.

Refrigerator Requirements:

Requirement	Reason
Maintain at 2 – 3 degrees Celsius.	To prevent contamination from illness-causing bacteria.
Make sure thermometer is accurate and functioning.	To maintain correct temperature which in turn prevents bacteria from growing.
Do not pack/overload the fridge with too many items. Leave adequate space to store food items sensibly.	This is to prevent spills from contaminating other food. This also keeps raw food away from cooked food
If possible, have one refrigerator for raw food, and one for cooked/prepared food.	To ensure there is no cross contamination.

General Rules for Storing Food items in a Refrigerator:

Most commercial kitchens will have separate refrigerators for raw food and for cooked or prepared food. Sometimes you may find a refrigerator specifically for raw meat, poultry and seafood. This depends on the size of the establishment as well as the budget for large equipment.

If however, the establishment is small and there is only one refrigerator, there are some simple rules to follow to prevent cross contamination of food.

- → Apply FIFO – new stock should be placed behind older stock.
- → Keep an eye on use-by dates and all items should be correctly labelled.
- → Raw meat, poultry, fish should be well sealed and kept on the bottom shelf. This prevents any moisture from these items contaminating other foods.
- → Ready-to-eat foods such as dairy products, preserves and pickles, and other processed food items should be kept on the top and middle shelves.
- → Prepared food such as salads, desserts, sandwiches, cakes, etc, should be kept far away from raw food items, so top shelf is best if possible.
- → Eggs can be kept on the top shelf or in the egg holders in the door.
- → If there is a bin or drawer for fruits or vegetables, place fruits or vegetables in the drawer Do not store fruits and vegetables together. These items should be in sealed bags.

When storing different food items understand the following rules:

- New food items should be stored right away to prevent food from spoiling and becoming a health hazard.
- Remove all existing dirt and debris from, wash and dry fresh fruits and vegetables thoroughly before refrigeration. This prevents pests and spoilage.
  Thoroughly wash all vegetables and fruits in clean, potable water.
- Refrigerate dairy items immediately upon delivery, or immediately after use.
- Food items that are past their use-by date and damaged tins/packets of food must be disposed of immediately to prevent health hazards. The item is no longer safe to serve to guests. Your hotel should keep a record of food items it purchases that is regularly updated or there will be a danger of food contamination and poisoning.
- Food storage areas or food store rooms should be kept clean to prevent food contamination and can be achieved by having a cleaning schedule and also by being aware of your environment (keeping an eye out for pests or damaged equipment).
- Raw meat should be stored separately, after being properly portioned and wrapped.
- Wash meat in a special sink and not at your workstation as it will contaminate the vicinity.
- Do not reuse any storage container that had meat or fish stored in. Use disposable storage containers for raw food like meat and fish.
- Do not store warm food in the refrigerator, it will not be cooled down evenly and can cause illness.
- Cover ready-to-eat food, cooked food and / or store it in proper storage containers.
- Never defrost food on room temperature. Defrost the food in the refrigerator.

- Do not leave raw food at room temperature for more than 2 hours, especially meat and fish. Even if the food is frozen, bacteria will start to grow rapidly when the temperature is between 40 to 140° F.
- Keep your raw food under 4° C to slow down the growth of bacteria.
- Food items should always be correctly labelled to prevent cross contamination. Labelling helps you or your chef to find food items or ingredients quickly and efficiently.
- **ALWAYS write the date/time/name of cook for ready-to-eat food that is being placed in the fridge for a short time.**
- **ALWAYS write the date/time/name of cook for prepared (seasoned or marinated) raw food that is going to be refrigerated.**
- **If you open a new item and use only part of the product, ALWAYS write the name of cook, time and date that the product was open (and replaced in its correct storing location).**
- **Food ingredients or cooked food should be properly portioned before refrigeration or freezing so that when they are thawed or re-heated they can be thawed or re-heated evenly.**
- When preparing platters or food for buffets use food within a 24 hour period (some products may be held for longer – for example soups, sticks and sauces.
- If using gloves the gloves must be of very high quality – check with your establishment what grade of gloves they use. Only wear gloves over a clean hand when touching ready-to-eat food. Do not wear gloves when handling raw food or washing equipment as this will spread cross contamination.

FIFO and Stock Rotation Schedules

Check the use-by dates so that you know which tins or packets to use first. Maintain a stock rotation schedule/system.

Stock rotation describes the procedure that your establishment takes to manage old and new food items. A stock rotation list/procedure will tell you how to store food items according to their use-by date and/or when a food item was purchased. It is important because this maintains food safety standards and the health and safety of the customers.

One aspect of stock rotation is FIFO = First In First Out system. New tins or packets of food are stored behind older tins and packets to prevent wastage of food and maintain food safety.

What does "shelf life" mean?

Shelf life refers to "Best Before" date or "Expiry Date" of all food products. You can see these dates on the labels of food products.
Shelf life also refers to how long a fresh food item can be stored for before spoilage occurs. For example, dairy food items have a very short shelf life.

Do all food products have a shelf life?

YES.

Other Storage Methods

BLAST CHILLER

Blast freezers are sometimes referred to as shock freezers. The idea of this type of freezer storage is to very rapidly bring down the temperature of (usually) foodstuffs or fresh produce, freezing them very quickly.

They are widely used in the frozen food industry for things like iced cream, pre-prepared meals and vegetables or fish. Many commercial kitchens also utilize freezer storage units.

Why use a Blast Freezer?

- When you freeze food (or anything else for that matter) the water inside crystallizes into ice. The longer the freezing process takes, the larger the ice crystals. Larger ice crystals damage the cells of the food ingredient by causing phenomena like cell bursting, which affects quality and flavour of foods. Rapid freezing causes the ice crystals to be very small, which does less damage and preserves food at a higher quality.

- Long term storage: once food is “blast frozen” it can be moved into a normal freezer for longer term storage.

- Quality and taste of the food is preserve: blast freezing slows down the growth of bacteria. Provided that the food is handled safely and then put into the freezer immediately after preparation, there is a greatly reduced risk of contamination.

How Do You Blast Freeze?

A lot of blast freezers use blower fans which force cold air across the contents of the freezer in order to rapidly chill it. Others can work in other ways depending on the design. They can be equipped with trays which move about in order to position foods, and often include various compartments for freezing.

An average freezer can normally handle foods at room temperature or even heated as long as the capacity of the freezer is not overloaded. Put a lot of hot food in the freezer and its temperature will rise which will negatively affect its cooling capacity.

VACUUM PACKING

Vacuum packing is a method of packaging that removes air from the package prior to sealing. This method involves (manually or automatically) placing items in a plastic film package, removing air from inside and sealing the package. Shrink film is sometimes used to have a tight fit to the contents. The intent of vacuum packing is usually to remove oxygen from the container to extend the shelf life of foods and, with flexible package forms, to reduce the volume of the contents and package.

Why use vacuum packing?

- Food preservation and money saving: vacuum sealing extends the shelf life of food, whether it is processed, cooked or raw. You can vacuum seal many different kinds of food and the food can last up to 3 years in the freezer.
- Being able to preserve food for longer means less food spoilage and less food wastage, which helps keep costs down.
- Keeping leftovers: Vacuum sealing can help preserve the integrity of any food leftovers and keeps costs down by reducing food wastage.
- Protection from contamination: Vacuum sealing adds a layer of protection. not only from bacteria, fungus, and mould, but also damage from freezer burn.
- Protection from decay: Vacuum sealing removes air (oxygen) and so colour, taste and flavour are all well-preserved.
- No need for additives: Fresh produce can be vacuum sealed without being processed. They only need to be well cleaned and dried.
- Even marinated or seasoned food can be vacuum packed and by sealing the flavours in, the flavours of the marinade or seasoning deeply penetrates the food item.

What is freezer burn?

This is what happens when food has not been properly sealed during the freezing process. The colour and the texture of the food changes, and will affect taste and texture of the food when cooked.

Freezer burn on minced beef

Freezer burn on chicken breast

How do you vacuum pack?

There are many different types of machines available on the commercial market. If you establishment has one, ensure that you learn how it is used.

Vacuum pack machines require special vacuum pack bags that resist heat and puncture. These bags should be purchased by your establishment.

A common type of machine is the external sealer or the single or double chamber sealer. The food ingredient or food is placed in the bag and placed either at vacuum and sealing point (external sealer) or in the machine itself (single and double chamber machines). Air is first removed from inside the bag and then the bag is heat sealed.

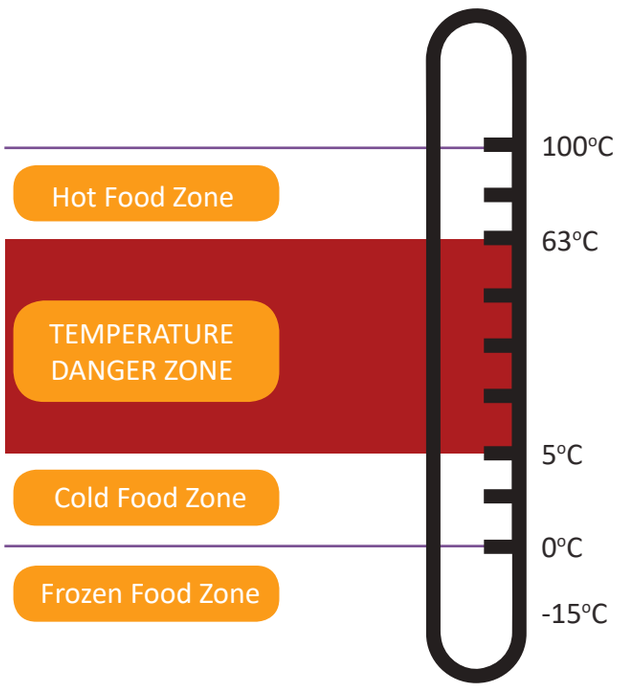
NOTE: remember when using machines, educate yourself. Read the manual when you can and make sure how to use it is demonstrated to you first.

TEMPERATURE CONTROL

As a food handler it is vital you understand the importance of temperature control. How to measure and maintain temperature and when to check temperature of food are the skills you will need to create a safe food production environment.

Look at the diagram below.
When food stays in the “danger zone” for too long the food becomes unfit for consumption.

Food poisoning bacteria grow best in the temperature range between 5 degree Celsius and 60 degrees Celsius. This the danger zone. This means we need to keep perishable food either very cold or very hot, in order to avoid food poisoning.



How do you measure/ /check food temperature?

Refrigerators and freezers have an in-built thermometers and there will be a screen where you can check the temperature. Checking internal temperature of food requires a food thermometer.

	Refrigerator	**Freezer**	**Hot Cupboard**	**Bain-marie**
Correct temperature	Below 5 ° C	Below 0 ° C	Above 60 ° C	(see below)
How to check/ maintain temperature	Thermostat	Thermostat	Thermostat / food thermometer	Thermostat / food thermometer
Why is it important to maintain?	To prevent food spoilage, to prevent food from changing taste/consistency and contamination.			

Holding Temperatures:

This means the temperature at which prepared (or cooked) hot or cold food should be maintained at. This is important for buffet food and any food that is not served right away (food that is prepared before food service starts).

→ Hot food has to be kept hot at or above 63°C.
Hot food can be kept below 63°C but only for about two hours.

→ Chilled food has to be kept at or below 8°C.
Chilled food can be kept at 10°C for about four hours.

The table below shows the cooling down temperature and time and the (re) heating temperature and time of prepared food:

Cold buffet – Keep below 5°C by chilling the bowls & placing food in ice basket .

Hot buffet – Keep above 63°C by warming the food using a flame or steam bath (bain marie).

FOOD HANDLING

Cooling hot food

- cooling from hot to less than 5° Celsius should be as quick as possible to keep food outside the temperature danger zone
- cool food from 63° C to less than 10° C in less than 2 hours
- refrigerate immediately when temperature is below 10°C
- using small containers/shallow trays facilitates speed of cooling

- container depth of 4 inches (10 cm) maximum and food depth of 2 inches (5 cm)
- cool large amounts of hot liquids in an ice bath while stirring, then in a refrigerator
- always use a thermometer to test cooling process for completeness
- never cool at room temperature

Thawing frozen food

- preferred: in a refrigerator below 5°C
- always re-date the product
- least preferred – under clean, drinkable running water – less than 21°C
- in a microwave oven (only if part of cooking process)
- in a regular oven (only if part of cooking process)

Cooking food

Food that is reheated for hot holding must reach an internal temperature of at least 73°C for 15 seconds.

Cooking and Reheating Temperatures for Hazardous Foods
An accurate food thermometer should be used to check the internal temperature of cooked and reheated hazardous foods for at least 15 seconds.

(Hazardous foods are foods that need to be kept hot or cold in order to keep them safe.)

Hazardous Food Item	Cook until internal temperature is	Reheat until internal temperature is
Whole poultry 	82 °C (180 °F)	74 °C (165 °F)
Cut and ground poultry and all parts of ground meats that contain poultry 	74 °C (165 °F)	74 °C (165 °F)
Food mixture containing poultry, egg, meat, fish or another hazardous food 	74 °C (165 F)	74 °C (165 °F)
Pork and pork products 	71 °C (160 °F)	71 °C (160 °F)
Ground meat, other than ground meat containing poultry 	71 °C (160 °F)	71 °C (160 °F)
Fish 	70 °C (158 °F)	70 °C (158 °F)
Other hazardous foods, such as roast beef, lamb or goat 	60 °C (140 °F)	60 °C (140 °F)

Handling and reheating leftovers

When dealing with leftovers it is imperative that you handle and re-heat correctly or you risk bacterial contamination as well as loss of taste, texture and colour of the food.

- Cool leftovers as quickly as possible (within 2 hours), store in the fridge and eat within 3–4 days. Alternatively, freeze leftovers for 3–4 months. After this point, they are still considered safe to eat — but texture and flavor may be compromised.
- Use up your refrigerator leftovers within two days.
- If you are taking leftovers from the freezer, eat within 24 hours. Make sure they are thoroughly defrosted before heating, by leaving them in the refrigerator or using the defrost setting on your microwave. Once defrosted, refrigerate and eat within 3–4 days.
- It is safe to reheat partially defrosted leftovers using a saucepan, microwave or oven. However, reheating will take longer if the food is not completely thawed.
- Reheat food until piping hot throughout. When reheating leftovers, be sure they reach at least 74ºC as measured with a food thermometer, for 2 minutes.
- Reheat sauces, soups and gravies by bringing them to a rolling boil.
- Cover leftovers to reheat. This retains moisture and ensures that food will heat all the way through.
- If you are using a microwave, be aware that food does not heat evenly throughout, so take your food out halfway through cooking time and give it a stir or rotate the food for even heating. Arrange food items evenly in a covered microwave safe glass or ceramic dish, and add some liquid if needed. Be sure the covering is microwave safe, and vent the lid or wrap to let the steam escape. The moist heat that is created will help destroy harmful bacteria and will ensure uniform cooking. Also, because microwaves have cold spots, check the temperature of the food in several places with a food thermometer and allow a resting time before checking the internal temperature of the food with a food thermometer. Cooking continues for a longer time in dense foods such as a whole turkey or beef roast than in less dense foods like breads, small vegetables and fruits.
- Do not reheat leftovers more than once. If you have a big pot of soup, for example, it is better to take out what you need and reheat it in a smaller pan. Equally do not refreeze leftovers. This is because the more times you cool and reheat food, the higher the risk of food poisoning. Bacteria can multiply when food is cooled too slowly or reheated insufficiently.

Protecting ready-to-eat food and cold food

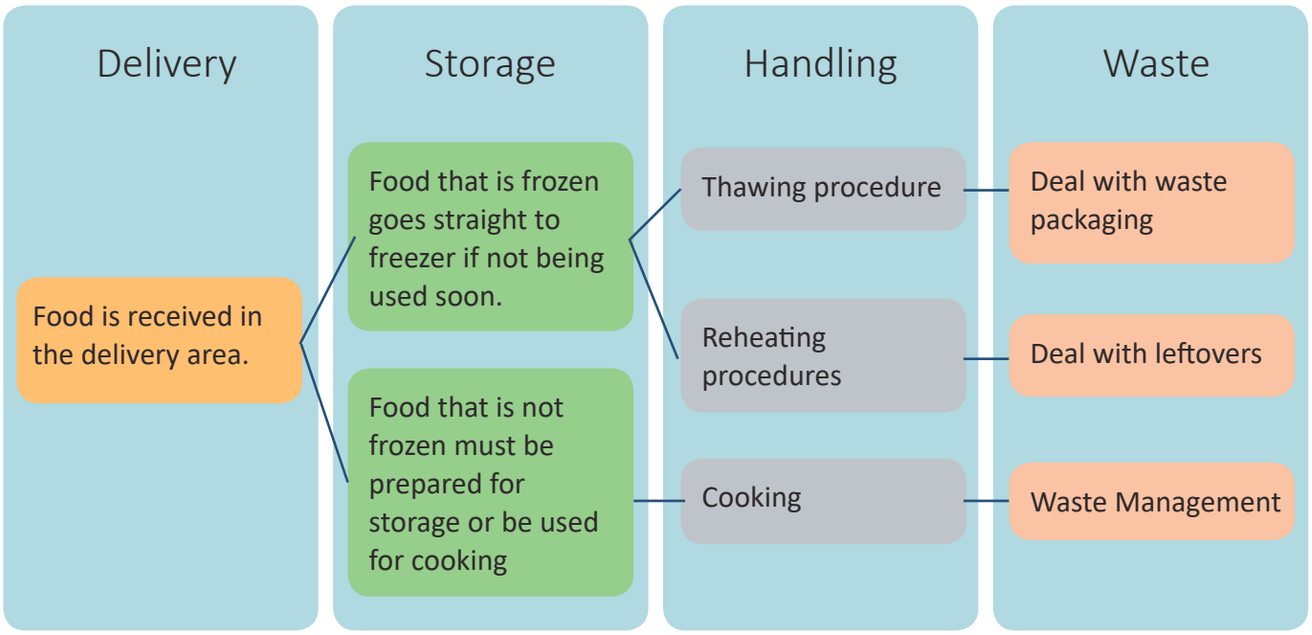
- Food that is served without further cooking such as salads, cooked chicken/lobster/potato/tuna sandwiches, must be made from cold products.
- Protect ready-to-eat foods from contamination at all times. Ready to eat foods do not have a 'heat' step to eliminate microbiological hazards. Keep covered and maintain correct temperature depending on the food. ALWAYS USE GLOVES WHEN HANDLING ready-to-eat food.
- Raw foods that are to be cooked should be protected – however if they accidently become contaminated with a bacteria or a virus, the heat step will in most cases eliminate this hazard.
- Taste food during production using single service spoons, keep plenty on hand in appropriate locations. DO NOT RE-USE SPOONS.

Maintaining buffet food quality

- Rotate food often.
- Display small quantities.
- Change out containers when 2/3 empty.
- Do not add fresh food to containers already at the buffet.

Cooking Zone	100°C	Boiling Water bacteria will be destroyed
	75°C	Cooking / Reheating
	63°C	Minimum Hot Holding
Danger Zone	37°C	Body Temperature Ideal temperature for bacteria to grow
	8°C	Food Storage Store food at this temperature or below
	5°C	Fridge Temperature
Cold Zone	-18°C	Freezer Temperature Bacteria will not grow but may not die

All the above temperatures are guidelines only



The above diagram is an example of how food ingredients and food dishes move around a commercial kitchen. You should see that there is a flow. The movement of food is affected not only by when and how food is transported but also to where. In this regard having an efficient kitchen layout improves efficiency of work.

KITCHEN LAYOUT AND WASTE MANAGEMENT

The last pillar of the food safety is understanding how a disorganized kitchen can also lead to contamination of food. You will learn more about waste management in the section 3.

While maintaining good standards of hygiene and safety for food delivery and food storage areas is important, you must remember that these areas do not exist on their own, separate from the wider kitchen. A commercial kitchen will have many areas of work and it is important you know what each area or space is called, what that area or space is used for, who works in that area and how to keep those areas clean and sanitized.

In addition to cleaning and sanitizing schedules there will be work schedules, service schedules and so on. It is vital that you know your place in the commercial kitchen to ensure smooth work flow for you and everyone else. This prevents cross-contamination and accidents from occurring.

Try to answer the following questions to start thinking about the importance of kitchen layout and organization:

- Where is everything? Utensils, tools, equipment, cutlery, dishes, etc.
- Are the above tools in a convenient location?
- Where are electrical utensils and heavy equipment stored? – is it close or far from my workstation?
- Where is the delivery, storage, food preparation area?
- Where is the washing up area (s)? – is it close or far from my workstation?

- Where is the food service area?
- Where is waste disposal? – is it close or far from my workstation?
- Where is my workstation? – do I share my workstation with anyone?
- What are my duties regarding kitchen layout and waste management practices?
- Is there good or poor air ventilation?
- Where are the fire extinguishers? Are there smoke alarms?

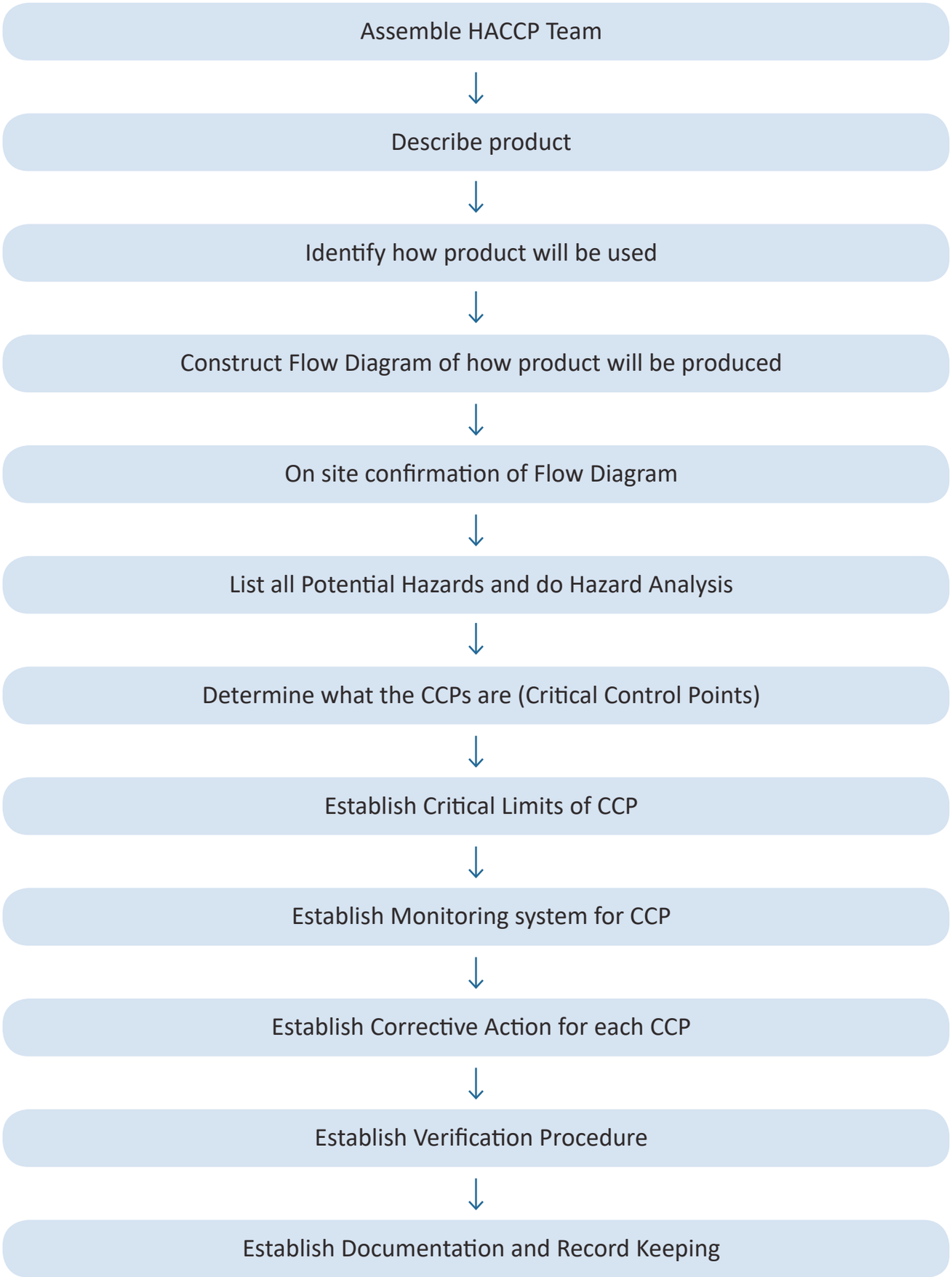
WHAT IS HACCP?

HACCP stands for Hazard Analysis and Critical Control Points.
It is a system for preventing hazards from occurring. It was a system designed by NASA (National Aeronautics and Space Administration), the Pillsbury Company and the United States Army in the 1960's. They produced this system because they were trying to create safe food for space missions.

The use of this system spread to the catering industry, baby food production, canned food production and commercial kitchens all over the world. As a food handler it is highly recommended that you learn about and understand this system . Ask your employer if they provide HACCP training.

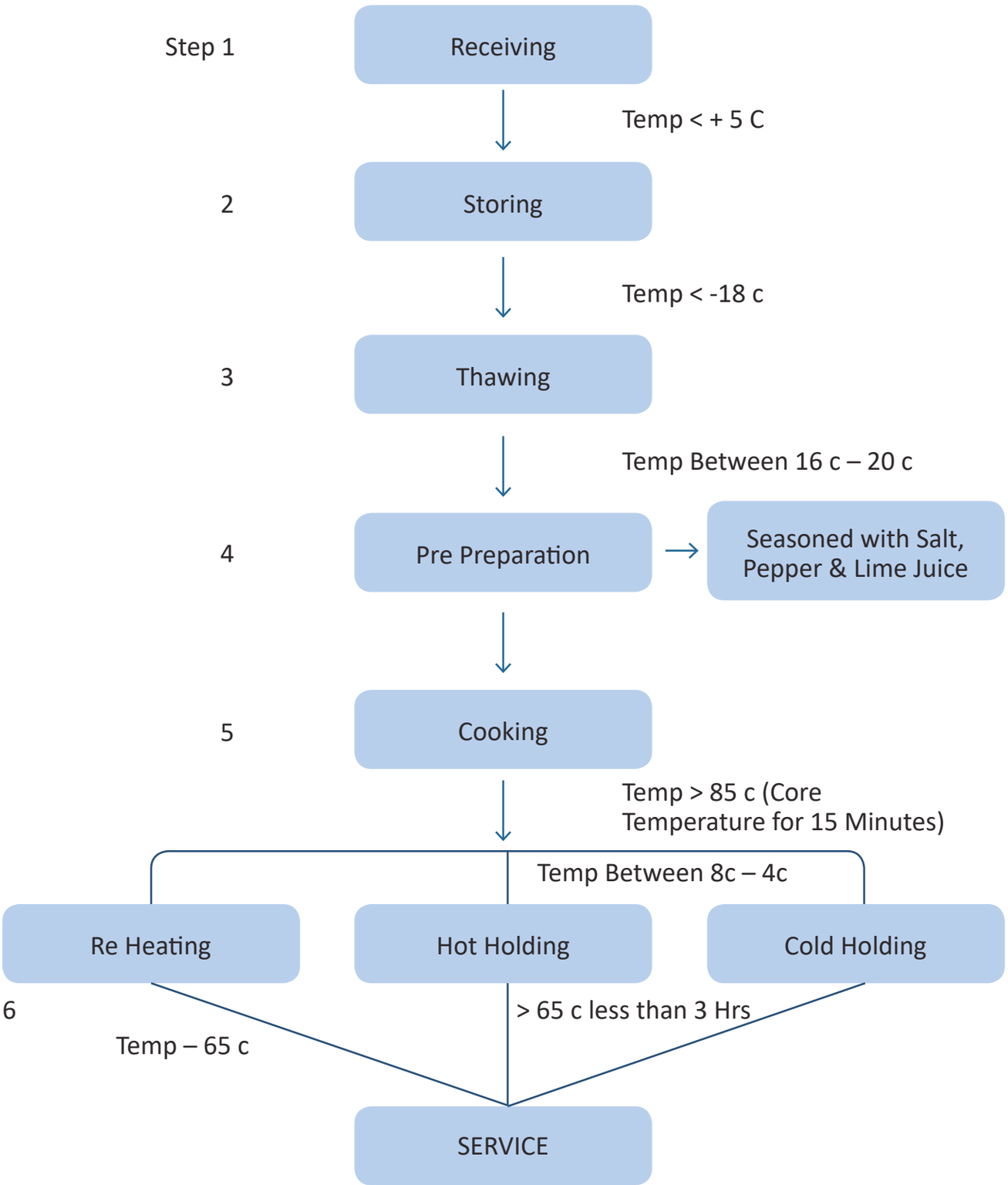
Or search online for information:
https://safefoodalliance.com/haccp/the-beginners-guide-to-haccp/

Below is basic flow chart of how HACCP works in food production:

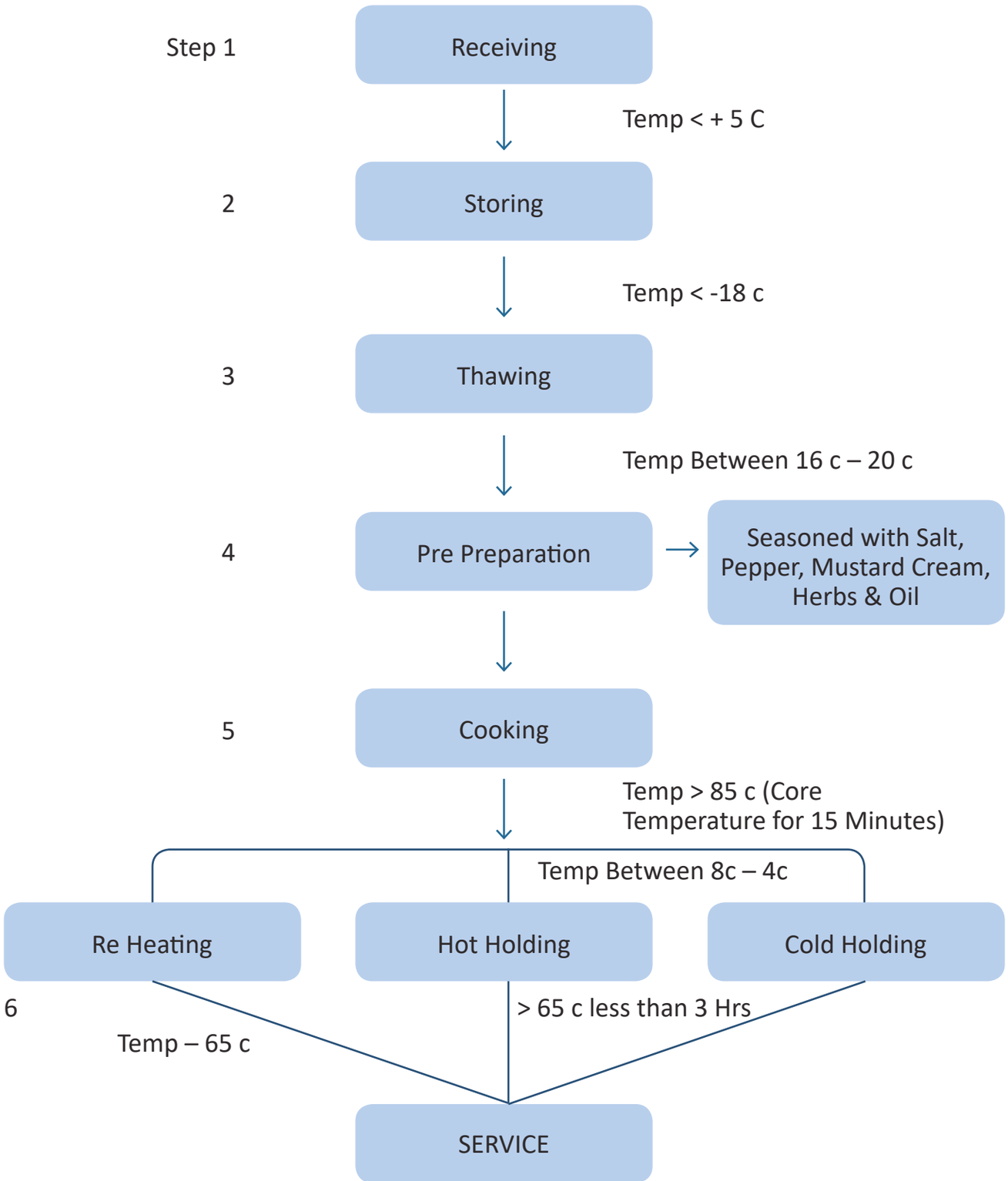


Here are examples of how the HACCP system FLOW DIAGRAM can be used in a commercial kitchen:

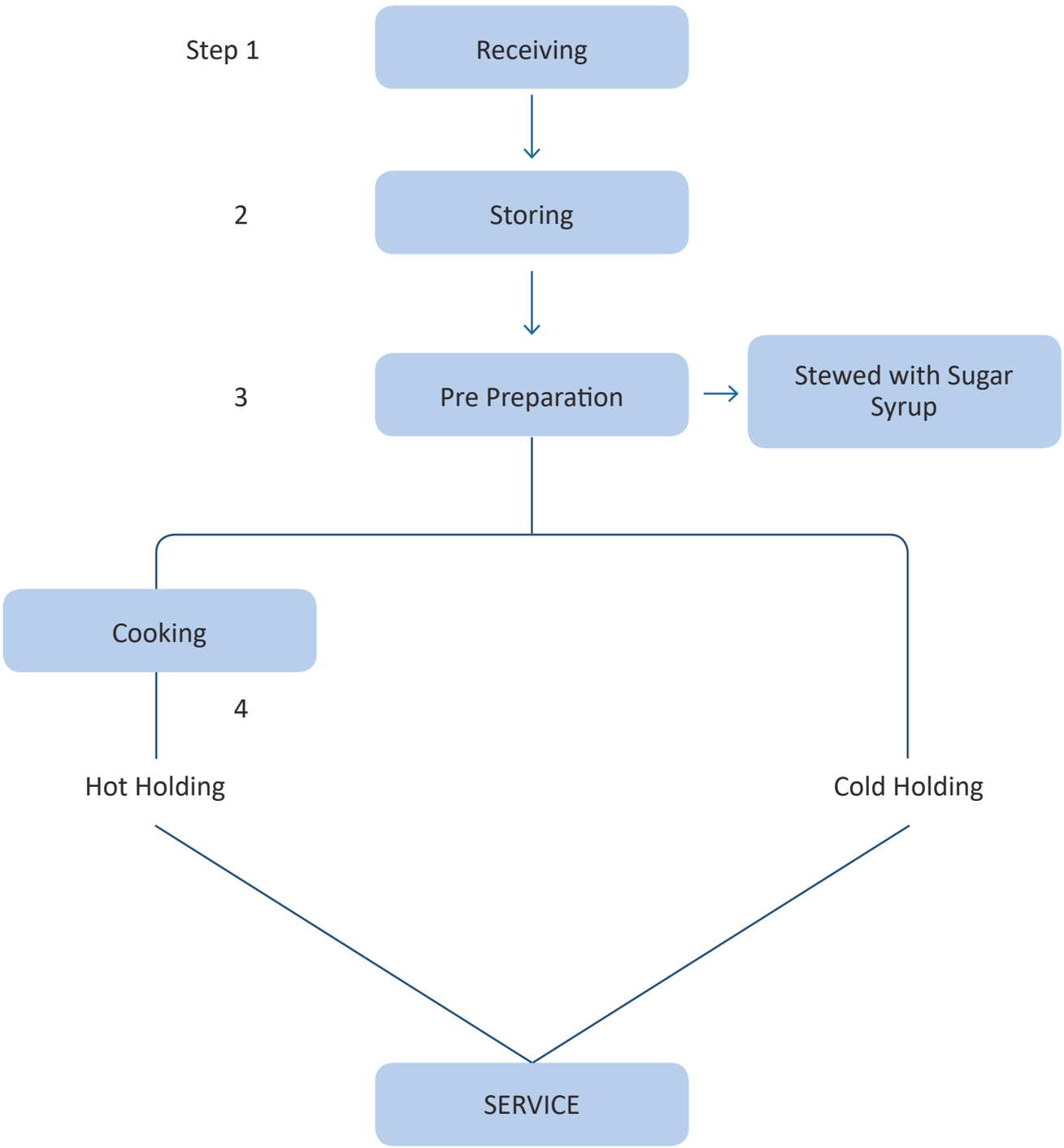
Flow Plan For Fish & Fish Products



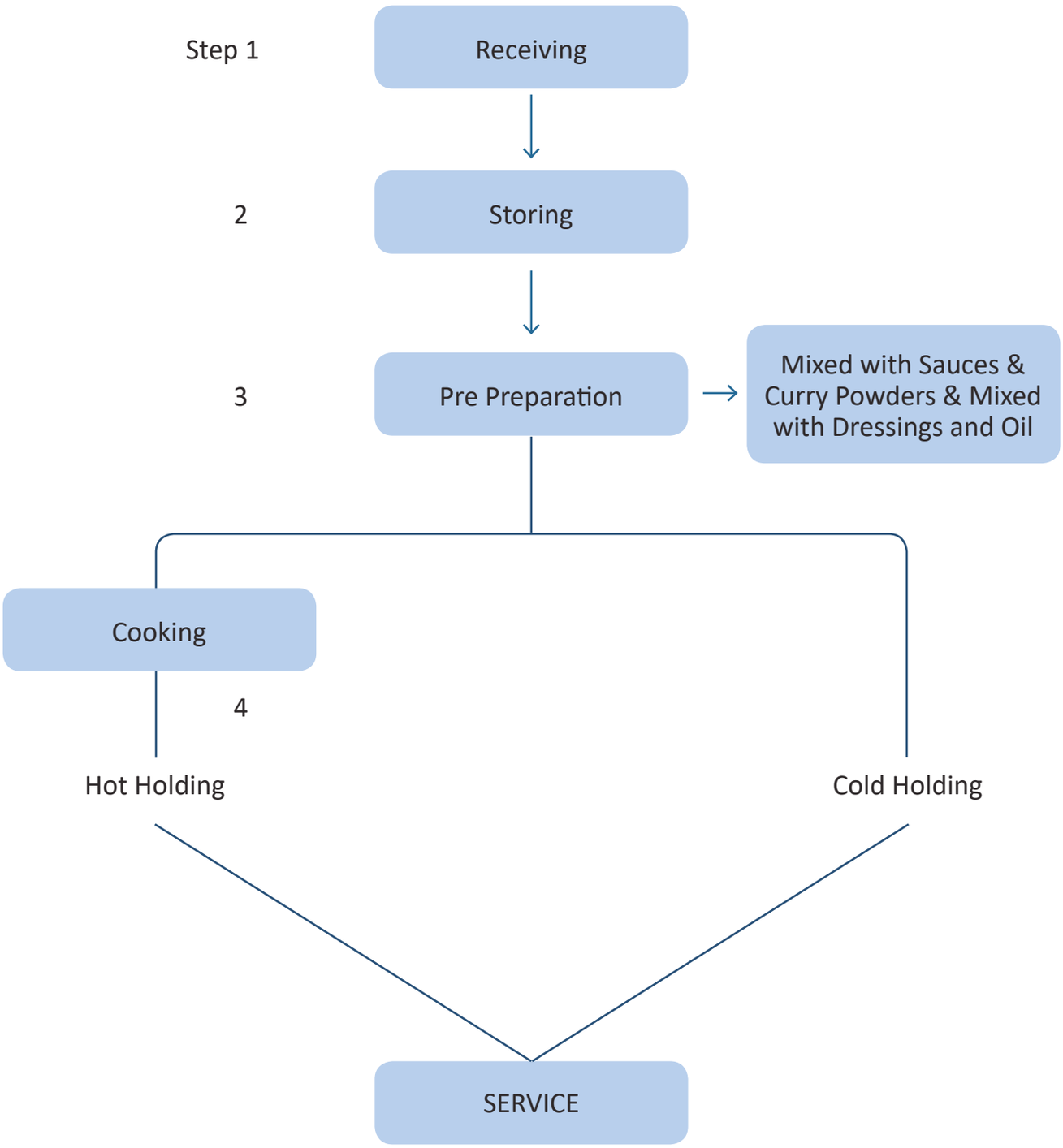
Flow Plan for Meat & Meat Products



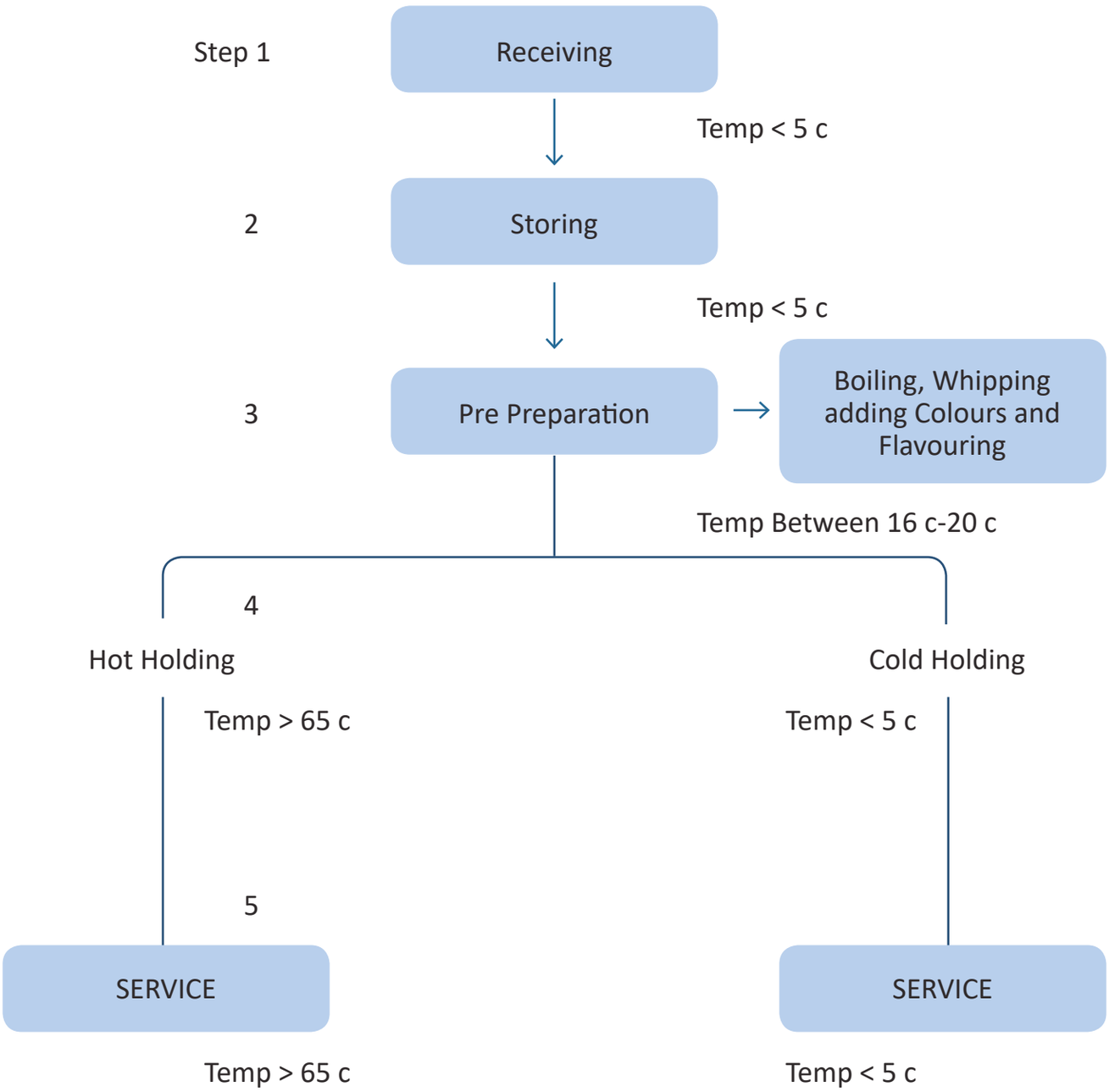
Flow Plan for Fruits



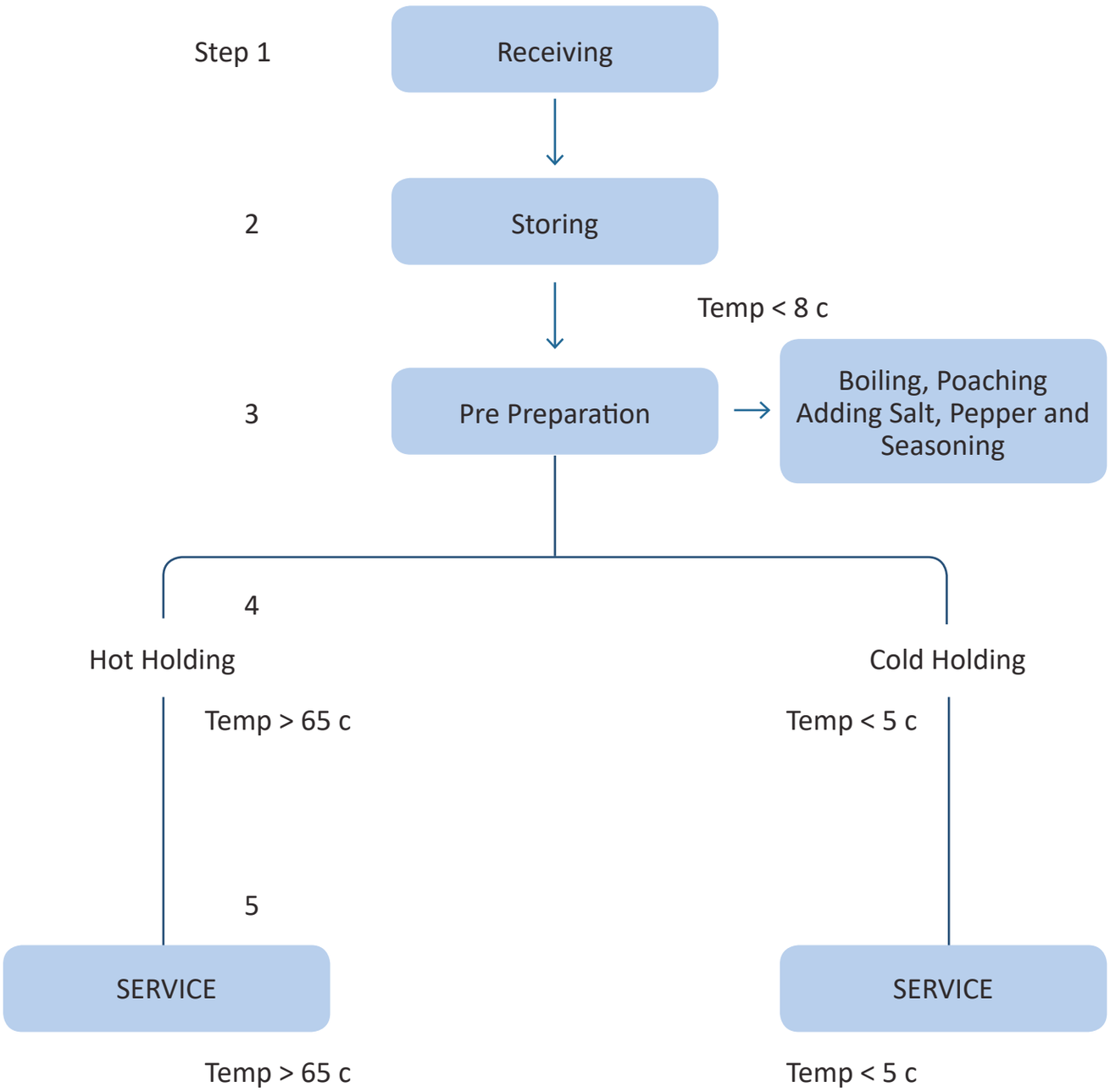
Flow Plan for Vegetables



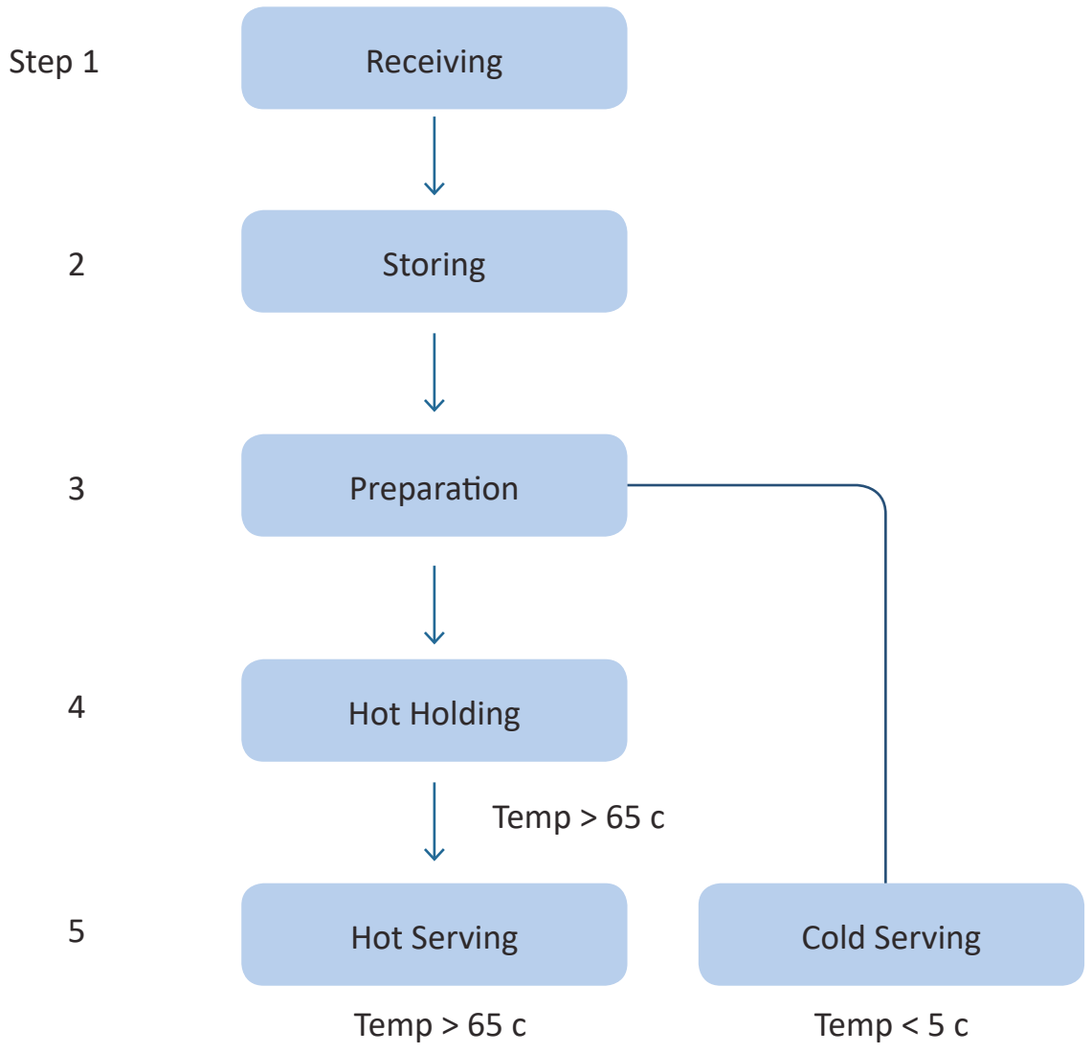
Flow Plan for Milk & Milk Products



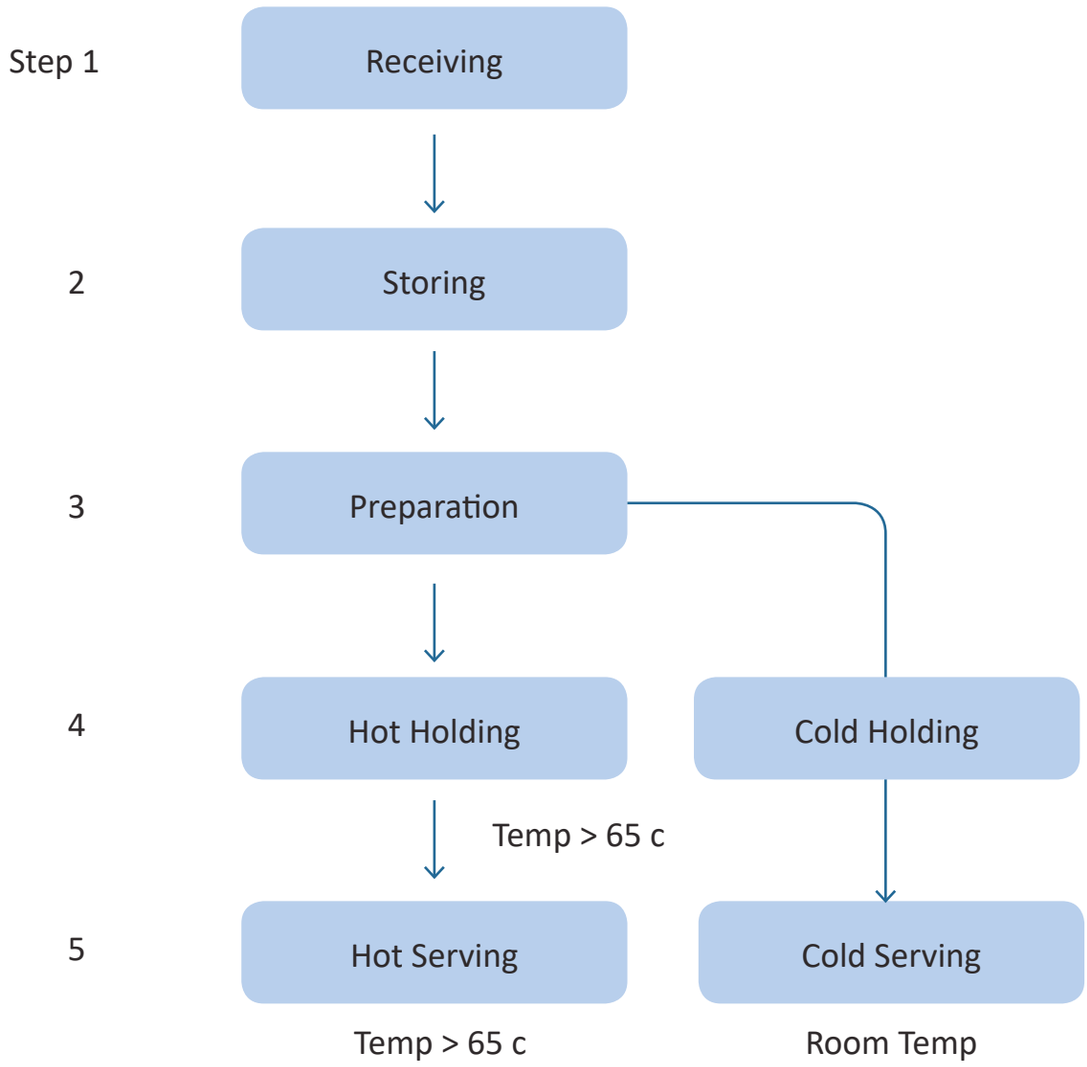
Flow Plan for Egg & Egg Products



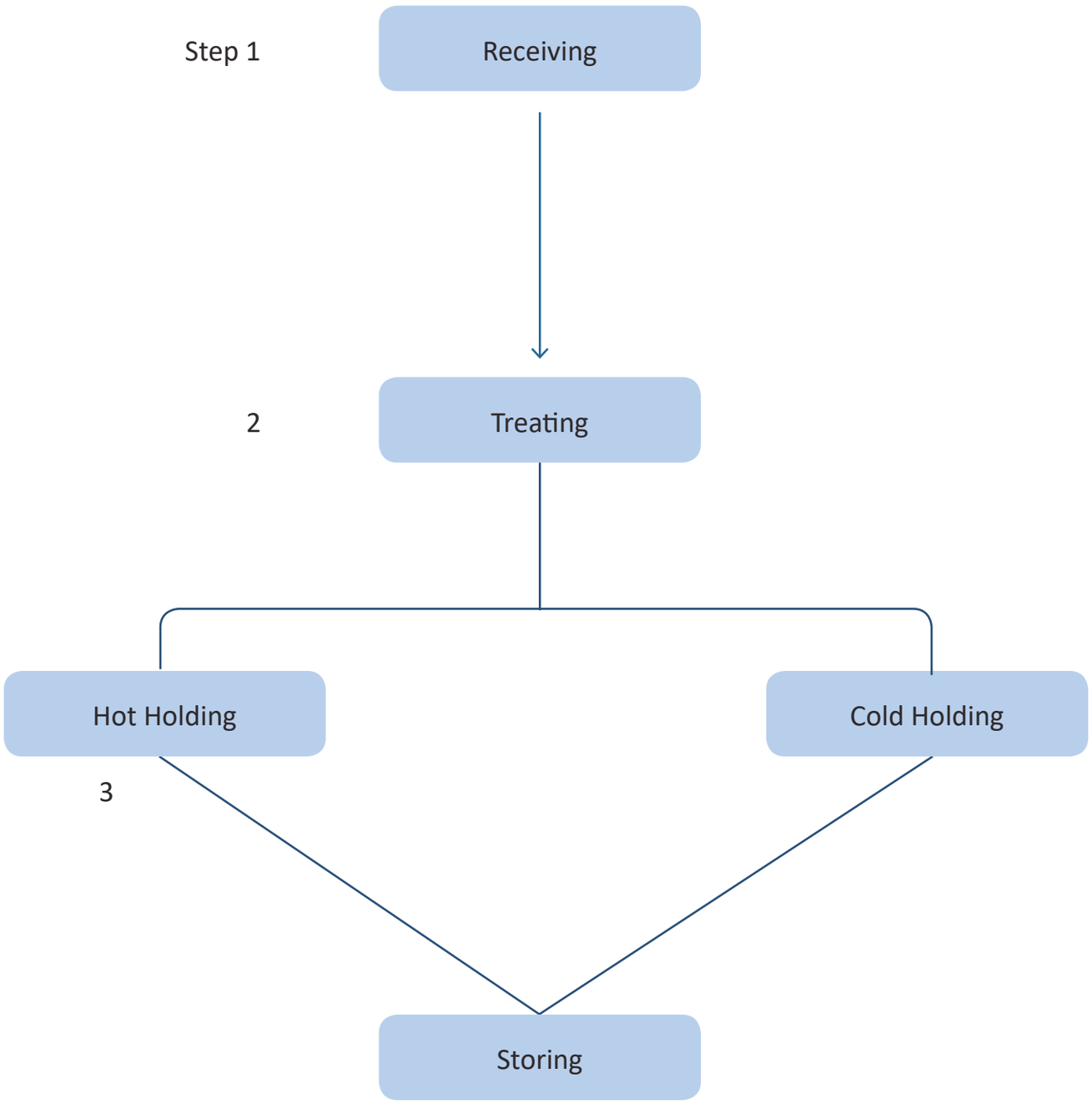
Flow Plan for Cereals



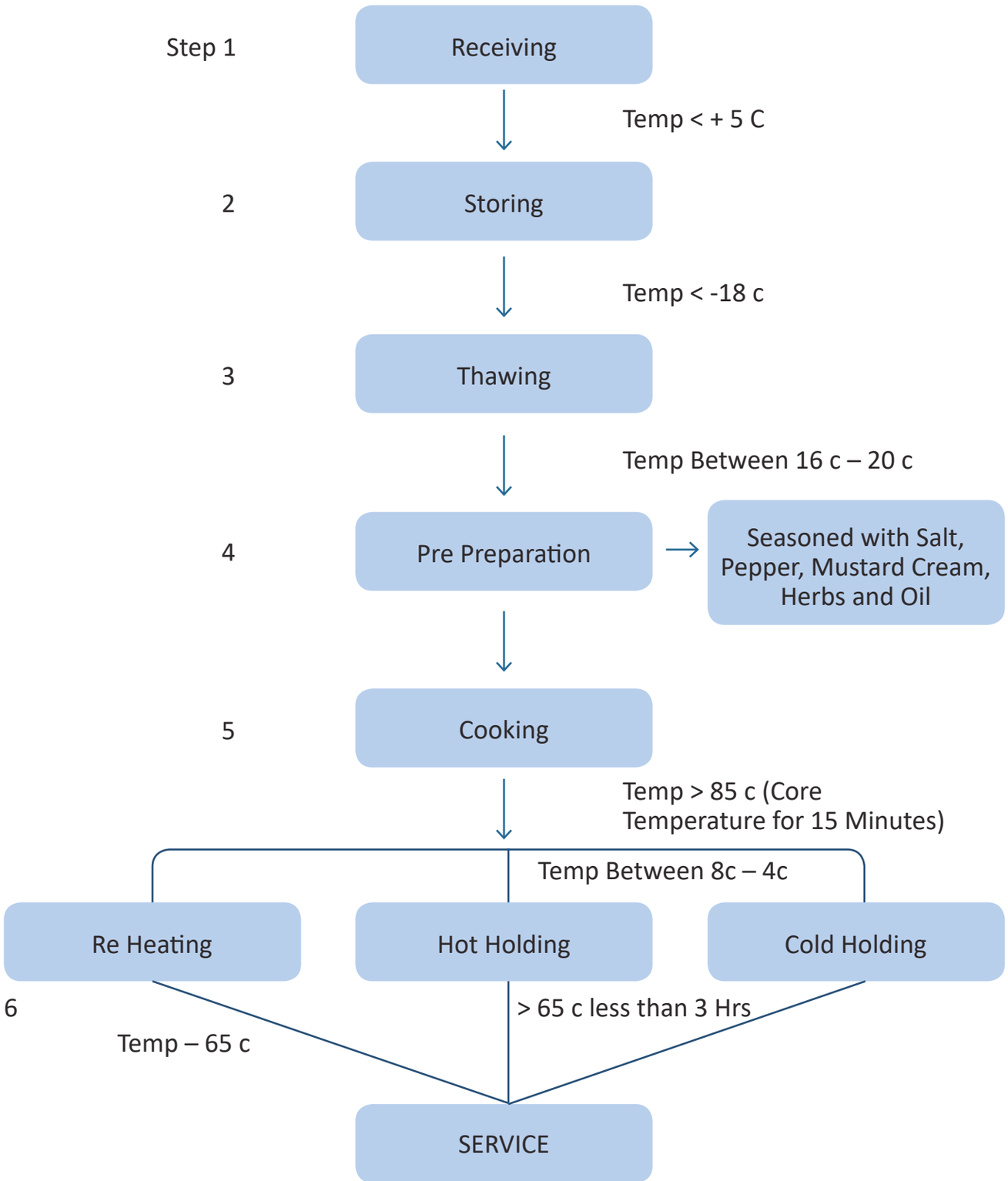
Flow Plan for Bakery Products



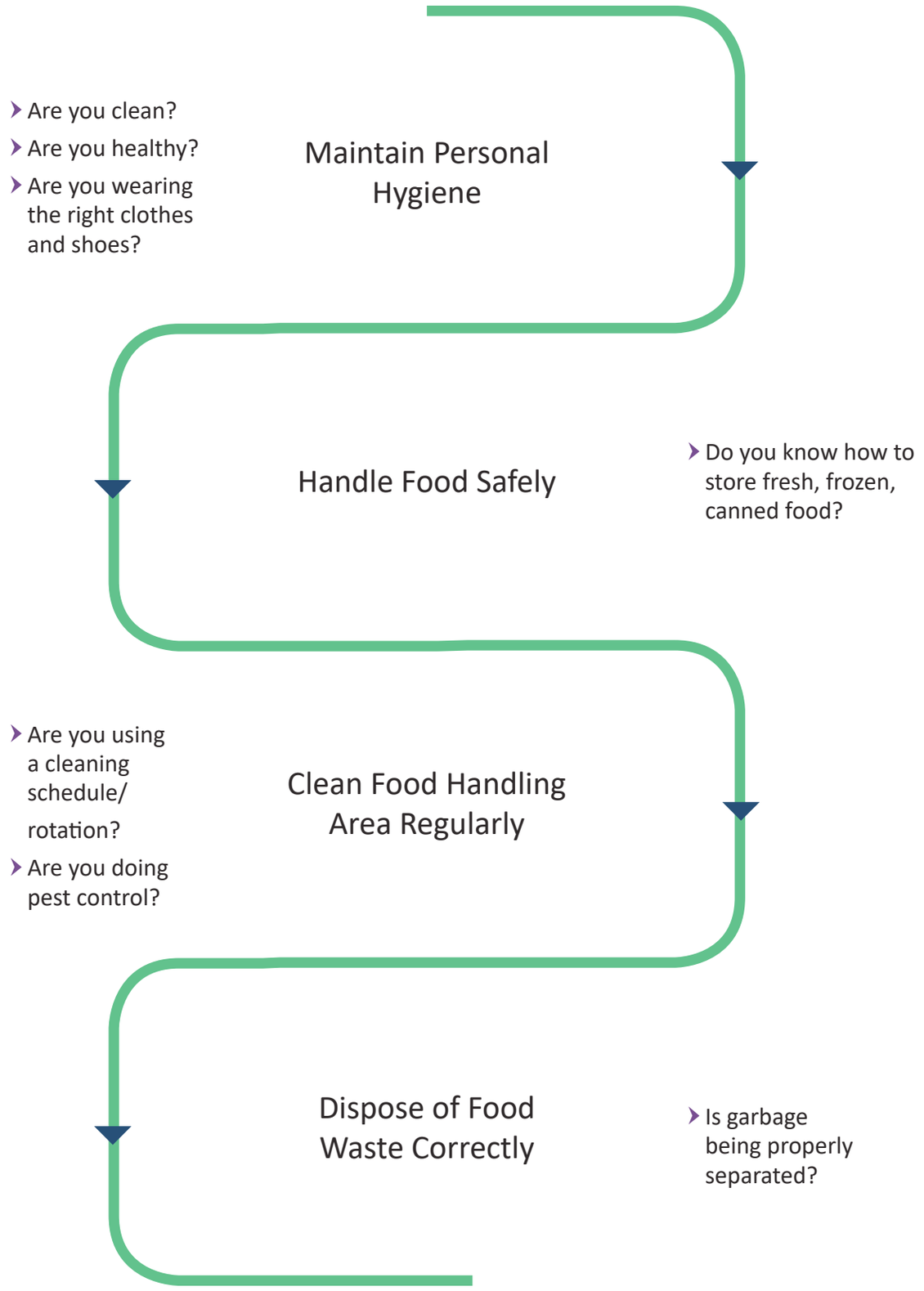
Flow Plan for Bakery Products



Flow Plan for Poultry & Poultry Products



SUMMARY of FOOD SAFETY:



(See Waste Management for Waste Disposal and Pest Control)

Section 03

PROFESSIONAL COOKERY SKILLS MANUAL

Good Waste Management Practices

GOOD WASTE MANAGEMENT PRACTICES

In this section you will learn about good waste disposal practices and good ideas for better waste management. Every establishment generates waste and how that waste is managed is critical. You must strive to help manage your establishment's waste effectively and identify opportunities to manage waste better.

Kitchen waste should ***never be burned***. Burning waste such as plastic or metal can lead to serious health problems for you and your team members. **It is illegal**. It also smells terrible and your guests will think of you and your hotel badly. Please do not burn waste.

Why is it important to have good waste management or good waste disposal practices?

It is important in order to keep work areas of the commercial kitchen clean, sanitized and accident-free (improve workflow). It is important in order to prevent the spread of diseases, pests, bad smells, and cross contamination. It is important because all waste is an environmental problem which eventually leads to environmental contamination of the food chain.

Cross contamination describes how surfaces and food and drink, can be contaminated or poisoned in different ways. When managing waste it is easy for microbiological (e.g. bacteria), physical (e.g. hair, dirt) or chemical (e.g. detergent, bleach) contaminants to spread from your hands, apron, shoes, and cleaning equipment to your face, other people's hands, furniture, bedsheets, kitchen surfaces, and food and drink items. This can lead to serious problems such as food poisoning and injury.

To read more about cross contamination and how to avoid it please refer to the information in Hygiene Standards Section.

General points to consider:

- Waste should be disposed of quickly and efficiently. Never let waste pile up and never keep waste in a place that can be seen (or smelt) by guests.
- When disposing of waste it is good practice to wear gloves and an apron. Cover your face with a face mask so you do not inhale noxious fumes. It is also a good idea to cover your shoes so you do not have to clean them in case the shoes get dirty.
- If your bins are overflowing with waste you should move the excess into a separate garbage container or bag.
- Waste should be managed away from kitchen and public areas.
- If you are unable to identify the type of waste you should ask your manager or experienced member of staff to verify it and advise disposal method.

Clearing and Disposing of Food Waste

Clear kitchen / food waste immediately because:

- It helps keep kitchen surfaces clear of waste and pests such as flies and rodents.
- It helps keep kitchen surfaces clean and less prone to germs.
- It helps because food waste is cleared to the waste bin area and reduces smell in the kitchen.
- It helps prevent pests from being attracted to the kitchen or waste bin areas.

To perform safe food waste disposal the following steps are recommended:

1. *Put on an apron and rubber gloves.*
2. *Collect food waste and non-food waste (plastic, paper, glass, metals) separately if possible in plastic containers (bucket or basin).*
3. *Transfer waste to waste area and dispose according to waste bin labels.*
4. *Clean disposable plastic containers before disposal.*
5. *Wash out glass containers before disposal. Wash out and dry metal containers before disposal.*
6. *Wash and dry collecting containers and store appropriately.*
7. *Dispose of disposable rubber gloves appropriately and remove apron.*
8. *Place the apron in the dirty linen basket.*
9. *Wash hands thoroughly.*

Clearing and disposing of general waste

Different kinds of waste should be disposed of in different, preferably colour-coded and/or labelled bins. This means separating waste into the following categories:

- Plastic
- Paper
- Cans
- Glass
- Food Waste

If your establishment has the space and facility, food waste can be turned into compost for the establishment's garden.

Why is it important to separate waste?

Dumping all waste together creates a lot of garbage. Remember that everything we throw away has to go to a waste disposal area (dump) and it is vital to keep these areas small and manageable. Separating waste helps reduce the overall amount of waste. Waste that can be recycled should be recycled. Waste that can be composted should be composted. Waste that is hazardous should be disposed of correctly in order to not contaminate the wider environment.

Hazardous and Non-Hazardous Waste

Most hazardous waste is non-recyclable with the exception of glass. All non-hazardous waste is recyclable. Food waste can be turned into compost.

Hazardous waste	Non-hazardous waste
Sharp objects	Food waste
Cleaning chemicals	Tins
Used batteries	Plastics
Glass	Cardboard
Cooking oil	Newspapers

What about broken tiles, pieces of wood, old cleaning equipment, disused parts such as taps, etc.?

If a waste item cannot be recycled or disposed of in a normal fashion, always first seek advice from your manager or supervisor. Follow standard operating procedures and advice from waste disposal department of your city/town. Since such items pose a hazard, store such items away from public spaces, in a secure and sealed off area until the item can be disposed of.

Sustainability and Waste Management

Sustainability has many meanings. It is the idea that in order to manage resources and protect and maintain a clean and healthy environment we must avoid the excessive use of water, energy, plastics and green spaces. If we do not do so we may face a shortage of water, a shortage of energy (power cuts, high electricity bills), and shrinking green spaces or land because of growing rubbish piles. Here are some ideas for making waste management sustainable for your establishment.

Prevent

- Avoid buying disposable products and products with unnecessary packaging.
- Post signs in guest bedrooms reminding them to consider the environment.
- Fix leaks immediately.

Reduce

- Buy more durable, long-lasting products.
- Buy recycled goods.
- Install dual flush toilets to help reduce the amount of water used during flushing.
- Use hand towels or invest in electric hand driers instead of paper towels in public bathrooms.

The use of paper in offices can be reduced by printing paper double sided, and by printing internal documents on paper that has already been printed on one side.

Reuse

- Reuse paper printed on one side.
- Buy container refills.
- Use rechargeable batteries.
- Reuse grey water (e.g. water from water bath or swimming pool for washing paths outside and watering plants.)

Recycle and Compost

Recycling is good for the environment because it significantly lowers the amount of waste going to landfill and can reduce waste costs if fewer collections are needed for general waste.

- Recycle glass, plastic, cardboard, papers, metal, aluminum and textiles.
- Compost food waste, grass cuttings and garden waste.
- Recycle damaged linen – for example, old towels can be made into cleaning cloths

Monitor: Regular monitoring of waste to ensure waste minimization strategies result in reduced amounts of waste disposal each month.

Hazardous waste: Batteries, engine oil, cooking oil, solvents, paints, old fluorescent tubes and other hazardous wastes must be disposed of with care. Find out if there is a local organization for collecting particular kinds of hazardous waste. One way to reduce the use of solvent based paints is to use natural paints. The benefit of natural paints is also to reduce off-gassing and improve indoor air quality.

Soap Dispensers: Refillable liquid soap dispensers can be used in guest rooms instead of soap bars. This minimizes waste by not needing to throw away used soap bars after every guest has checked out.

Separate Bins: In order to recycle aluminum cans, glass bottles and metal tins, separate bins could be made available in the kitchen and bar so that these items can be easily recycled.

Compact Metal Tins: In order to compact tins and minimize the number of recycling bin uplifts, the company could consider purchasing a can crusher. A typical can crusher can be wall-mounted and is inexpensive.

More Ideas for Energy and Water Management

Water Management Good Practices
Percentage of Hotels Adopting the Practice

Dual Flush Toilets
79%

Linen and Towel Reuse
56%

Low flow shower and taps
50%

Use of treated waste water for watering gardens
50%

Rain Water harvesting
02%

Sensors in toilets
02%

Energy Management Good Practices

Light Timers
3%

Use of LED TV
4%

Biomass Boilers
6%

Effective AC
5%

Key Switches
60%

Use of Solar Power
69%

Use of Energy Efficient Lighting Methods
88%

Solid Waste Management Good Practices

Composting
22%

Recycling
22%

Solid Waste Segregation
18%

3R System
13%

Waste Water Management Good Practices

Sewerage Treatment Plants
42%

Septic Tanks
36%

Biogas Production
36%

(source: Institute of Policy Studies Sri Lanka (IPS): http://www.ips.lk/talkingeconomics/2015/02/09/good-environmental-management-practices-in-the-hotel-industry-in-sri-lanka-determinants-and-barriers/

Pest Control

A **pest** is any animal or plant which has a harmful effect on humans, their food or their living conditions. Pests include animals which:

- carry disease-causing micro-organisms and parasites, for example, mosquitoes which carry Ross River virus and Murray Valley encephalitis.
- damage stored food. For example, rats and mice may eat grain in silos, rice or biscuits in shops and homes and contaminate this food with their faeces (droppings) and urine.
- damage clothing. Silverfish, for example, eat holes in clothes.
- damage buildings. For example, termites can cause considerable damage to timber in buildings.
- bite people. For example, bed bugs (so called because they often bite people in their beds) are very difficult and expensive to control. Their bites can cause great irritation to those bitten and, like mosquito bites, can become infected if scratched.

Typical pests you might find in your kitchen or general establishment area include rats, mice, cockroaches, mosquitoes and other insects. You might be used to seeing pests but your guests will think badly of your establishment if they think you have a pest problem.

It is easy to know if your establishment has a pest problem because you might be able to hear them, see droppings or notice that food has been chewed or eaten

Identifying pest droppings

(source: Cornell University: https://cpb-us-east-1-juc1ugur1qwqqqo4.stackpathdns.com/blogs.cornell.edu/dist/5/2739/files/2014/05/Droppings-130t5bm.jpg)

Rat

Mouse

Cockroach

How can commercial kitchens deal with pests?

- Use netting around the windows to prevent mosquitos and other insects from getting in.
- Store food off the ground.
- Keep food stored in containers that rodents and insects cannot enter.
- Keep storage areas closed.
- Set cockroach traps and check and change them regularly.
- Keep waste in bins and make sure the bins have lids which close tight.
- Remove or block places where rodents can enter the hotel.
- Contact a professional pest control expert if you have a serious problem.
- Report any infestation immediately so action can be taken.

Section 04

PROFESSIONAL COOKERY SKILLS MANUAL

Kitchen Organizational Structures

KITCHEN ORGANIZATIONAL STRUCTURES

In this section you will learn about how kitchen staff are organized, what responsibility each staff member has, and how a commercial kitchen flows during work hours.

You will also learn about how to be a good team member, why being a good team member is important, your rights as an employee and what is expected from a professional worker.

THE KITCHEN BRIGADE

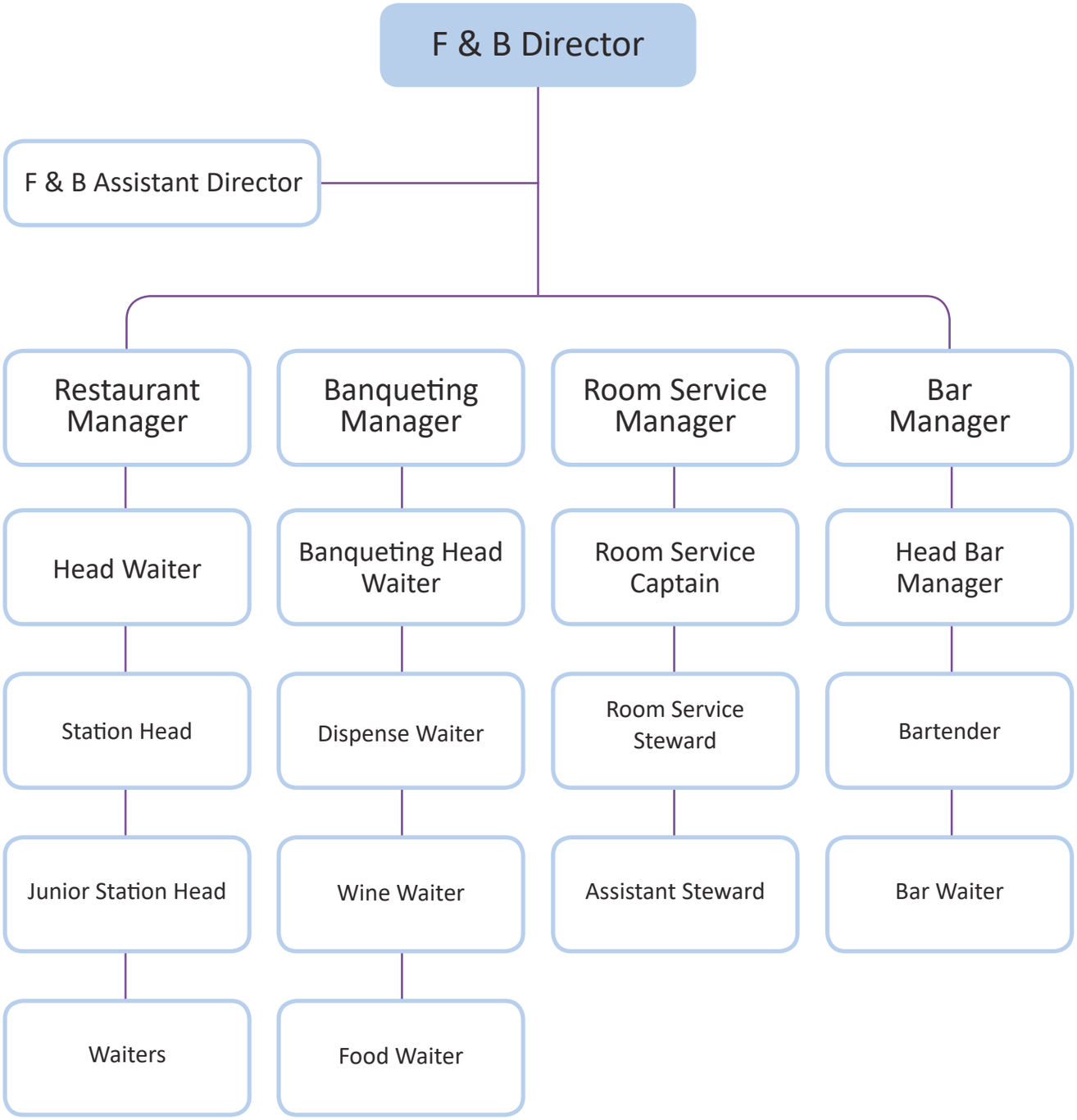
The kitchen brigade is the name we give to the team that works in the professional kitchen. This expression comes from the French word “Brigade de Cuisine”. The father of “Brigade de Cuisine” and modern French cuisine and the culinary arts, is a chef called Chef Georges Auguste Escoffier.
It was this man’s kitchen practices that have led to the standardized practices of cooking and catering that we use in professional kitchens all over the world today.

He believed that a professional kitchen can only function efficiently and smoothly if everyone in the kitchen understands his or her role completely, and complete their tasks accurately.

KITCHEN HIERARCHY

Professional kitchens can be found in restaurants or hotels. Hotels and restaurants come in different sizes. The way kitchen staff members are organised depends very much on the size of the establishment. Large kitchens need more staff and more specialization of staff functions

If you work in a hotel you will be part of the Food and Beverage Staff (F&B staff).
Here is an example hierarchy:

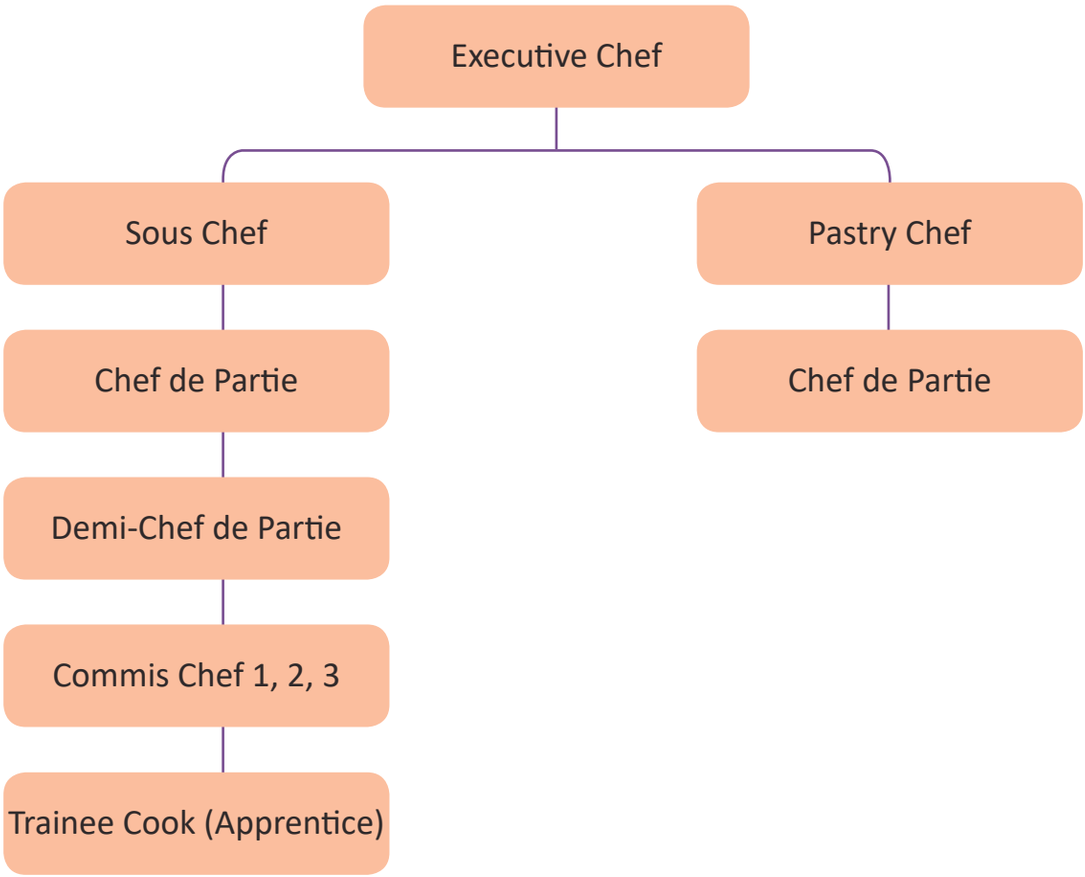


Breakdown of the roles in F&B:

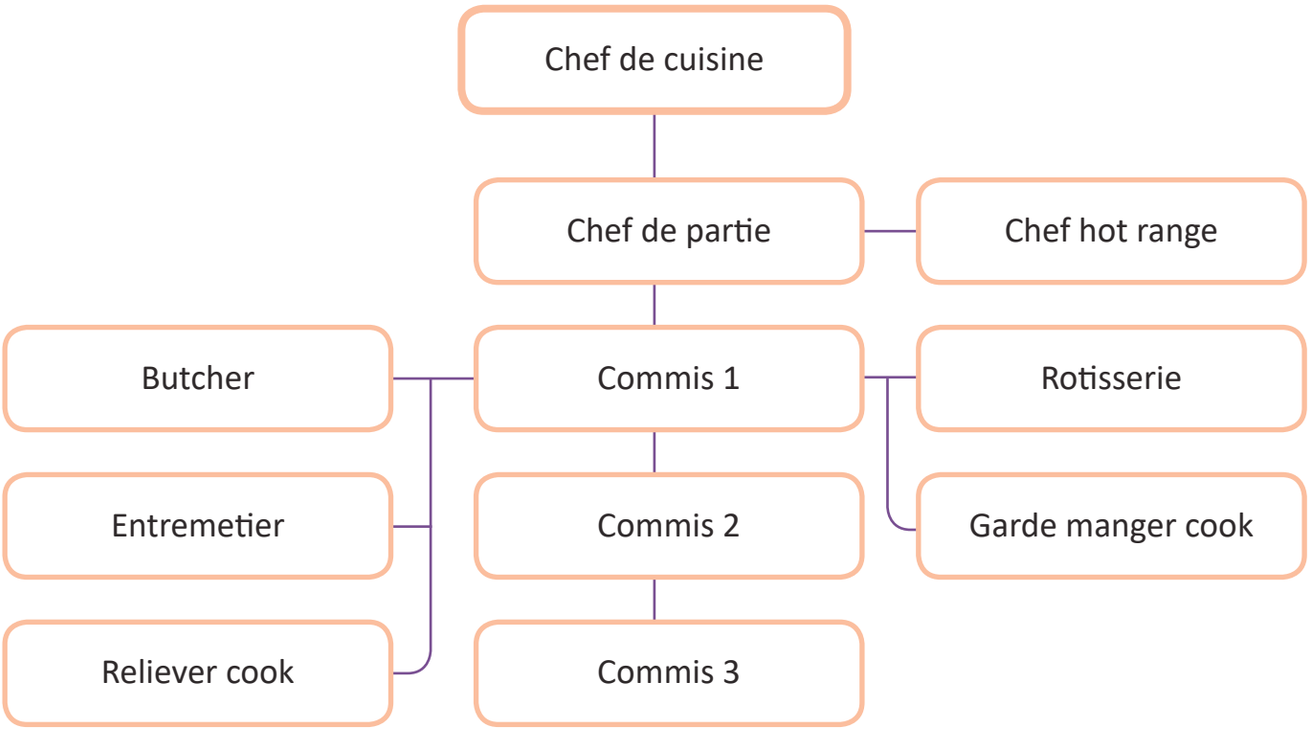
Role	Responsibilities
F & B Director	Cost Control Purchasing Staff Recruitment and Training Customer Relations Has good knowledge of Marketing and Management
Assistant F & B Director	Assist Manager during busy hours Responsible for operation of any outlet if that outlet manager is on leave Manage duty schedule and performance of outlet managers
Restaurant Manager	Responsible for the work of the staff Manage staff relations Manage duty roster, granting leave, staff promotions, training and discipline Manage sales and spending budget Maintain communication between restaurants (in a big hotel)
Banquet Manager	Responsible for the smooth running of banquet outlet Responsible for organizing outlet Responsible for taking bookings
Room Service Manager	Responsible for the operation of the room service outlet Monitor billing and duty rotas Responsible for equipment and keeping inventory
Bartender	Person behind the bar and serves beverages Mix and serve alcoholic beverages Responsible for the bar area
Waiter	Person who serves the customer, takes orders Prepares tables for food service Announces orders in the kitchen Communicates with kitchen staff (ABOYEUR)

Different sized kitchens will have slightly different hierarchies.
Your job is to understand your role and the hierarchy in the establishment you work in.

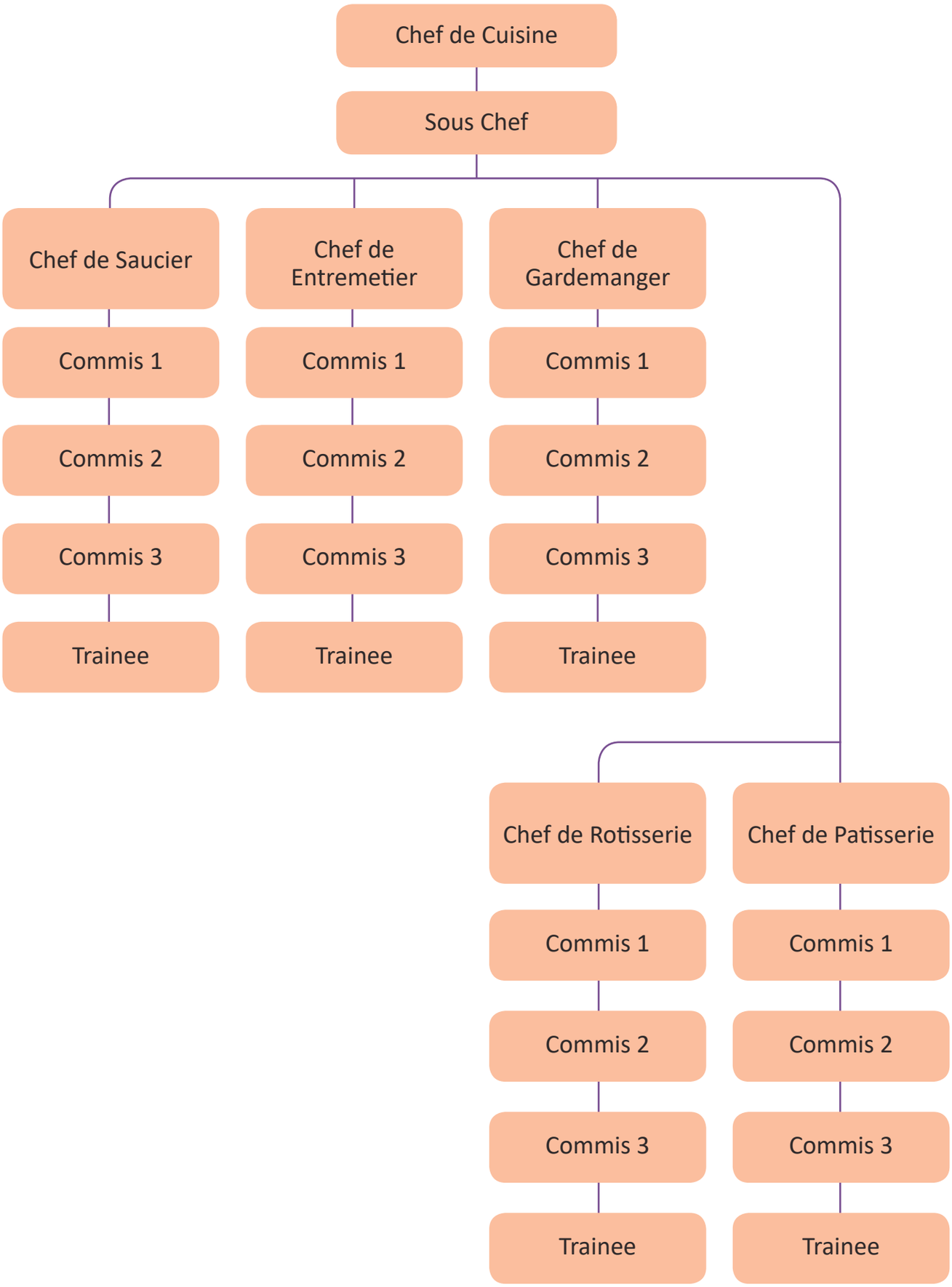
Here is an example of modern kitchen organization:



Here is an example of a small kitchen brigade:



Here is an example of a larger kitchen brigade:



Breakdown of the roles in Kitchen Brigade:

Role	Responsibilities
Chef de Cuisine **Or** **Executive Chef**	Develop recipes, menus and recommend menu pricing Monitor portion control Supervise food testing, sampling Supervise food production Maintain food cost standard and cost control Promote hygiene, safety and sanitation Introduce new products Handle customer concerns and suggestions Involved in inventory-taking and purchasing supplies and equipment Maintain coordination between departments and sections Do inspection Determine job roles/expectations, salaries Check availability of stock
Executive Sous Chef	Assist the Chef de Cuisine / Executive Chef Take charge of the kitchen if the Executive Chef is not there Communicate between Chef de Cuisine / Executive Chef and kitchen staff Ensure smooth flow of kitchen work Monitor portion control and food preparation standards Supervise food testing, sampling Assist in menu planning, new cuisine concepts
Sous Chef	In a large kitchen be responsible for your own department/section Ensure proper work flow from preparation to presentation of dishes Control wastage or breakage of department/section Report to Chef de Cuisine or Executive Sous Chef
Chef de Partie	Control a section of the kitchen Ensure prompt service of kitchen staff under your section Monitor hygiene and sanitation standards Monitor wastage and breakage Check and keep records Brief section staff of menu changes or new dishes
Commis	Assisting in the food preparation process Cooking and preparing elements of high quality dishes Preparing vegetables, meats and fish Assisting other Chefs Helping with deliveries and restocking Assisting with stock rotation Cleaning stations Contributing to maintaining kitchen and food safety standards.

Apprentice (Trainee)	Assist Commis Learn the trade through on the job training
Escuelerie	Head dishwasher
Kitchen porter	collecting and washing pots, pans, plates and cutlery. getting pots, pans plates and cutlery back into use quickly. washing and disinfecting kitchen appliances, work surfaces, floors and walls. making sure kitchen equipment is properly stored.
Aboyeur	Waiters and waitresses – responsible for serving food and returning cutlery and dishes.

In a large professional / commercial kitchen, there will be many specialized chefs. Here are a few you should know:

Role	Responsibilities
Chef Garde-Manger	Responsible for preparation of cold hors d'oeuvres Organize large buffet display Prepare salad and charcuterie items
Chef Legume	Responsible for vegetable dishes
Chef Patisserie	Prepare dessert
Chef Boulangerie	Prepare bakery items
Chef Poissonier	Prepare fish and seafood dishes
Chef Entremetier	Prepare entrée (soup, vegetable dishes, egg dishes but NOT meat)
Chef Potage	Answer to the Chef entremetier Prepare soup
Chef Rotisserie	In charge of the rotisserie (roasting and broiling)
Chef Friturier	Prepare fried food
Chef Sommelier	Specialize in wines Suggest a wine that will accompany a dish or course Responsible for the selection and purchasing of wine
Chef Saucier	Responsible for the sauces, stocks, glazes

There are people and departments who play an important role in the commercial kitchen:

Escoffier believed it was important for employees to know their roles as well as the roles of others to ensure the smooth performance of a professional/commercial kitchen. Without understanding what others do means you cannot respect how important other people or departments are to your job. And without understanding what your role is means you cannot perform adequately and therefore let the team down.

WORK SPACES

As a member of the kitchen brigade it is important for you to know and understand the space that you work in.

First consider the F&B spaces. There are five main F&B Service areas:

- Stillroom (Food Storage Area)
  Contains food and beverage items for food service
  Must be clean and checked daily

- Silver Room or Plate Room
  Contains a complete stock of silver / crockery
  Contains surplus stock in cases of emergency
  Must be well-organized
  Must be locked

- Wash-Up
  Where plates and cutlery are washed
  Cutlery must be placed in a wire basket
  Crockery must be stacked correctly
  Glassware must be taken to separate wash up point

- Hot Plate
  Meeting point between kitchen staff and service staff (the waiter in charge of this space is an ABOYEUR)
  All dishes must be checked for good presentation at this point
  Must be efficiently run for quick service to customer

Get to know your establishment's work spaces. Walk around and see how people are moving in those spaces.

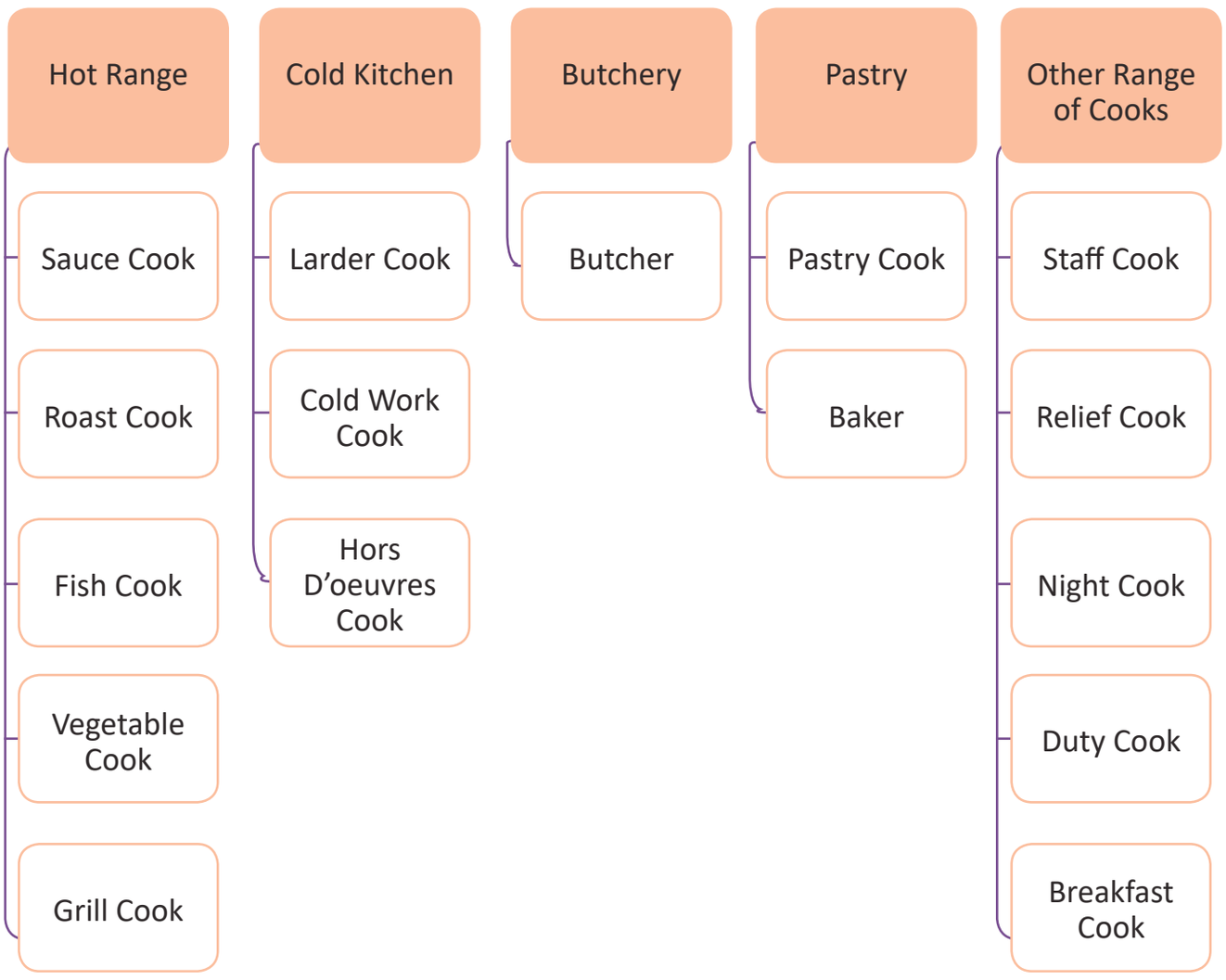
Likewise, get to know your kitchen work spaces. Walk around and see how people move around in those spaces. Think about how you move in those spaces.

KITCHEN SPACES

Chef Office	Menu Planning, Documentation
Hot Range	Soup Main Course = meat, fish, vegetable
Pastry and Bakery	Dessert Bakery Products

Pastry/Cold Kitchen	Salads / Starters Hors D'oeuvres
Butchery	Cut of Meat Saefood / Cut of Fish
Cold Room / Freezer	Store cold and freezer items
Sub Stores	Dry food, Stationary

There will be many different types of cooks under each of the food handling categories above:



Good Kitchen Work Flow

Every kitchen has its own work flow. What does work flow mean?
It means the flow of movement in the kitchen during work hours.
A smooth flow of movement ensures the following:

✓ Employees are working at optimum speed and efficiency.
✓ Accidents and hazards are avoided.
✓ Food delivery is safely managed.
✓ Food storage is easy and effective.
✓ Food preparation is easily managed.
✓ Food production is easily managed.
✓ Food service is quick and stress-free.
✓ Wash-up is quick and effective.
✓ Food wastage is reduced.
✓ Waste is properly handled and disposed of.

How is good work flow created?
It depends on the following factors:

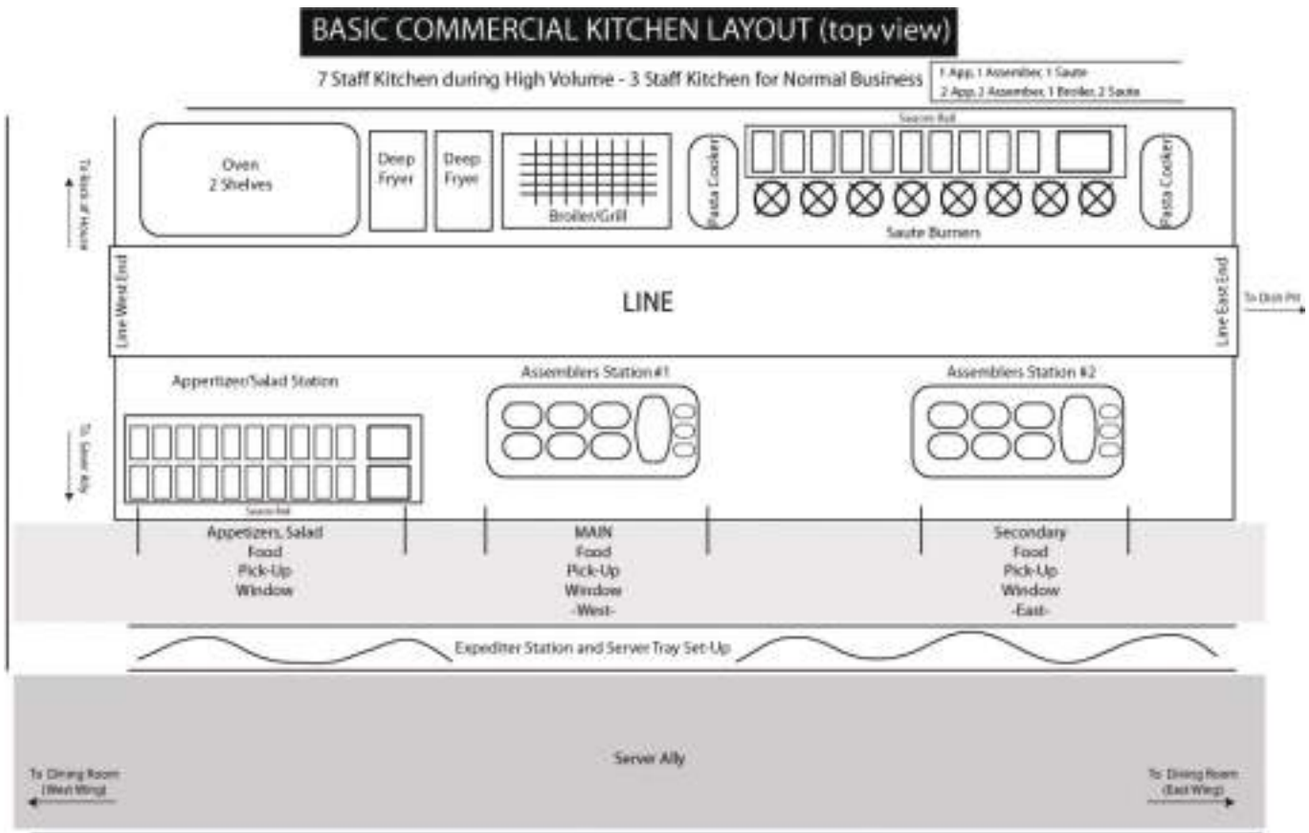
→ What is the layout of the kitchen space?
→ Where is my station?
→ What is my job?
→ Where are utensils and equipment kept?
→ Where is food storage located?
→ Where is the food delivery/acceptance area?
→ Where is the hot plate area?
→ Where is wash-up located?
→ Where is food disposed of?
→ How many people are working at the same time?
→ Where are the hazards and hazardous materials?
→ Where is the fire extinguisher?
→ Where are the windows?
→ Where is the source of the water, gas and electricity located?

When you start working in a commercial kitchen you MUST familiarize yourself with the kitchen flow so that you can answer the above questions. If you can answer these questions, then you can become part of the work flow more easily.

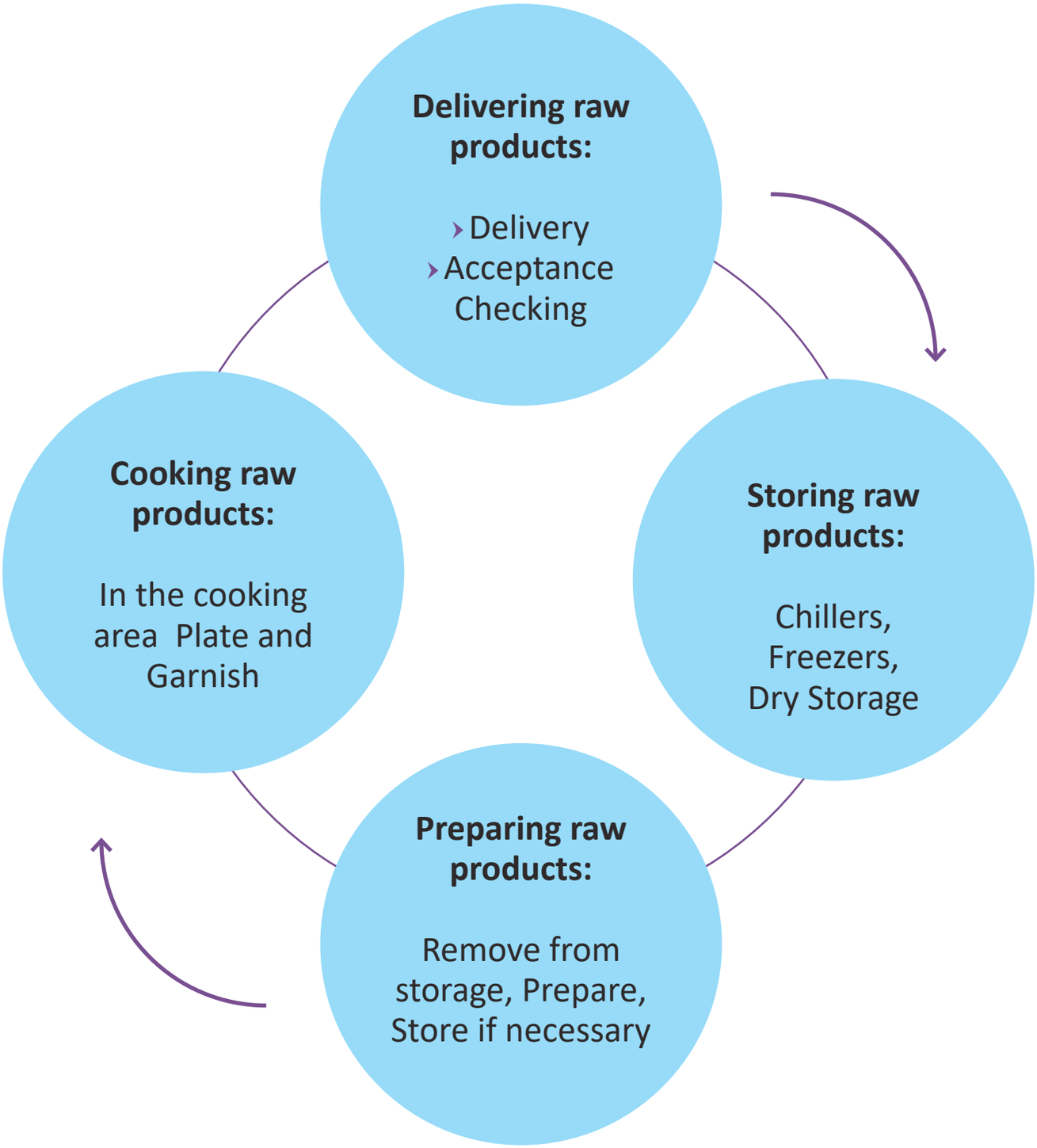
Also ask yourself the following questions in regards to health and safety:

- Is the kitchen space clean?
- Does it have a cleaning and sanitization schedule?
- How can I do my part in the cleaning and sanitization?
- Are there objects blocking doorways and exits?
- Is the floor dry?
- Do I understand all the safety precautions I must take when using heavy equipment, hot equipment, wet equipment and sharp equipment?

Here is an example of a commercial kitchen layout:



Here is a general work flow diagram:



NOTE: Flow patterns of servers and kitchen staff meet at food pick-up and dirty dishes drop-off areas but NEVER CROSS.

The Benefits of a Clean and Organized Workspace:

- To keep the workspace hygienic and safe.
- To give a good image of your establishment.
- To help you do your work efficiently and on time.
- To help you to complete your work efficiently and on time
- To maintain professionalism
- To keep good standards of hygiene
- To set a positive image for the establishment

The Benefits of Planning and Organizing Your Work:

- To complete the job in a safe manner
- To get the job done quickly and efficiently
- To prevent mistakes from happening
- To be professional
- To complete work on time and in sequence
- Organized work means smooth service which means customer satisfaction

An example of using your time efficiently at work.

- Prioritize your work and keep a **WORK PLAN**
- Follow standard operating procedures of your establishment
- Look at kitchen schedules for meal service on a daily basis
- Allocate time for specific tasks
- Identify your work load

What is a work plan?

A work plan is essentially a plan of action for the tasks you will need to finish in order to produce a dish of food. A work plan will tell you what you are making, how much you are making, the method of making and what to do first, second, third and so on.
You might be required to create your own work plans for specific recipes, or your might be given a work plan by your Chef de Partie, or you might create a work plan with a team of commis chefs and apprentices.

A work plan is important because it helps you become efficient, consistent and reliable.

(You will learn more about work plans in Section 5.)

How to be a Good Employee

There are 3 ways to become a good employee:

1. Know your responsibilities/duties and carry them out appropriately.
2. Know your establishment's code of conduct.
3. Be a team player.

1. Kitchen Staff Responsibilities

- Cleaning all dishes, work stations, cooking equipment and food storage areas in accordance with food safety regulations.
- Washing, chopping, shredding and grating ingredients for use by the Chef.
- Sweeping and mopping floors as required.
- Assisting with unloading of deliveries.
- Storing ingredients according to prescribed food safety regulations.
- Assisting with monitoring of inventory.
- Reporting all damaged or faulty equipment to the Kitchen Manager or immediate supervisor.
- Packaging leftover food upon request.
- Cleaning trash cans and disposing of waste on a regular basis.
- Understand and follow standard operating procedures.

2. Code of Conduct

Many hotels have a code of conduct that supervisors, (HR) managers and general staff have to follow. The code of conduct is a set of rules that ensure everyone employed by the hotel behaves in a responsible and professional way. A code of conduct might include rules about the following areas:

- Conflict of interest
- Bribery and financial crime
- Trade restrictions and sanctions
- Gifts and Tips
- Handling personal data
- External communications
- Respect in the workplace
- Diversity and inclusion
- Safety and security
- Environment
- Political activities

With a clear code of conduct employees are better able to present a positive image of their establishment. Your manager or establishment owner will be able to provide a code of conduct for you to follow.

3. Teamwork and Team Building

Without effective teamwork any establishment will fail. Teamwork Is important for the following reasons:

- Gets the job completed quickly and on time
- Helps maintain the smooth running of the different work areas
- Creates a positive and friendly working environment
- Peer and self assessment helps to maintain high standards of work

Teamwork, team structure, and communication are key elements in creating an effective team. A team is made of individuals working together to achieve the same goal. Each person needs to have a clear idea of what they must do to help the team achieve its goal. Being a good team member includes:

A) knowing that every member of the team is important and valuable

B) knowing how to communicate well with others,

C) knowing what good behaviour is,

D) improving your skills.

A) Know every team members' value to the team – for example:

Role	Individual Responsibility	Team Support Value
Plongeur	Wash dishes and cutlery	Supports the team by making sure that clean cutlery and dishes are available at all times.
Aboyeur	Takes order from guest and serve food	Supports the team by relaying orders and serving the customer.
Commis 3	Responsible for the daily mis-en-place and duties to support the Demi Chef de Partie or Commis I and 2 in the daily operation.	Supports the team by making sure the Commis 1 and Commis 2 or the demi chef de partie can do their jobs smoothly.

As a good team member you should be able to:

- know how long it will take you to complete your task.
- prioritize your tasks.
- provide help and support to others when it is asked for, or when you have completed your own work or when you have been asked by management and/or you have the skills/ability.
- ask for help when you need it. For example, lifting heavy items, dealing with a guest complaint, or even when you need a toilet break. Know who you can ask for help in different situations.
- work to achieve team goals.
- Support and value all members of the team, not only those who cook.

How can you be an effective team member? Here are some ideas:

- Be honest and straightforward. Do not play games or lie to others. Do not be afraid to say “what is what” whether it is good news or bad news. Your honesty will help the team.
- Do your share of the work. In a good team there is a sense that everyone is doing their fair share of work. This helps keep everyone motivated.
- Be reliable. Be PUNCTUAL and meet deadlines.
- Be fair. When you do good work you can take credit. But do not take credit for other people’s work.
- Compliment others. If other people do good work, tell them. If they are weak in some areas, help them.
- Talk to your team members. Good teamwork needs communication.
- Be positive. Someone with a “can-do” attitude is a good team member. Someone who is negative will not help the team.
- Give ideas / opinions on how to achieve team goals.
- Know your limits.

You cannot provide work or support for your team when:

- you do not have time or your own workload is incomplete
- you do not have the skills needed
- it would be unsafe for you to try to help

B) How to communicate clearly with your team

Firstly you should know your facts / information. Do you have a clear idea of what you need to communicate? If you are not clear in your own mind, take some time to think about what exactly you need to communicate.

It is then very important that you speak confidently and clearly. Do not cover your mouth when speaking. Speak at a good volume so your team member can hear you.

If you are leaving a written message for a team member you should write legibly and leave the written message in a place where your team member can find it easily.

<u>You should pass on essential information to a team member as soon as possible for the following reasons:</u>

- So they know what to do in case of an emergency situation
- So they know how to help customers in an emergency situation
- So they will not panic in an emergency situation
- So they can work as part of a team in an emergency situation
- To maintain good working relationships
- To complete work tasks on time
- To prevent errors in taking orders, prevent accidents, etc.
- To minimize wasted food/drink/time
- To maintain / maximize customer satisfaction (changes to bookings, etc)

C) How to behave in a team

Behaviours that help teams work well together

- Being polite
- Respecting others
- Helpfulness, Timeliness
- Friendliness
- Good communication at all times
- Make the work fun

Behaviours that do NOT help teams work well together

- Gossiping
- Being lazy
- Lack of personal hygiene
- Being late or sick often
- Bullying
- Harassment of any kind

What is harassment in the workplace?

Harassment describes unwanted behaviour that makes you feel bad, sad, embarrassed, humiliated, or scared. It can be physical / sexual harassment, such as unwanted touching or hitting. It can be verbal harassment, such as shouting or threatening language. It can be emotional harassment, such as bullying. Harassment can come from someone on your team, your supervisor, your manager, or even a guest.

You must not tolerate any kind of harassment whatsoever.

(Reference: See the information on Personal Safety in Safety and Hygiene Section.)
If you have a problem with another team member you should report the problem as quickly as possible to the relevant person (your supervisor, manager or hotel owner, the police, outside organizations). By dealing with the problem quickly you will be able to stop it from getting worse.

By dealing with a problem quickly you will minimize disruption to your work and to your life.

D) Reasons to improve your skills and knowledge

Professional Cookery is a fantastic industry for a career. If you like working as part of a team, giving good customer service, being rewarded for your ability and working in a job which provides long term opportunities, then professional cookery is the right choice for you.

However, to achieve job satisfaction or earn a promotion, you will need to improve and develop your knowledge and skills. Setting career goals or planning your career path is how you can realize your goals. For example, you might be working as a Commis 3 today but perhaps you would like to be Chef de Partie or Executive Chef one day? Or perhaps you would like to become the chef owner of your own restaurant?

The sky is the limit but to achieve your goals you have to always be looking to improve yourself.

Ways you can improve yourself

Always be honest with yourself. Ask yourself these questions:

→ Have I done a good job? Am I satisfied with your work?
→ Is my work up to standard? How can I do my job better?
→ What are my strong points? Which areas can I improve?
→ Am I satisfied with my work? Why? Why not?

Get honest feedback from others. Your team members, your manager / supervisor and your guests can give you helpful information about how you can improve your skills. Never be afraid of feedback – if we did not care what others thought about us we would never improve.

You can ask these questions one on one, during team meetings or when talking with your manager in a formal appraisal.

Other ways to improve your knowledge is by looking for information on-line, finding cookery training videos on-line (there are many on YouTube).

Have a Learning Plan

A Learning Plan is an action plan that outlines the learning and development activities to help you perform your job properly. A learning plan is also a great way to carefully improve your job skills. For example, if you have a goal of becoming a Sous Chef a learning plan can help you achieve that goal step by step.

A learning plan might have clear aims, for example *'in the first 6 months I will perfect mu vegetable cutting technique' or 'In one year I will get my certification in Professional Cookery NVQ Level 4'.*

It can be more practical. For example, *'Week 1 – practice cleaning storage areas, Week 2 - Practice cleaning utensils, Week 3 –Finish my workbook exercises about Food Safety'*.etc

You should regularly review your learning plan as it lets you know what to do to improve at work. It also highlights the skills you need to develop in your career. Also, do not be afraid to be flexible with your learning plan since anything and everything you learn can be beneficial in some way.

Your Rights as a Hospitality Employee

What does "employee rights" mean?

Every person should be safe and secure while working. That is a "right". And often there are many "rights" that are recognized by the law so if someone violates your rights you can seek legal action against that person.

There are many different kinds of rights; economic, civil, human, and of course employee rights. Some basic employee rights are; the right to refuse unsafe work, the right to be adequately compensated, the right to be free from discrimination, etc.

In a lot of industries in Sri Lanka employees do not know their rights. It is important you know basic things like:

→ How many hours a week you work
→ How much leave or holiday time you get
→ Start and finish times
→ Weekend work, overtime
→ How much you are paid for your work

If you do not know the procedures of your establishment are concerning your work schedule, ask your supervisor or Chef de Partie. If they do not know – ask them to find out for you.

It is important for you to know your rights so that you do not overwork and risk your health. It is also important to know that you are rewarded for the work you do by means of correct salary payment and other benefits.

In your work place everybody should be treated equally in accordance with the terms and conditions of their employment.

Equality means equal treatment for men and women, equal treatment for employees no matter what their ethnic background. This includes EQUAL PAY.

Diversity means working in an environment which respects and includes people with different backgrounds and abilities.

Where can you get advice on your Rights and Employee/Employer Responsibilities?

You can get information from your manager, your supervisor, your colleagues, the hotel owner, hotel policies, Human Resources Coordinator, Federation of Chambers of Commerce, NIOSH, Ministry of Labour, etc.

If you need to look outside your hotel try the following places (web addresses current as of April 3, 2018):

- The Federation for Chambers of Commerce and Industry Sri Lanka: http://www.fccisl.lk (English only)
- The National Institute of Occupational Safety and Health (NIOSH): http://www.niosh.gov.lk/index.php?lang=en (Sinhala & Tamil)
- The Ministry Of Labour and Trade Union Relations: http://www.labourmin.gov.lk/web/ (Sinhala and Tamil)

Hotels, Restaurants and the Community

Hotels and restaurants and food service outlets do not exist as independent units separated from the wider world. Our customers come from all over the world but we are located in our local communities. Therefore, community issues can become your establishment's issues, for example:

- health issues such as dengue, flu, or any disease that can spread easily
- environmental issues such as dealing with garbage, recycling, water and power shortages, unpredictable weather
- economic issues such as business competition, recruiting, language training, skills training

Community involvement may take on many forms. Involvement within a community may include raising money for local charities, organizing clean-up days for local parks or beaches, volunteering for a local Habitat for Humanity project, or simply educating locals and guests about sustainability in general.

Community involvement does not just include those people outside of the organization. Employees are also a part of the community so it is important for a hotel company to take care of its employees by paying fair wages, providing fair benefits, encouraging them to volunteer in charitable activities, and educating them about the importance of being involved with the local community, learning about the cultures of the tourists, and learning about the local culture.

Section 05

PROFESSIONAL COOKERY SKILLS MANUAL

Time Management

TIME MANAGEMENT

What is Time Management?

Managing your time well, in the workplace or in life generally, is necessary for performing your duties and tasks efficiently and safely.

There are two areas of time management to consider:

Why it is important

When you are training to be a chef or cook, or you are working as an apprentice you will have many, many duties and tasks. You will be expected to attend training sessions. You will be expected to practice what you have learned in training sessions. You will be expected to do self-study. You will be expected to do your job in the kitchen.

If you do not think about how to manage your time the following can happen:

1. You become stressed. When you are stressed it is easy to make mistakes and mistakes can cost money, create accidents and let your team down.

2. You cannot finish your duties or tasks on time so you work late after normal hours. This will make you tired and lead to sickness. When you are tired it is easy to make mistakes and mistakes can cost money, create accidents and let your team down.

3. You lose time to do self-study and improve your knowledge. This will mean that you do not learn anything new for yourself. This will affect your career opportunities.

4. You try to do many things at the same time. This means each task is not done to satisfaction or a good or high standard. This will affect your career opportunities.

5. You become an unreliable team member. This will affect your job and career.

(See Section 4 – Team Work)

How you can manage your time

Here are some ideas for better time management in life in general:

1. Try to keep a daily plan, a weekly plan and a monthly plan. Be kind to yourself. Be realistic. Do not forget you need time for relaxation as well.

2. If you have been given a self-study task, do not wait till the last minute to finish it. Try to finish as much of the self-study task as you can before other duties make you busy.

3. Focus on one task at a time. If some tasks can be combined then do so but ONLY after you have given yourself time to THINK and PLAN how you will combine tasks.

4. Take care of your health. Get the sleep you need. Eat well and do not miss meals. Getting some exercise is also beneficial.

How you will manage your time in the kitchen

First, understand the 4 Stages of Food Production:

What is production planning / scheduling?

This stage is when the head of the kitchen brigade plans what the meal service will be and how the meal service will be accomplished. You will not be part of the decision-making process. After the decisions are made you will know what your tasks are, the order in which you should do them, and by when you should complete those tasks.

What is pre-preparation?

This stage is gathering all the ingredients - this may include delivery/storage of ingredients. Check ingredients and equipment you need for mise-en-place.

What is mise-en-place?

It is a French word and it means to put everything you need in its correct place for food production. (See Section 8)

What is production?

This stage is when the dish is cooked and plated for service to the customer.

NOTE: These four stages are affected by the type of meal service your establishment serves. There are two kinds of meal service you should know: set meal service (buffet or course menu) and extended meal service (a la carte).

Second, become familiar with the stages of food production

→ Know your establishment's Standard Operating Procedures
- Which parts of the menu are you involved in at the moment?

→ Study the menu, your recipes.
- Have you memorized some recipes yet? What are the ingredients? What are the measurements?

→ Have a WORK PLAN for every dish you need to make.

→ Know where all the ingredients are kept.
- Where are the vegetables stored? Where is the dairy stored?

→ Know your workstation / kitchen /workspace as if it were your own house
- What shape is your workstation (is it U-shaped? Or one line?) Where is everything kept?

WORK PLANS

A work plan is a plan of action for a particular recipe.
Each plan will consist of a list of tasks (NOT ONLY method of cooking).

Consider the following points:

› What is the recipe?

What are you making?

› What is the yield of the recipe?

How much do you have to make?

› You must understand the tasks for producing the dish in the recipe.

If you do not understand who can you ask for clarification? ALWAYS get clarification if you are not sure. Do not wait till the last minute.

› Plan the order of your tasks, depending on the recipe.

Which task will take the longest?
You will need to think of the time that each task will take.

› Do your pre-preparation

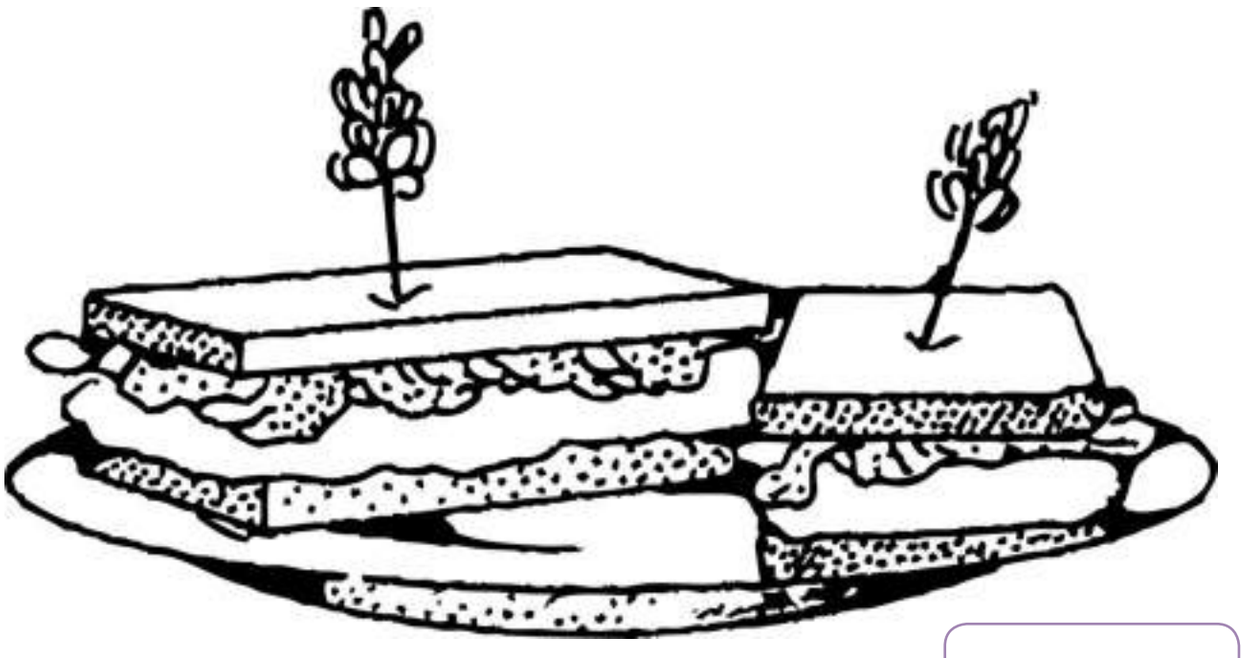
What needs to be boiled, chopped, cleaned?
What needs to be thawed or re-heated or pre-heated?
What needs to blanched, breaded or battered?
What are the holding temperatures for different ingredients and different parts of a recipe (for example, if the sauce can be made first where will you store it)?
Do you have all the necessary tool and equipment?
Is your knife sharp enough?
Is the cutting board clean and dry?
Do you have all your measuring tools?
Will I need to use heavy equipment and is it ready to be used?

- Do your mise-en-place

  Are all the raw vegetables or fruits washed and cut and placed in holding dishes?
  Has the meat been marinated?
  Do you have the right quantities of all the necessary ingredients?

- Produce the dish

  Cook the ingredients and plate the dish.
  Is there a plating diagram?
  For example:



Tips for working efficiently

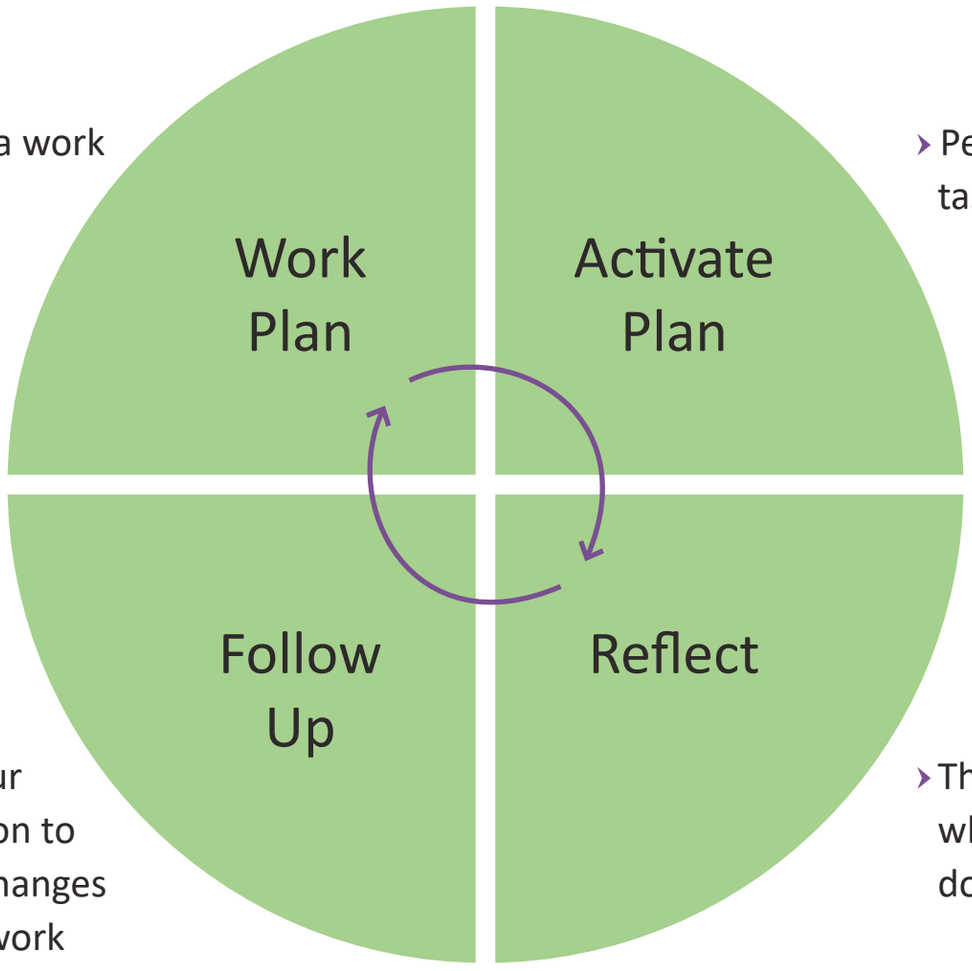
- Allow more time than you think you will need for one task. As your skills improve, you will be able to work faster and make more accurate time estimates.
- Organize the kitchen. Always store items in the same place so that you won't waste time looking for them.
- Learn to use equipment properly.
- Look for ways to simplify. Could a different piece of equipment complete a task more quickly? Would a different cooking method be more efficient? Thinking through your options can help you save time and energy.
- Gather all equipment and ingredients first. Assembling everything you will need before you start has several advantages. First, you won't discover halfway through a recipe that you are out of an ingredient you need. Second, it will be easier to check whether you used every ingredient. Third, and perhaps most important, you will have every-thing you need right at your fingertips.
- Dovetail tasks. Not every preparations step needs your undivided attention. You could, for example, make a tossed salad while chicken pieces are roasting. Dovetailing is especially important when you are preparing a whole meal. If you plan to dovetail tasks, be sure to adjust your time schedule.
- Clean up as you work. Before you start work, fill the sink or a dishpan with hot, sudsy water. Whenever you have a few free moments, was the equipment you have finished using. Also keep a clean, wet dishcloth handy to wipe up spills as they happen. Put away ingredients as you finish with them. Your final clean-up will take much less time.

Improve your ability to create a workplan:

To improve your ability to manage your time, always reflect on how a task or recipe went afterwards.

- Create a work plan

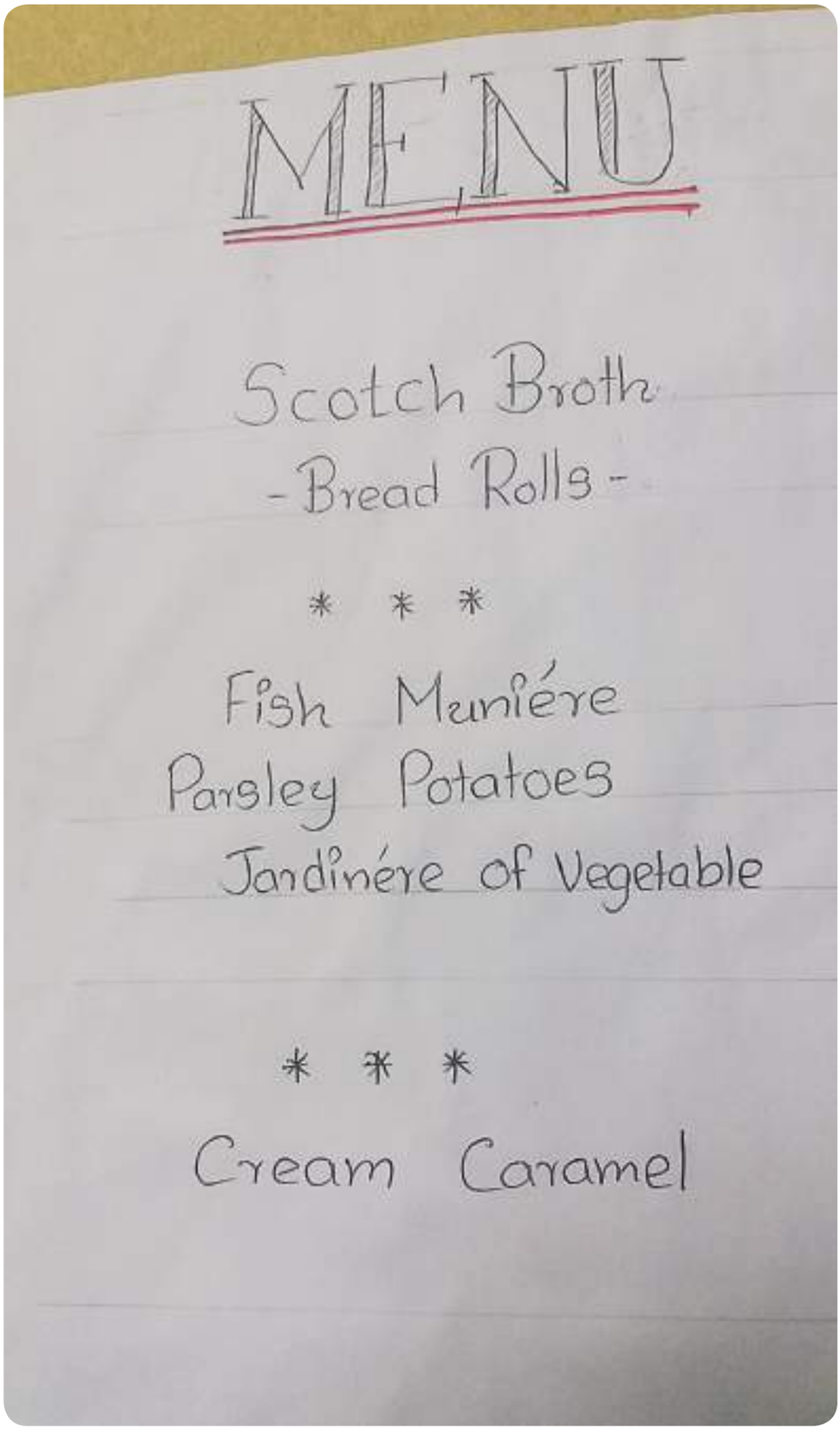
- Perform the tasks



- Use your reflection to make changes to the work plan.

- Think about what could be done better

Below is an example of a (team) work plan created for a course menu:



WORK PLAN

Time	Bread Rolls	Soup	Fish	Vegetable	Potato	Sauce	Dessert
8.30 - 9.00	←	B R I E F I N G					→
9.00 - 9.45	Measure Ingredients	wash/Peel cut vegetable	↑	wash/Peel cut vegetable	wash/Peel & cut and trim edges		Measure Ingredients
9.45 - 10.45		Boil beef refresh & boil a/stock and beef	Let the fish thaw	Boil vegetable	Boil vegetable		Prepare the caramel and Pour to the mold
10.15 - 10.215	start making the bread Rolls	Simmer w/ barley, Be	↓				Prepare the mixture and Pour to the mold
10.45 - 11.45	Fermentation /Scaling/ Punching	cut beef to brunoise	Fillet the fish and dip in brine solution				Bake in the oven (160°c)
11.45 - 12.00	Final shaping Egg wash Proofing	Add beef and vegetable and simmer	Pass through seasoned flour	Toss with butter	Toss with butter Sprinkle Parsley	Prepare Nut brown butter	Rest in cool area
12.00 12.30	Bake in the oven (160°c/ 10 minutes)	Season and take off the	Fry the fish				
12.30 01.00	Butter the Buns and Rest		Prepare Garnishes				Prepare Garnishes
01.00 01.30	Plate & serve	Plate & Serve w/ garnish	Plate & Serve	Arrange on plate	Arrange on plate	Pour to the fish	Chilled and serve.

Standard Operating Procedures (S.O.P)

Every commercial kitchen will have a set of guidelines (S.O.P) for the different tasks of food production. There will be an S.O.P for Kitchen Safety, Food Safety, Personal Hygiene, Opening and Closing the kitchen, Washing Hands, Receiving Deliveries, etc.

A kitchen S.O.P is a step-by-step process document that acts as a guide for kitchen staff in the performance of their kitchen duties. The S.O.P helps maximize time efficiency since it is specifically designed for the kitchen layout and work flow of that particular establishment.

If your establishment has an S.O.P for producing work plans then follow that S.O.P.

Section 06

PROFESSIONAL COOKERY SKILLS MANUAL

Introduction to Kitchen Utensils, Tools and Equipment

INTRODUCTION TO KITCHEN UTENSILS, TOOLS AND EQUIPMENT

This section is an introduction to kitchen utensils, tools and equipment
There is a great number of and a great variety of utensils, tools and equipment. Many kitchens have specialised equipment depending on their requirements. And kitchen equipment is always developing and improving. Educate yourself whenever you can about new developments.

However, there is a common set of equipment and tools that is used in every kitchen. It is important to be familiar with how to use, maintain and clean tools effectively.

Having a good understanding of what the purpose is for each tool, utensil or piece of equipment will help in understanding and remembering the physical demonstration of each tool.

TOOLS:

Hand tools can be divided into three groups

A. Small (utensils)-(for example, whisks, knives, bowls, measuring tools)

B. Large (for example, steamers, fryers, hot cupboard)

C. Mechanical, (for example, mincers ,mixers ,refrigerators)

A. SMALL TOOLS

Measuring Volume (wet ingredients)

Measuring Volume (wet ingredients) : Measuring jugs, cups and spoons

Measuring Weight (dry ingredients) : Measuring jugs, cups and spoons

Measuring Temperature – Food Thermometer

Conversion Tables for measuring weight and volume:

Liquid Measures			
1 cup	8 fluid ounces	½ pint	237 ml
2 cups	16 fluid ounces	1 pint	474 ml
4 cups	32 fluid ounces	1 quart	946 ml
2 pints	32 fluid ounces	1 quart	946 ml
4 quarts	128 fluid ounces	1 gallon	3.784 litres

Dry Measures				
3 teaspoons	1 tablespoon	½ ounce	14.3 grams	
2 tablespoons	1/8 cup	1 fluid ounce	28.3 grams	
4 tablespoons	¼ cup	2 fluid ounces	56.7 grams	
5 1/3 tablespoons	1/3 cup	2.6 fluid ounces	75.6 grams	
8 tablespoons	½ cup	4 ounces	113.4 grams	1 stick butter
12 tablespoons	¾ cup	6 ounces	0.375 pound	170 grams
32 tablespoons	2 cups	16 ounces	1 pound	453.6 grams
64 tablespoons	4 cups	32 ounces	2 pounds	907 grams

Food Preparation and Production Tools:

Vegetable peelers: for peeling the skin of fruits and vegetables

Corer: for taking the core out of fruits like apples and pears.

Mandolin Slicer: for slicing vegetables into various cuts

Zester: for removing zest from citrus fruits.

Parisienne Scooper: for scooping melon balls

Egg slicer and egg wedger: for cutting eggs into smooth slices

Meat Bat/ cutlet bat: for tenderizing meat

Larding needle: for threading lard through meat

Trussing needle: for trussing poultry and meat

4 – way Grater: for grating cheese, or vegetables

Mortar and Pestle: for grinding herbs and spices

Table mounted can opener

Glass mixing bowl

Rolling pin: for rolling dough

Pastry Brush: for spreading egg or butter on pastry or bread

Balloon Whisk: for whisking or whipping heavy cream or eggs or butter

Piping bag (with nozzle set): For piping cream

Ramekins: for baking small hot desserts

Fluted Tartlet Mold: for tarts

Fish Slice: for cooking fish

Wooden spoons: for any kind of stirring or sauteeing

Perforated spoon:

Soup Ladle: for soups and stews

Conical Strainer: for strainer liquids

Sauce Ladle: for sauces

Potato Masher: for mashing potatoes

Pizza cutter: for cutting pizza into slices

Pots and Pans

Sauté Pan (straight edge)

Sauté Pan (slope sided)

Saucepans and stockpots

Cast Iron Skillets

Sizzling Plate

Large Stock Pot

Pancake Pan

Saucepan

Pie Dish

Souffle dish

Braising Pan

Casserole

Savouring Mould

Roasting Tray

Chafing Dish

Burner

Wok

Tall Pot

Two factors that affect a pan's ability to cook evenly are:

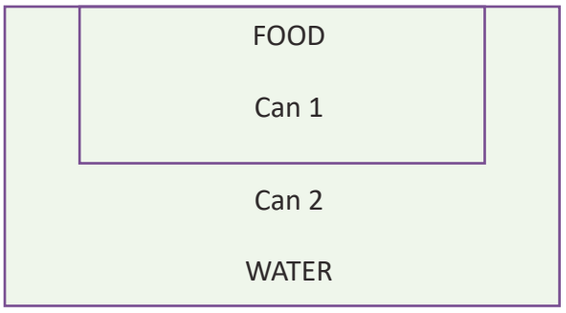
Thickness of metal – a heavy gauge pot or pan cooks more evenly than a thin one, the thickness should be at the bottom.

Type of Metal – Different metals have different conductivity (speed at which they transfer heat)

- Aluminium – most common, light weight
- Copper – best heat conductor of all, very expensive and must be used very carefully
- Stainless Steel – a poor conductor of heat, tends to scorch food as heat is uneven but good for storing food
- Cast Iron – distributes heat evenly and can take high temperatures. Can rust easily unless kept conditioned and dry
- Non-stick coating – easily scratched, DO NOT use metal spoons or clean with abrasive materials. Best for eggs and cooking without oil.

Pots and Pans Set

B: LARGE TOOLS



HEATER

Double Boiler: for melting chocolate or stirring custard

Sous Vide Machine: for cooking vacuum packed food

Hot Range and Hot Holding Equipment

Griddle: can cook many different things at the same time

Salamander: overhead grill for toasting or browning or hot holding

Deep Fat Fryer: for deep frying food

Bratt Pan: able to cook large amounts at the same time

Electric Convection Oven

4 - Ring Gas Stove with Griddle Pan and Oven

Microwave oven

Overhead hood

Grill with hood cover

Grill

Waffle Grill

Panini Grill

Bain-Marie: for hot holding

Pressure Steamer

Cold Range and Cold Holding Equipment

Blast Chiller

Freezer

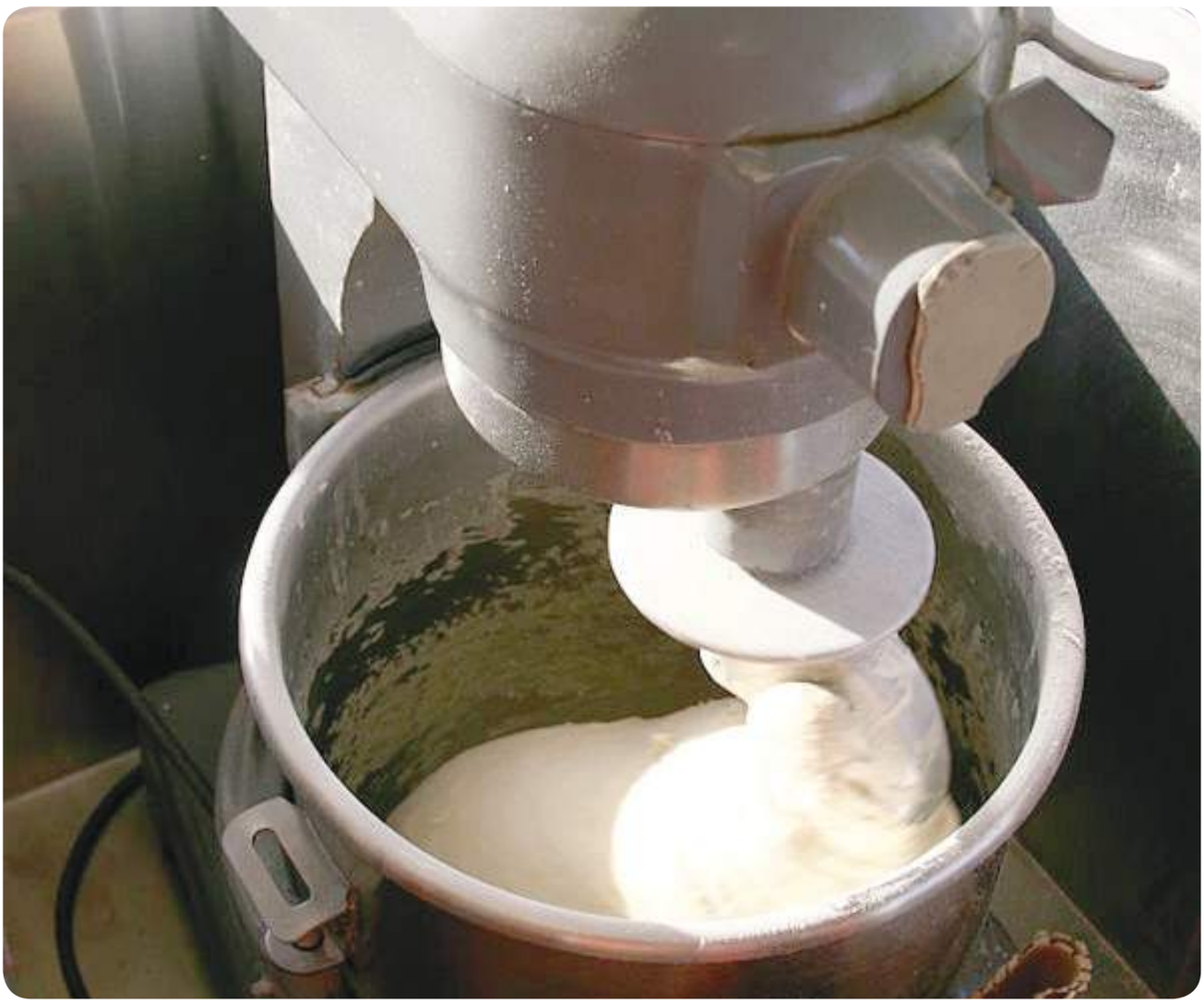
Refrigerator

C: MECHANICAL EQUIPMENT

Hand-held Liquidizer / Blender

Blender

Food Processors



Commercial dough and batter mixer: for mixing ingredients for bakery items

Mechanical Potato Peeler

Food Slicer

Mincing Machine

Band Saw: for slicing large chunks fish or meat

Buffalo Chopper: chops or emulsifies food ingredients

Ice Cream Dispenser

Ice Cream Maker

Ice Cube Maker

Boiler

Toaster

Electric Soup Tureen

Electric Coconut Scraper

Fly killing machine

Food Processing Equipment: Sinks and Racks and Work Tables

KNIVES AND KNIFE TOOLS

The knife will be your most important tool. Therefore you must understand its parts, the uses of different knives, how to sharpen, clean, sanitize, store the knives, and ultimately how to respect this tool by using it in a safe and hygienic manner.

Parts of the knife and its uses:

Point: To score, stab or start a hole.

Tip: for delicate or detailed cutting, skinning.

Edge: Depending on the knife the edge can be smooth or serrated. A well-used part of the blade – for chopping, slicing.

Heel: Lower part of the blade – used for cutting food that needs extra force.

Spine: The thickest part of the blade and provides the strength of the blade.

Bolster: Where handle meets blade. Protects the fingers by preventing them from sliding towards the blade.

Handle: This part can be made from many materials and the design of the handle can dictate the ease with which it is used.

Tang: The unsharpened part of the blade that attaches to the handle.

Butt: Back end of the knife and is usually curved for better grip.

Knife Sets


chef`s
cleaver
fillet
carver
carving fork
boning
steak
bread
paring
santoku
cheese
utility
slicer
sharpener
scissors

Although there are many knives you will get to know over the course of your career as a chef/cook, here are the basic knives you should know:

- **Cook's or Chef's Knife**
  This is the type of knife you will use the most. It is for all kinds of chopping, dicing, mincing and slicing. The longer the blade the heavier it is and can be difficult to handle. Small-handed cooks should choose shorter blades and large-handed cooks should use longer blades.
- **Paring Knife**
  For peeling and coring fruits and vegetables
- **Turning Knife**
  Much like a paring knife, it is used for cutting fruits and vegetables. However it has a curved blade which makes it easier than a paring knife to cut, peel or carve fruits and vegetables.
- **Bread Knife**
  Usually for slicing bread. The serrated edge guarantees a smooth cut without breaking the bread or any delicate food so it is used for cutting sandwiches and pastries and cakes.
- **Fillet Knife**
  The blade is quite flexible and narrow.
  Used for filleting fish. The narrow blade is able to move smoothly along the backbone of the fish or along the skin of the fish.
- **Carving Knife**
  The carving knife which has a rigid blade is slicing roast meat while a more flexible carving knife is usually used for roast poultry or pork.
- **Utility Knife**
  A small, lightweight blade.
  For cutting fruits and vegetables.

- **Cleaver (or Chopping Knife)**
  A knife with a wide, rigid blade. Used for chopping, pounding crushing and shredding.
- **Boning Knife**
  A thin, short and rigid blade to remove the main bone within a cut of meat such as ham or beef. Smaller boning knives are sued for trimming meat.

Other tools you might see in the professional kitchen:

Grapefruit knife – curved lade to cut the flesh of the grapefruit away from the skin. A blade with slit in the centre for cutting between the fruit lining.

Cheese Knife – This blade has a curved and forked tip for picking up cheese.

Food Saw – This is useful when cutting through frozen food or meat or bone.

Kitchen Scissors – a versatile tool for cutting open packets to cutting food.

Using a knife correctly:

Grasp the knife between the thumb and forefingers

Guide the knife, the blade slides against the fingers, the finger tips are curled under out of the way of the blade

Tips: Relax hands and wrist, let the blade do the cutting

The knife moves in a rocking motion, from front to back, as well as up and down.

The knife should be at the same height or just below your elbows, so that the whole upper body, not just the hands, can put downward pressure on the knife.

- → Use the correct knife for the task.
- → Always cut AWAY from yourself.
- → Always use a cutting board.
- → Keep knives sharp to maintain efficiency of work.
- → When carrying a knife, keep it to your side with the point down and cutting edge away from you.
- → When passing a knife to someone, put the knife down on a clean work surface and let them pick it up.
- → Do not catch a falling knife.
- → Do not leave knives in a sink of water – this risks accidental injury.
- → Do not leave knives near the edges of tables.

Cleaning and Maintenance of Knives:

After use, always wipe knife clean. (Keep knife wiping cloth separate from other cloths. Clean and sanitize knife wiping cloth correctly after use.)

Wash by hand (washing in the dishwasher will damage knife).

When washing knife that has been used for cutting meat, poultry, etc., always use hot, soapy water.

Store in dry place, away from other utensils to prevent accidental cuts. Preferrably store in a wooden or polythene knife block.

When sharpening knives

(A)

(B)

In the above picture (A) the cook is using a Sharpening Steel to sharpen the knife. This tool can be made from steel, glass or ceramic.

It is also possible to sharpen a knife with a sharpening stool (B). When using a sharpening tool you must follow the instruction carefully in order to sharpen correctly.

(C)

In some kitchen you might see a sharpening stone or wet stone (C). A sharpening stone should have two sides, a rough side and a smooth side. You sharpen using the rough side first. Lay the blade flat on the stone at a 45 degree angle. Hold the knife handle with one hand and with the other hand place two fingers on the blade, raise the blade slightly (20 degrees) and push down and forward or towards you. You must do this for both sides of the blade.

Cutting Boards:

A knife is nothing without a cutting board. Wooden or polythene cutting boards are mainly used since metal, ceramic or glass cutting boards can be very slippery.

When using cutting boards, DO NOT USE the same cutting board for different foods. If you use the same cutting board you will risk cross-contamination between raw foods and cooked foods, raw meat and raw vegetables, etc. Therefore use, different boards and make sure designated boards are either colour coded or labelled so that you know what board is for what food.

For example:

COLOUR CODED CUTTING BOARDS

RAW MEAT

RAW FISH

COOKED MEAT

SALAD & FRUIT

VEGETABLES

BAKERY & DAIRY

CLEANING SCHEDULES (See also section 1, 2)

What is a cleaning schedule?

- A cleaning schedule is an easy and effective way of showing all the kitchen spaces and equipment that have to be regularly cleaned as well as when to clean them.
- It is also a set of instructions that describes how to maintain the premises and equipment in a clean and sanitary condition.

Why have cleaning schedules?

- Cleaning schedules are used to ensure that all food preparation areas are kept clean and sanitized.
- In order to comply with the Food Standards Code. Environmental, Health, Services and Food businesses must maintain their premises and all equipment in a clean and sanitary condition. The standard of cleanliness expected must ensure there is no accumulation of food waste, dirt, grease or any other visible matter.
- When handling food on or with dirty equipment, bacteria can be transferred to the food product. This has the potential to cause food poisoning. In order to help minimize the risk of food poisoning illnesses, all food premises must be kept in a clean condition.

How do I develop a cleaning schedule?

- The easiest way to develop a cleaning schedule for your business is to walk through the premises and make a list of all items that need cleaning. You will need to include things like the walls, floors and ceiling, as well as all equipment, fittings and fixtures. It is important to include all items, including those that are not cleaned frequently.
- Once you have a list of everything that needs to be cleaned, you will now need to record how it is cleaned, and determine how often it needs to be cleaned. It is also good to include who is responsible for the cleaning, and what chemicals/ detergents need to be used.

Recommended Cleaning Frequencies

<u>After each use or meal preparation period:</u>

All utensils, crockery, cutlery, pots and pans, equipment such as meat slicers, milkshake mixers and cutting boards/blocks. Also food preparation benches, sinks, and customer tables.

<u>At least daily:</u>

Equipment such as microwaves, coffee machines, microwave ovens, stove tops, Bain Marie, floors and walkways, refrigerator rubber door seals, all staff/patron toilets, change rooms, waste areas.

<u>Weekly:</u>

Walls beneath and behind all appliances, shelving, cupboards, flyscreens, interior cool rooms and refrigerators, freezers, dry storage areas, including outside of all ingredient containers, ovens and rubbish bins.

<u>Monthly:</u>

Light fittings, exhaust fans and exhaust canopies. Pest control should also be reviewed monthly.
Three monthly:
Arrange for grease trap to be cleaned and professional pest control.

<u>Annually:</u>

- Check fire suppression system
- Check the fire extinguishers (this may need to be done twice a year, depending on the establishment)
- Clean the hoods twice a year. Use a professional company that specializes in hood cleaning rather than doing the job yourself (very messy and time-consuming).
- Clean the pilot lights on any gas kitchen equipment (Be sure to follow the manufacturer's instruction).

What should a cleaning schedule look like?
Cleaning Schedule example:

Kitchen cleaning schedule - To be completed weekly w/c.....

AREA/EQUIPMENT	FREQUENCY OF CLEANING	METHOD OF CLEANING	DATE CLEANING DUE	PERSONAL PROTECTIVE EQUIPMENT	CLEANING COMPLETED		GUIDANCE	MANAGERS INSPECTION SIGNATURE
					DATE	INITIAL	**USE OF COLOUR CODED EQUIPMENT - YELLOW**	
HEATED TROLLEYS	WEEKLY	Warm water with washing up liquid Sanitizer. Cream cleaner		Tabard / apron Gloves			Ensure trolley is cool before cleaning Clean thoroughly Wipe up spillages immediately	
FRIDGE	WEEKLY	Warm water with washing up liquid Sanitizer		Disposable apron / tabard Gloves			Remove all shelves wash thoroughly. Wash door seal	
SINK	DAILY /WEEKLY	AS ABOVE Cream cleaner for stubborn stains		AS ABOVE			Clean thoroughly	
REFUSE AREA	WEEKLY	Warm water with washing up liquid Sanitizer		AS ABOVE			Clean thoroughly wipe shelves sweep and mop	
CUPBOARDS/ SHELVES	WEEKLY	AS ABOVE		AS ABOVE			Wash and dry thoroughly	
UTENSILS	AFTER USE	Dish washer		AS ABOVE			Wash and dry thoroughly	
FOOD COUNTER		Warm water with washing up liquid Sanitizer		AS ABOVE			Wipe up spillages immediately	
CUTLERY	AFTER USE	Dish washer		AS ABOVE			Wash and dry thoroughly	
TOASTERS	AFTER USE	Warm water with washing up liquid Sanitizer		AS ABOVE			Empty crumb tray	
MICROWAVE	WEEKLY	AS ABOVE		AS ABOVE			Wash and dry thoroughly	
KETTLE	WEEKLY	AS ABOVE		AS ABOVE			Wash and dry thoroughly	
WALLS / TILES	MONTHLY	AS ABOVE		AS ABOVE			Wash thoroughly	
SKIRTING	WEEKLY	AS ABOVE		AS ABOVE			Clean and mop and dry thoroughly	
WINDOW SILLS	WEEKLY	AS ABOVE		AS ABOVE			Clean / wipe thoroughly	

Cleaning and Maintenance of Kitchen Tools:

→ When cleaning non-electrical tools:

a. pre-clean

b. wash and rinse

c. sanitize

d. dry thoroughly

e. store correctly

→ When cleaning electrical tools:

a. choose cleaning agent/liquid

b. DISCONNECT the electrical equipment from power source

c. read cleaning instructions if necessary,

d. safely disassemble

e. pre-clean/ soak to remove dried on food,

f. soap, wipe and/or scrub (gently)

g. rinse

h. sanitize if necessary

i. dry thoroughly

j. reassemble and store correctly

Some things to remember when cleaning kitchen tools in particular:

- Use the correct cleaning liquid.
- Use the correct cleaning cloth or sponge or brush.
- Use hot water if possible.
- Sanitize the kitchen tools with correct sanitizer.
- Dry thoroughly on a drying rack. (If a tool needs to be used immediately after cleaning, dry with a cleaning cloth that is for drying purposes only.)
- If using a dishwasher, make sure you know how to use the dishwasher correctly, and you must know which tools and electrical tool parts can be washed in a dishwasher.

Some things to remember about the maintenance of kitchen tools:

- If you notice something wrong, DO NOT use the equipment.
- Report it to your supervisor immediately.

Examples of maintenance issues: frayed electrical cord, broken switch, screws coming loose or missing, rattles or strange noises in the equipment, smells, smoke or sparks coming from the equipment, broken handles

What is cleaning and sanitizing?

It is important for food business proprietors to understand that cleaning and sanitizing are two separate procedures. A surface will generally need to be cleaned before it can be sanitized. Below are the definitions of both procedures:

→ Clean means 'clean to touch'. There should be no accumulated dust, dirt or food particles on the surface, and no objectionable odour.

→ Sanitize means to apply heat and/or chemicals to a surface in order to reduce the number of bacteria. The number of bacteria on the surface must be reduced to a level that is safe for food contact

Preventing Injuries from Mechanical Equipment

You need to take responsibility to look after your own safety in the kitchen by following these rules.

1. Do not use any equipment unless you understand its operation.
2. Use all guards and safety devices on equipment. Set slicing machines at zero (blade closed) when not in use.
3. Don't touch or remove food from any kind of equipment while it is running, not even with a spoon or spatula.
4. Unplug electrical equipment before disassembling or cleaning.

5. Make sure the switch is off before plugging in equipment.

6. Do not touch or handle electrical equipment including switches, if your hands are wet or if you are standing in water.

7. Wear properly fitting clothing. Tuck in apron strings to avoid getting them caught in machinery.

8. Use equipment only for its intended purpose.

9. Stack pots and other equipment properly on pot racks so they are stable and not likely to fall.

Preventative Maintenance Schedule

As you have already learned, keeping any kitchen equipment clean and using it safely is very important. These two acts are a part of preventative maintenance. Neglecting maintenance can lead to accidents in the future.

Every kitchen should have a preventative maintenance schedule. A weekly, monthly and yearly checklist of checking and maintaining all kitchen equipment is needed. If this is not done, it can cause important equipment to fail when it is most required and can cost a lot of money for replacement and loss of time in operations.

1. It prolongs equipment life

2. It ensures that all equipment is working at optimum performance

3. It saves money and time in the long term.

NOTE: In Section 5, S.O.P (standard operating procedures) was discussed. Read it again because your establishment will have its own S.O.P for cleaning and maintaining utensils tools and equipment, which you must follow.

Section 07

PROFESSIONAL COOKERY SKILLS MANUAL

Food Knowledge

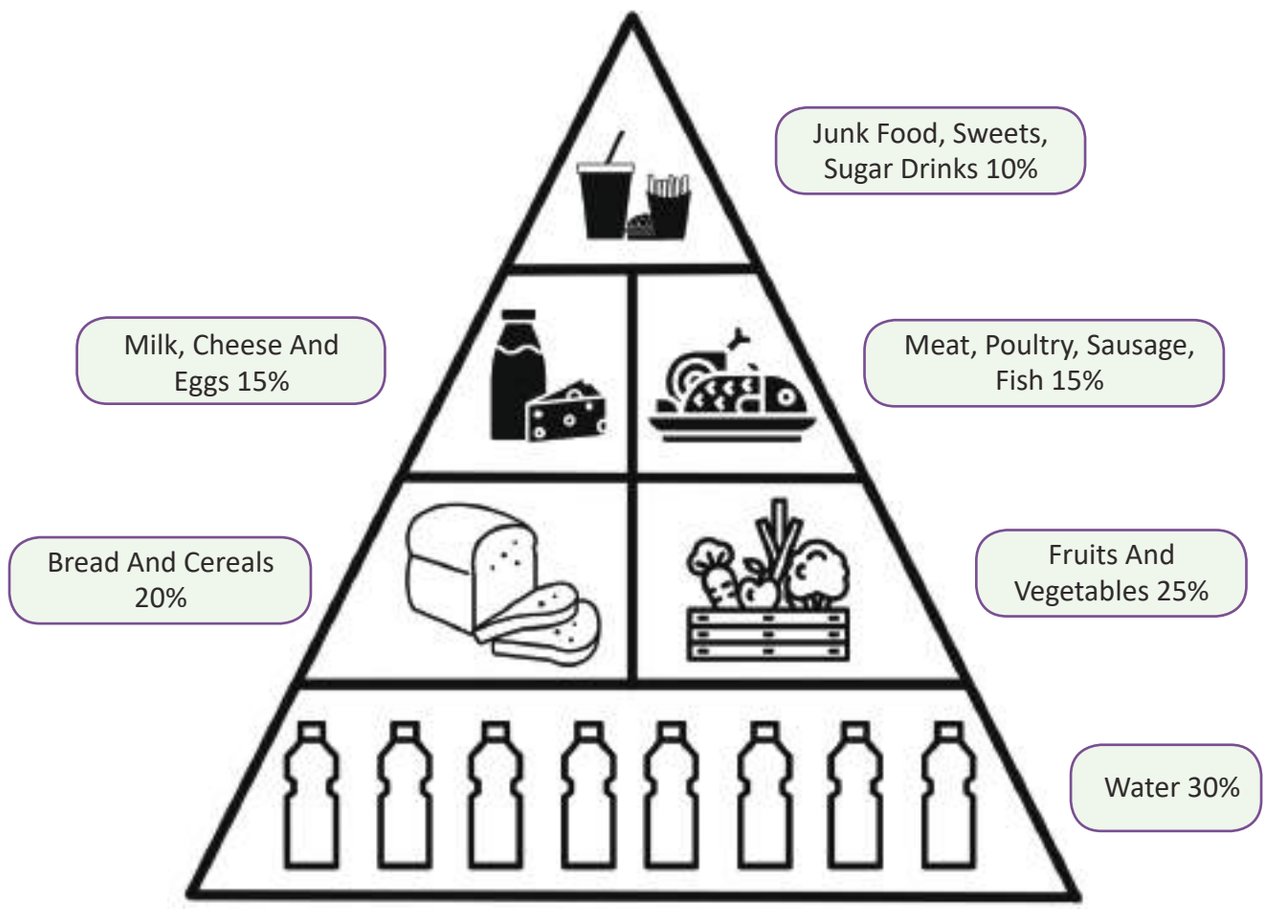
FOOD KNOWLEDGE

Classification of ingredients and Nutritional Knowledge

Food knowledge is a science. It is important as a trainee chef/cook that you understand the science behind the art of cooking. In this section you will learn about the different food groups and how that can affect menu choices.

You will learn about flavours, nutrition and sustainability.

- Six categories of Nutrients
  - Carbohydrates
  - Fats
  - Proteins
  - Vitamins
  - Minerals
  - Water
- Categories of food
  - Fruits and Vegetables
  - Dairy/Eggs
  - Meat/Fish/Poultry
  - Grains and Cereals
  - Lentils



What are nutrients?

Nutrients are sources of energy or body-building element that the body cannot produce by itself. Therefore it must consumed through food.

Nutrient	Function	Food Source
Carbohydrates: Simple Carbohydrates Complex Carbohydrates	To supply energy to brain, nervous system, muscles and blood.	Sugar Honey Dairy Products Fruits Vegetables Bread Rice Corn Potatoes Fruits Vegetables Milk
Proteins	To build the body (the muscles, skin, hair, blood, enzymes), regulate water	Meat, Fish and Poultry Dairy Products and Eggs (some)Vegetables Legumes and Nuts
Fats	To maintain the body and bodily functions (store energy, help absorb vitamins, insulate vital organs, etc.)	Meat, Fish and Poultry Dairy Products and Eggs Oils Cocoa butter Grains Nuts and Seeds Vegetables
Vitamins	To maintain the body and bodily functions (boost the immune system, convert food into energy, etc.)	Fruits Vegetables Dairy Products and Eggs Meat Grains
Minerals	To build the body and help with bodily functions (strengthen bones, teeth, nerve control, etc.)	Found in most food groups
Water	Provides a medium for chemical reactions, remove waste products and makes up 50-60 % of body weight	Fruits, Vegetables, Liquids

- Water is present in all food and dishes in different amounts.
  But that is not a substitute for drinking water, which is very important for keeping the body correctly hydrated.

- Dietary Fibre describes the parts of a plant that cannot be digested. It can help reduce cholesterol if eaten regularly. Food that contains dietary fibre – oats, beans, peas, barley, citrus fruits, strawberries and apple pulp.

- There are four kinds of fats:

  1. Saturated – raises unhealthy cholesterol levels
  (meat-based diet is high in saturated fat)

  2. Trans Fatty acids – raises unhealthy cholesterol levels
  (fast food contains a lot of trans fatty acids)

  3. Polyunsaturated – healthier fat
  (Nuts and seeds, sesame seed oil and sunflower oil are rich in this type of fat)

  4. Monounsaturated – healthier fat
  (avocado, olives, canola and peanut oil are rich in this type of fat)

Calorie – what is a calorie?

This is the word we use to measure food energy. It is written as kcal.

1 gram of pure fat supplies 9 kcal
1 gram of pure carbohydrate supplies 4 kcal
1 gram of pure protein supplies 4 kcal

How does this affect menu choices?

Today many people are concerned with the health of their bodies. There are many diseases that are considered to be modern diseases because these diseases are connected to lifestyle and food habits. Humans in the 21st Century are more unhealthy in their eating habits than ever before. That has led to more heart, liver and kidney disease. Humans are fatter than they have ever been.

That is why many people go on diets. Many people want to eat healthier meals, or meals with less calories. That is why some restaurant menus write how many calories their dishes contain.

When planning a menu it is important to think what kind of customer is coming to eat your food and what kind of dish they are looking for. Many customers today look for fresh and healthy dishes.

TASTES AND FLAVOURS

Scientists describe seven basic tastes: bitter, salty, sour, astringent, sweet, pungent (eg chili), and umami. There are however five basic tastes that the tongue is sensitive to: salt, sweet, bitter, sour, and umami.

Sweet – detected by the presence of sugars

Salt – produced by the presence of salt (sodium chloride)

Bitter – taste that detects alkaloids

Sour – taste that detects acids

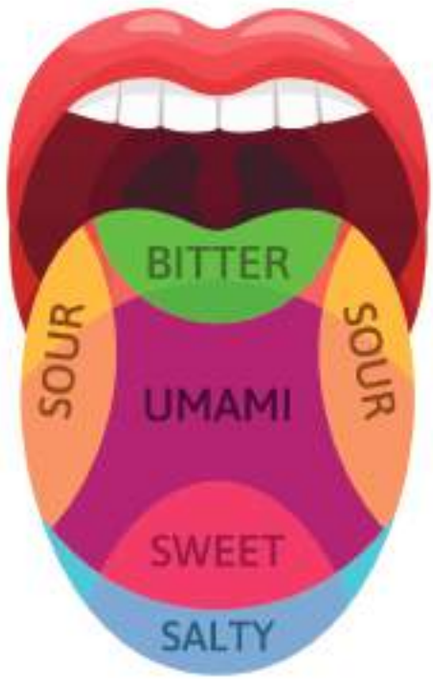
There is a fifth, more complex taste: Umami

Umami is hard to define but some people describe it as savouriness. It is the name for the taste sensation produced by the free glutamates commonly found in fermented and aged foods. In English, it is sometimes described as "meaty" or "savoury". In the Japanese, the term umami is used for this taste sensation, whose characters literally mean "delicious flavour." Umami is now the commonly used term by taste scientists. The same taste is referred to as xianwèi in Chinese cooking. Savoury is considered a fundamental taste in Japanese and Chinese cooking, but is not discussed as much in Western cuisine. (for example, parmesan, soy sauce have “umami”)

Lesser tastes:

Astringent (for example, tea, unripe fruit)

Pungent (to mean spicy, for example, capsicum)



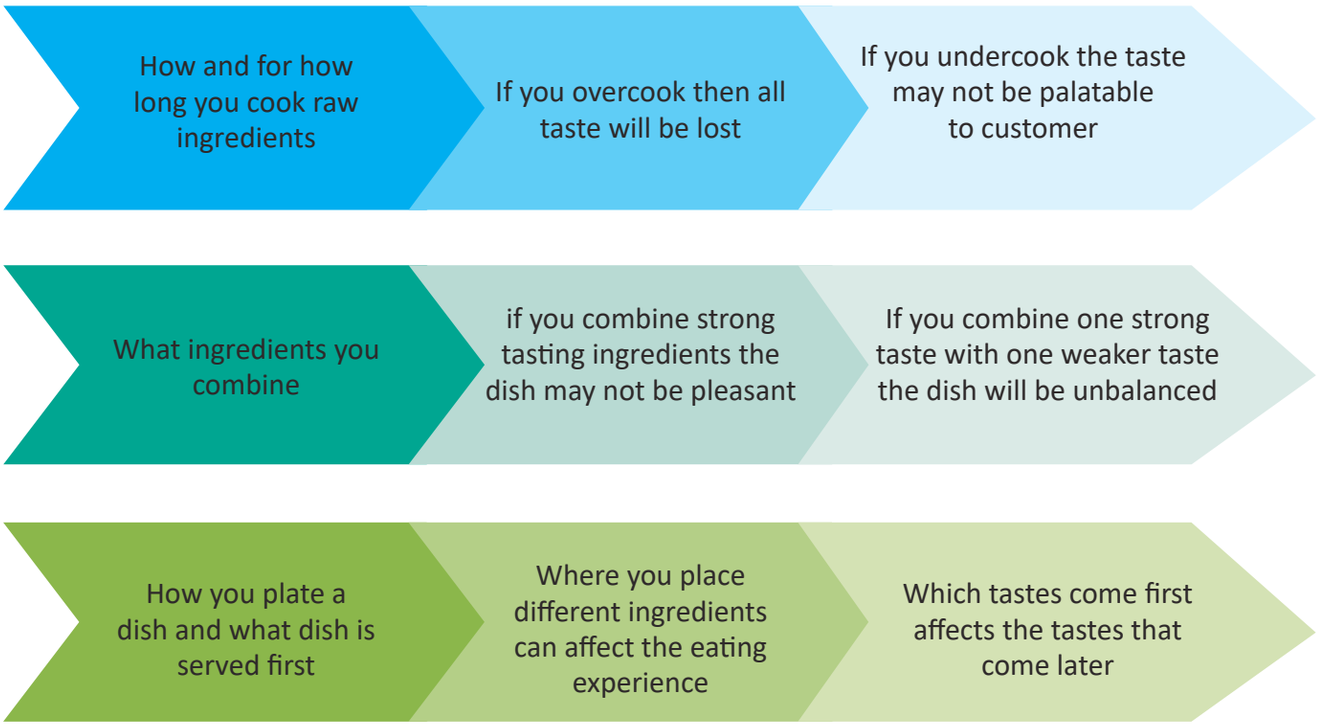
- **BITTER**
- **SOUR**
- **UMAMI**
- **SALTY**
- **SWEET**

What is the difference between flavour and taste?

Taste refers to the direct connection between tongue and food item.
Flavour refers to the taste, texture and smell of a food item. Therefore flavour is affected by whether the dish is hot, cold, warm, cool, soft , hard, and which smells are stronger.

What does this mean when you cook?

This knowledge will affect the following:



What is food composition?

Food composition refers to the different nutrients that make up the food type. For example, fruits made up of fibres, water, minerals and carbohydrates.

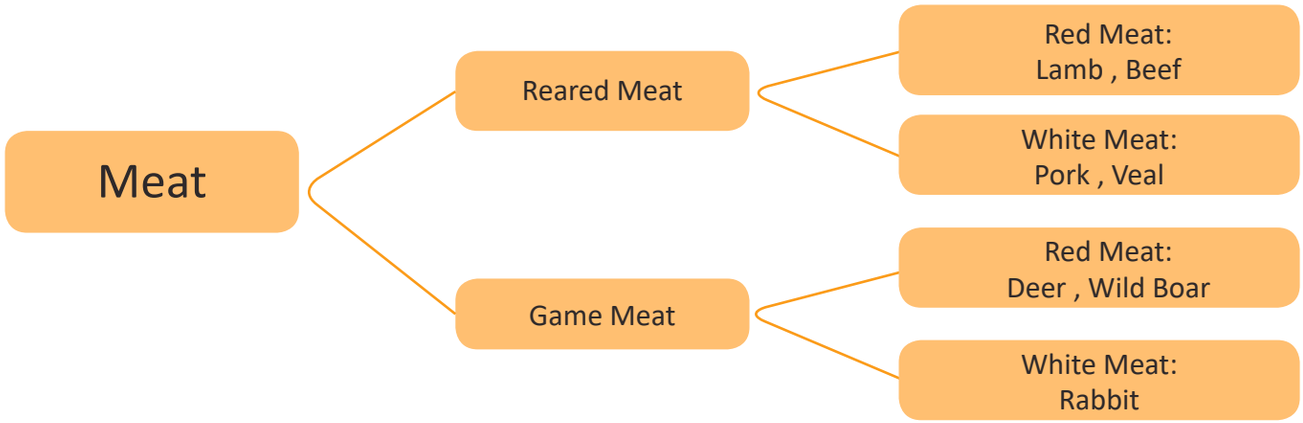
Why is it important to know the composition of food?

Since different nutrients react differently to different preparation and cooking methods (hot or cold methods) you must know the composition of food so that you can predict how the food will behave when you prepare it for a dish. If you can predict how it will behave you can avoid mistakes such as over-cooking, or under-cooking.

It is also important to know food composition for storage purposes. If you know that proteins easily degrade if not kept under very cold temperature, then you know how to store protein-rich food.
You can find food composition tables on the internet or in nutritional science books.

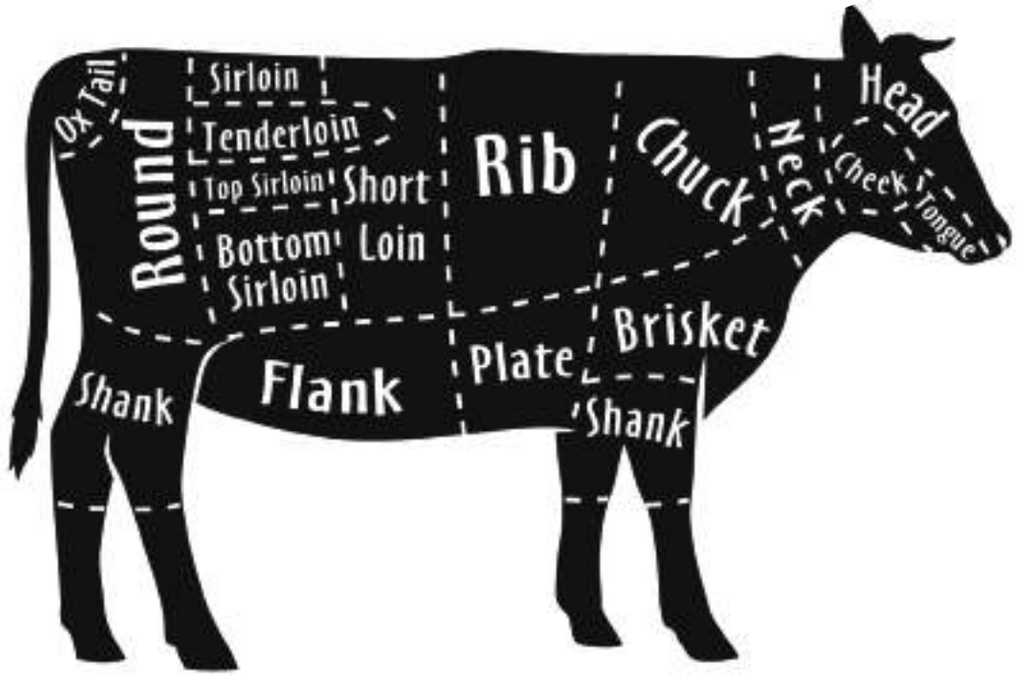
MEAT

Meat is a very important ingredient in cooking and many of the dishes you will make will contain a meat ingredient. There are two categories of meat, and this is further divided into red and white meat.



Composition of meat: (muscle, connective tissue, fat and bone)
75% of water, 19% of protein, 2.5% of fat, 1.2% of carbohydrates and 1.65% of nitrogen compounds.

Beef



Beef (and veal) and lamb/mutton are called red meat A cut of beef is meat that is muscle close to the bone. Any meat from near the hooves or the horns is tough and hard to chew. Any meat far away from the horns or hooves is softer. The chuck is used for chuck-steaks and roasts or used for ground beef. The rib contains short and prime ribs and the rib eye and entrecote is the boned steak cut off the sirloin. Brisket is usually used for barbecue. The shank is used for stews and soups (it is very tough meat). The loin is used for T-bone and porterhouse steaks. The sirloin is used for sirloin steaks. The tenderloin is mainly used in filet mignons or steaks. It is the most tender and most expensive cut. Meat of a young cow is called veal.

Beef Cuts

Brisket

5 Bone Rib

Rolled Topside of Beef

Classic Fillet Steak (170g)

Fillet Medallion (70g)

Burgers

Sirloin Steak (210g)

Minute Sirloin Steak (110g)

Rib-eye Steak (210g)

Minute Rib-eye Steak (110g

Rump Steak (170g)

Rump Medallion (70g)

Flank Steak

Flatiron Steak

Entrecote Steak

Porterhouse

T-Bone Steak

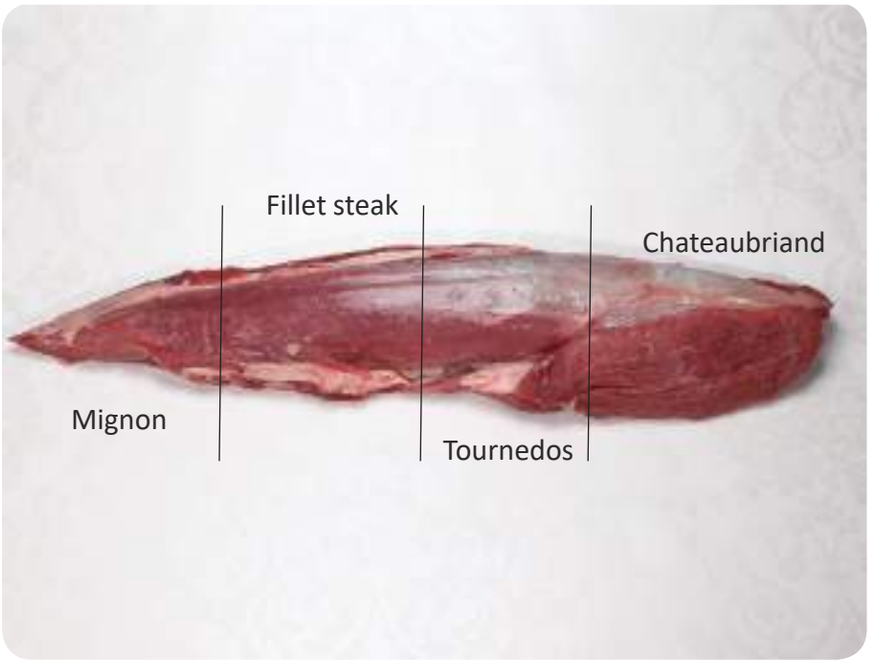
(T-Bone is cut from the front so there is less tenderloin and porterhouse is cut from the back so it has more tenderloin)

Parts of the Tenderloin (Fillet)

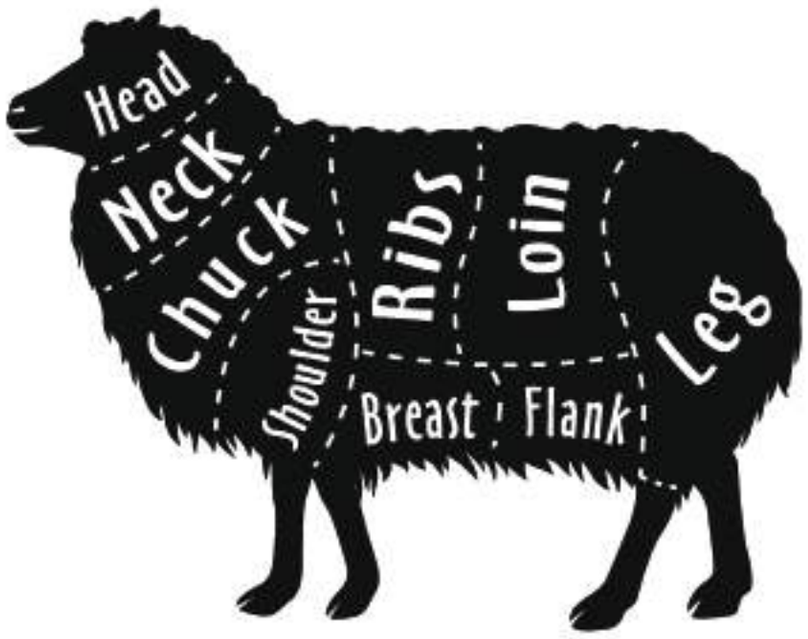
(Head part) Chateaubriand

(Middle Part)
Fillet steak and Tournedos

(Tail Part) Mignon



LAMB



Lamb and mutton are the meat from sheep. If the sheep is in its first year the meat is called lamb and if the sheep is in its second year or more it is called mutton. In South Asian cuisine, mutton is sometimes used to refer to goat meat. Lamb is generally more expensive than mutton. Mutton has an intense, red colour and the flavour is very strong. Lamb is tender with a very mild flavour. Most cuts of lamb are good for grilling, braising and the rack or leg is best for oven roasting. Since mutton is slightly tougher, slow cooking methods like stewing is best.

Lamb Chop

Lamb Shoulder

Leg of Lamb

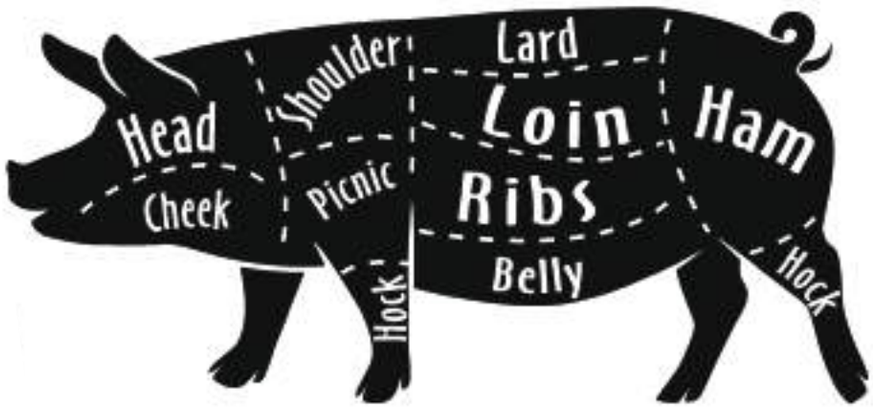
Rolled Saddle of Lamb

French-trimmed
Rack of Lamb

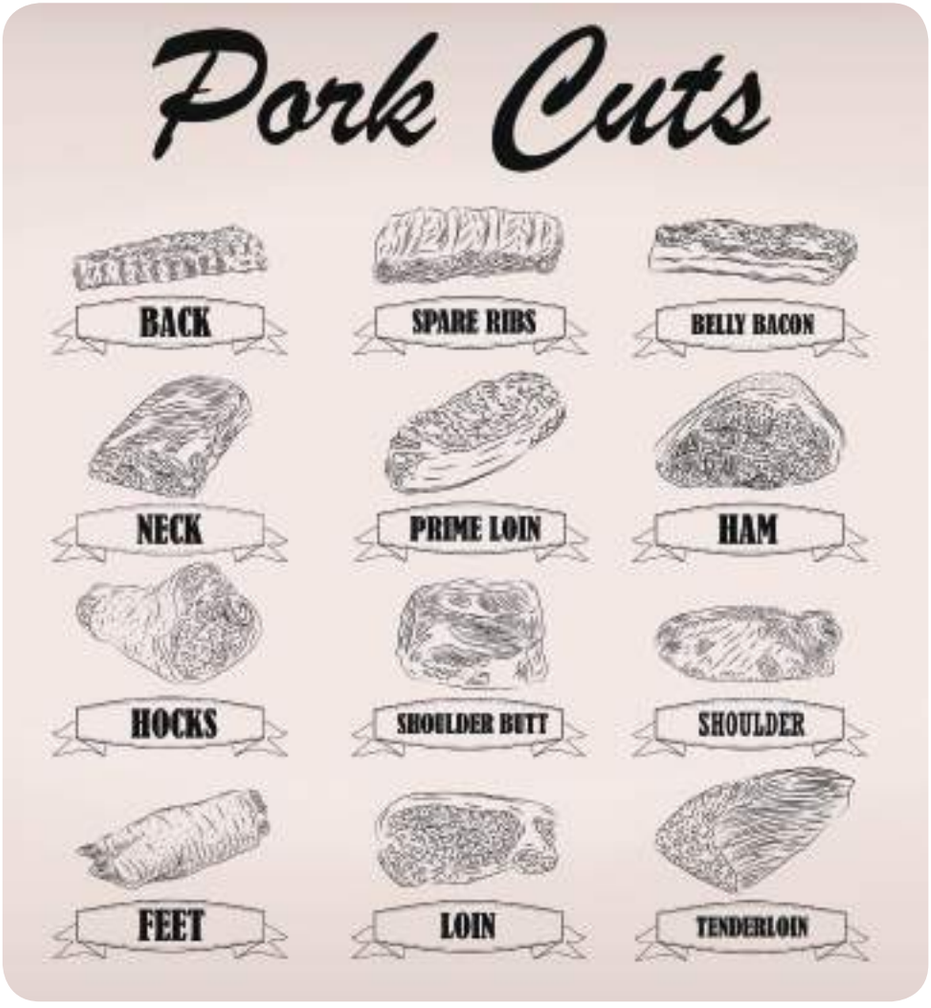
Lamb Loin

Lamb Fillet

PORK



Pork is considered to be white meat compared to lamb /mutton and beef.
Like beef, meat for pork cuts come from muscle close to the bone. The rib cuts contain ribs for barbecue or for smoking. The shoulder is best for slow roasting and braising (diced). The loin is very soft meat so it is best for grilling or pan-frying (medallions/porkchops/tenderloin). The cheek is good for curing/salting. Picnic or shoulder arm is good for a dish like baked ham. The hock and feet are for soups or stews. The ham leg is for roasting whole or curing (to make ham) and can be cut into smaller joints. The bacon or belly is for slow-roasting, pan-frying or smoking and is commonly used to make bacon.
The fat above the loin is called lard and is used in many recipes.



Pork Shoulder

Pork Chops

Pork Belly

Pork Rib

Pork Mini Steaks

Pork Fillet Medallions

Pork Loin for
Roasting

How to check for freshness of meat:

It is very important that meat be fresh before cooking or storing. This is to prevent contamination, cross-contamination and food poisoning.
How can you know if the pork of beef is fresh?

- **Use your eyes -** the pork or beef or lamb/mutton should be a bright red colour. If the colour is dark the meat is no longer fresh. However, even fresh meat will change colour if you leave it exposed to the air for 30 minutes or more. That does not mean you cannot use it. You must use your other senses to check if the meat has become unsuitable for eating.

- **Use your hands** – press down firmly with your finger and if the pork or beef springs back nicely it is fresh. If it does not spring back at all do not use the meat.

- **Use your nose** – pork or beef or lamb/mutton should not have any strong smell so put it to your nose and smell carefully .

Storage:

Make sure the raw, fresh meat is clean. Pat dry with a paper towel. Portion and place in an airtight, plastic container. Use the meat within 2-3 days if not freezing.

Keep raw meat in the coolest part of the refrigerator away from cooked meat and other ready-to-eat foods.

Raw meat can likewise be smoked or pickled on site before storing. If your establishment smokes or pickles its own meat, please follow your establishment's standard operating procedures for storing the meat. Usually smoked or pickled meat is refrigerated.

Meat that is already frozen and vacuum-packed should be placed in a freezer immediately.

Meat can be purchased smoked or pickled. Follow the manufacturer's guidelines for how to store smoked or pickled meat.

Frozen meat should be thawed under refrigeration.

Cooking Temperatures:

All meat should be cooked according to the recipe, and internal temperatures should be measured accordingly.

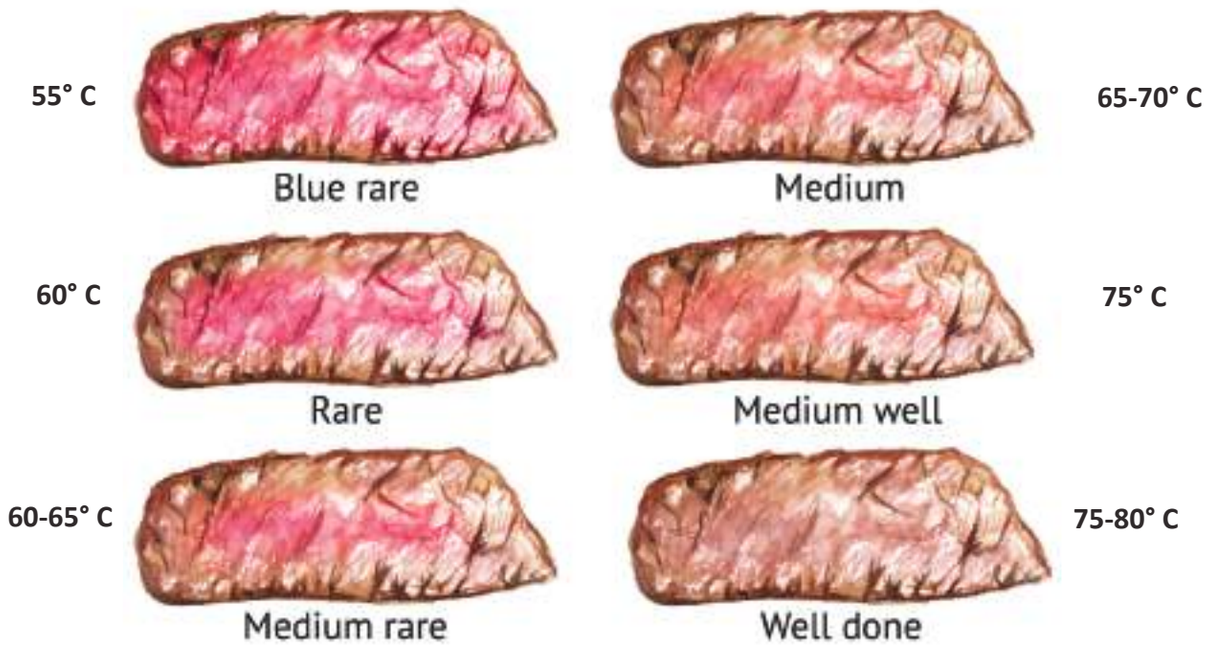
	Temperature
Cooking meat	Cook at 63 degrees Celsius for 15 seconds.
Holding temperature for meat dishes	60 degrees Celsius and above. (well-cooked roasts can be kept at 55 degrees Celsius)
Storing marinated meat / cooked meat	5 degrees Celsius or below.

NOTE: This is a rough guide to help you understand that it is important to cook meet appropriately and safely. Knowing when meat is done (cooked appropriately) requires much practice.

Note: Pork must ALWAYS be well-cooked because of parasitic worms that occur in pork flesh. If these worms are not killed through proper cooking they will pass into the human body.

TOP TIP: Whether beef or lamb is done depends on the degree of cooking the recipe asks.
Degree of cooking means whether the meat has to be cooked to rare, medium-rare or well-done. See the illustration on the following page.

For Beef and Lamb:



NOTE: You can also see whether you have the appropriate texture by the colour of the juices that run from the meat during or after cooking.

How to store cooked meat:

Cool the meat down immediately, place in an airtight, plastic container and it can be kept for up to 3 days in the refrigerator. If placed in the freezer in a re-sealable, plastic bag (vacuum package), it can be kept for up to three months.

ALWAYS tag the bag or container that the meat is stored in with the date and time, name of handler, and the name of the product in the bag or container.

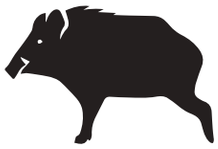
GAME

There are two types of game: feathered or furred

The word game is used, for culinary purposes to describe animals or birds that are hunted for food, but now many types of game are being bred domestically, for example – pigeon, duck, venison, wild boar. Game meat is less fatty and quite lean. The fat content of wild birds is less when compared to domesticated birds. This type of meat requires tenderizing and marinating.

Common game animals are rabbit, wild boar and deer (venison).
Common game birds are wild duck, wild pigeon, and wild guinea fowl.

Game bird meat tends to be dark meat. Game animal meat like wild boar and venison is red meat while rabbit is considered white meat.



When handling game meat:

- Keep the meat out to bring it up to room temperature first.
- Game meat is generally tougher and consists of coarser fibres than meat from domesticated animals. This is why it is always important to keep track of the direction of the muscular fibres, even if you're cooking the finest, tenderest cuts. Slice across the fibres before and after cooking.
- Game meat has less fat content than far-reared meat so barding and larding and basting is necessary to maintain the moisture in the flesh.
- Game meat is often well-marinated (if the recipe calls for it).

What to remember when cooking game:

- The meat should be at room temperature before cooking.
- Keep an eye on the direction of the fibres.
- Fry in oil and plenty of butter.
- Never cook steaks and fillets all the way through. Finish off your meat in the oven.
- If the meat has been in a flavoured marinade, it is a good idea to use the marinade as the basis of a sauce for the finished meal. Keep the juices and flavours by cooking in an
- If you overcook game meat on a high temperature it will produce a bitter, metallic taste like liver.
- Like other red meat game meat must be rested before serving. Rest the meat in a warm place under a cloth (not foil) after cooking.

Use a thermometer

Measure the internal temperature at the fattest part of the cut. You can remember 56°C as a guideline for all game apart from wild fowl such as capercaillie and goose that need to reach 67-68°C so as not to be dry.

Temperatures for wild fowl

Ancient tradition says that wild fowl should be served well done, but it tastes much better if you use a thermometer and go for precisely the right temperature. That makes sure your meat is safe and juicy.

Game Temperatures

Most dark game meat (see above for exceptions) is good at the following internal temperatures:

- Rare 56°C
- Red 58°
- Pink 60°
- Light pink 62°
- Well done 65°

POULTRY

Poultry is sometimes called white meat, and is a very lean and healthy meat. It has a very mild flavor and is almost always tender. Younger birds are more tender than older birds and birds that can fly have only dark meat.
Poultry can mean chicken, duck, goose, guinea fowl, pigeon and turkey.
Poultry also includes game birds like quail and peacock. Game bird flesh is much like duck and goose flesh because it is dark red in colour, has a strong grain, and is very lean (very little fat).

Poultry is often prepared without the skin (except for duck). Wings and shins (drumsticks) are meat on the bone cuts and often the skin is kept on for a crisper finish. The thigh is sometimes called dark meat and is the juiciest meat of the bird. It can be prepared on or off the bone, and with or without the skin. It takes a little longer to cook thigh meat and has a firm texture. The leg describes the thigh and shin (drumstick) connected together. The breast meat is considered a healthier cut because there is less fat found in the breast muscle.

Chicken, duck, turkey and goose can also be cooked and served whole.
Most cooking methods can be applied to poultry meat.

Composition: (muscle, connective tissue, fat and bone)
72% of water, 21% of protein, 4.5% of fat, 1.2% of carbohydrates and 1.65% of nitrogen compounds.

Below is a brief description of the different types of poultry:

Name	**Description**
Chicken	Contains white and dark meat. Readily available fresh or frozen. Can be prepared in many ways.
Duck	Contains only dark meat. High percentage of bone to meat and a lot of fat. Good for roasting. Skin good for making crackling.
Goose	Contains only dark meat. Has very fatty skin Good for roasting and best served with an acidic fruit-based sauce.
Pigeon	Contains only dark meat Has very little fat. Good for broiling, roasting or sautéing.
Turkey	Contains both white and dark meat. Has a small amount of fat. Can be prepared in a variety of ways.
Quail	Contains both white and dark meat. Cooked meat looks similar to chicken. It has a high protein content. Good for roasting and broiling.

<u>How to check for freshness:</u>

It is very important that chicken be fresh before cooking or storing. This is to prevent contamination, cross-contamination and food poisoning.
How can you know if the chicken is fresh?

- Use your eyes - the poultry should be a pink, fleshy colour. If the colour is grey the meat is no longer fresh. However, even fresh meat will change colour if you leave it exposed to the air for 30 minutes or more. That does not mean you cannot use it. You must use your other senses to check if the meat has become unsuitable for eating.
- Use your hands – poultry that has gone bad feels slimy to the touch (even after rinsing). Fresh poultry feels firm and does not feel slimy or sticky.
- Use your nose – poultry should not have any strong smell so put it to your nose and smell carefully. If it smells 'sour' it has gone bad.

Storage:

Fresh poultry should be clean. Pat dry with a paper towel. Portion and place in an airtight, plastic container. Fresh poultry can be stored on ice at Celsius for up to two days.

Keep raw chicken in the coolest part of the refrigerator away from cooked meat and other ready-to-eat foods.

If the chicken is not going to be used within 2 days, it is better to place the chicken in a re-sealable plastic bag and frozen. In the freezer fresh chicken can be kept for up to 3 months.

Frozen poultry should be stored at 0 degrees Celsius.

Frozen poultry (frozen at purchase) should not be kept for more than six months.

Frozen poultry should be thawed under refrigeration.

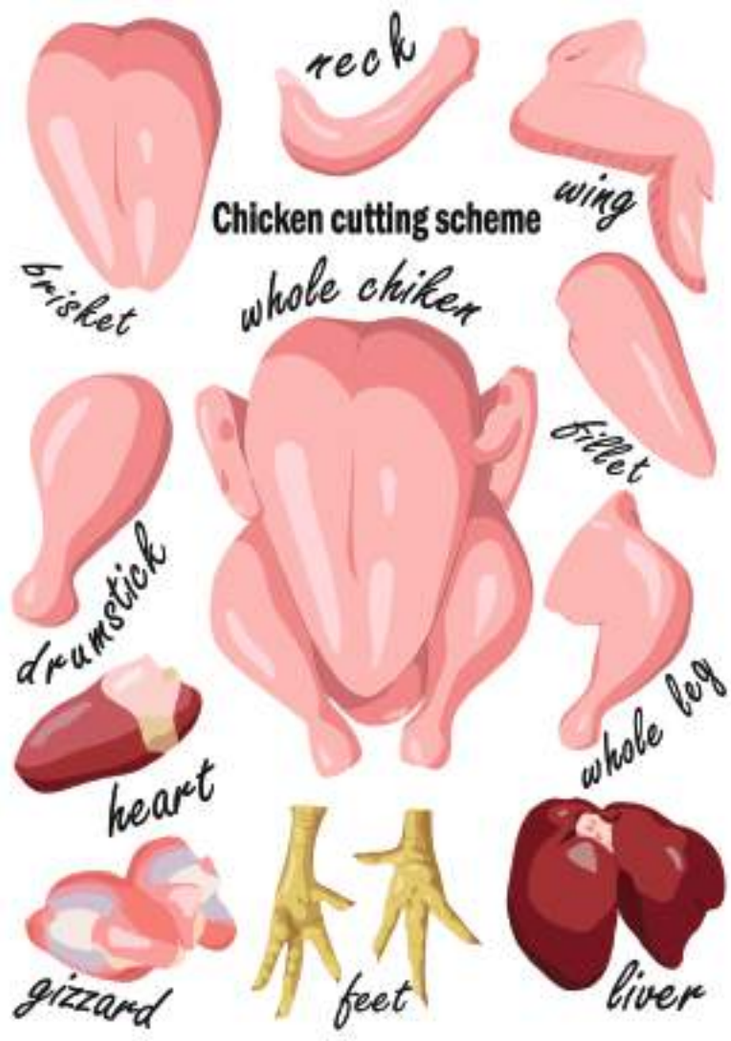
Storing cooked meat: Cool the chicken down immediately, place in an airtight, plastic container and it can be kept for up to 3 days in the refrigerator. If placed in the freezer in a re-sealable, plastic bag, it can be kept for up to three months.

Cooking Temperatures

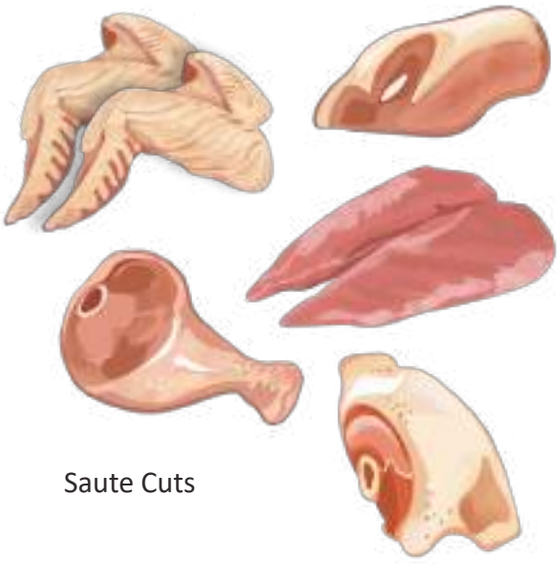
Always keep poultry out of the temperature danger zone whether hot holding or keeping cold.
When cooking, whatever the method, cook till well-done. That means that the colour of the flesh changes from opaque white meat / dark pink red meat to pinkish white or light brown.
There are some exceptions, such as duck. In this case, please follow the cooking guidelines of your establishment.

Chicken Cuts

Below is a picture of the different cuts of chicken which you should know:



In addition you should know and practice the different ways to cut and "trim" poultry:



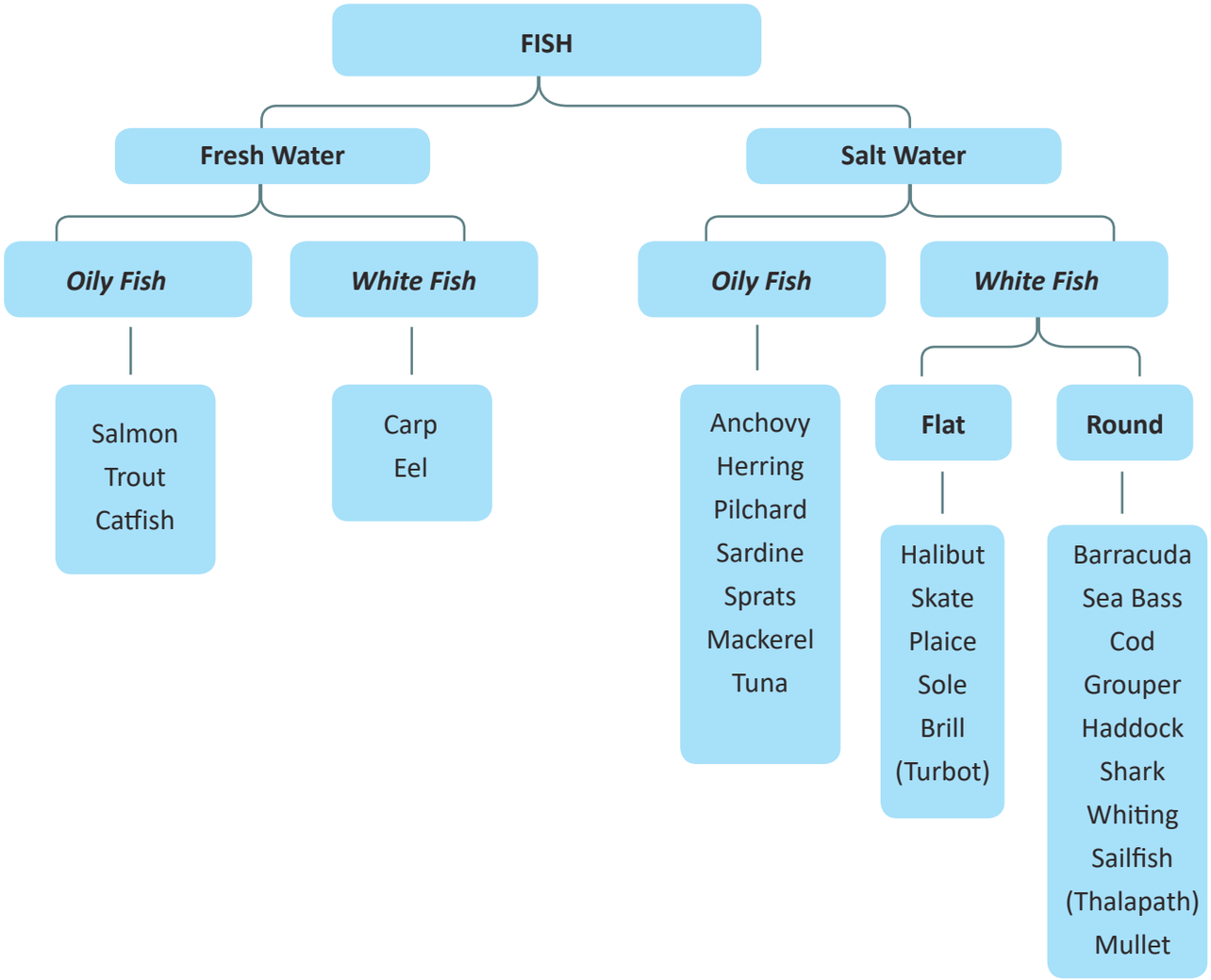
Saute Cuts

Chicken Supreme

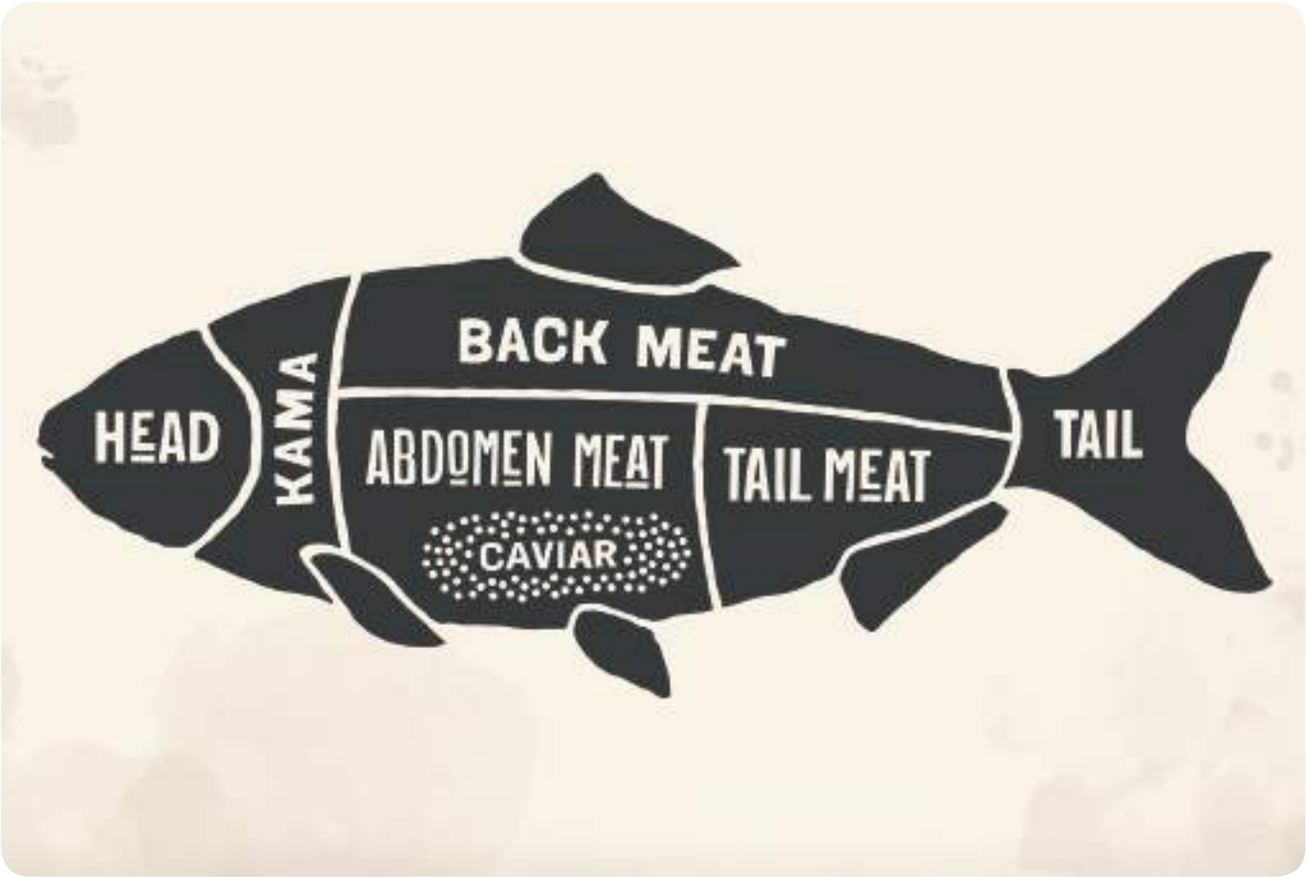
French Trim
(lollipops and supreme)

FISH

Here is a classification of fish that is commonly used in cooking:



Composition: (fish muscle and bones)
70% water, 15-20% protein, 15 -18% oils, vitamins and minerals



Fish is a very popular and very healthy choice of ingredient and appears in many main dishes on menus. Fish is a very delicate type of flesh and so not all cooking methods can be used to cook fish. Fish is also delicately flavoured and so strong marinades are rarely used. The skeleton, head and tail of the fish is often used to make a base for soups and stocks. The back, abdomen and tail meat can be removed all together to create the fillet cut. The fillet cuts can be further categorized into different cuts for beautiful presentation. Fish meat meat can be ground with other ingredients to make fish balls or fish cakes.

How to check for freshness of fish

It is very important that fish be fresh before cooking or storing. This is to prevent contamination, cross-contamination and food poisoning.
How can you know if the fish is fresh?

- **Use your nose** – Smell the fish. It should have a crisp, metallic odour. Fresh fish does not smell bad.
- **Use your eyes** -

  Check the fish's eyes (clear and bright and not cloudy)

  Gills (no blood spots on the outside and clean and moist and bright red on the inside)

  Skin (should be shining, taut, slimy and smooth).

  Scales should be intact, moist and lying flat.

  If the fish is gutted the belly should be clean. There should be no visible damage.
- **Use your hands** – the fish should be firm and resilient to the touch and not lumpy or soft.

Storage

- Fish should be stored in the refrigerator as soon as it is delivered and cleaned/gutted. Where possible it should be stored on a bed of ice in the refrigerator.
- The fish must be gutted and thoroughly rinsed in cold water. Pat dry with a paper towel and place in shallow dish (cover with foil or clingfilm securely) or in an airtight, plastic container.
- It should be used within 1-2 days after delivery.
- Keep raw fish in the coolest part of the refrigerator away from cooked fish and other ready-to-eat foods.
- If the fish is not going to be used within 2 days, it should be wrapped tightly in moisture-proof bags and stored in the freezer. In the freezer fresh fish can be kept for up to 3 months.

Preserved Fish

Not all fish that you will use in your cooking will be fresh fish. A recipe might call for fish that has been preserved. Below are the different ways fish can be preserved.

Frozen – this is done as soon as the fish is caught or as it arrives at the port market. Alternatively the fish is cleaned, gutted, filleted and then frozen. This means the fish is already frozen when it is delivered to the kitchen.

Store in the freezer.

Salted – Cod and herring are often packaged in salt. Caviar is lightly salted roe of the sturgeon fish.

Store in the refrigerator.

Frozen – this is done as soon as the fish is caught or as it arrives at the port market. Alternatively the fish is cleaned, gutted, filleted and then frozen. This means the fish is already frozen when it is delivered to the kitchen.

Store in the freezer.

Pickled – fish is filleted, rolled or skewered and pickled in vinegar. (Herring)

Store in the refrigerator

Smoked– fish is gutted or left whole, soaked in a brine (salt) solution and smoked with a wood fire.

Store in the refrigerator.

Dried – fish is cleaned and gutted, then sun dried or air-dried.
Store in a cool, dark, environment unless the package is opened. If package is opened, place in airtight container and put in the refrigerator.

Canned – oily fish is usually canned, either in their own juices/oils/brine or in tomato sauce.
Store in a cool place.

Gravalaxe – this means the fish has been cured but not smoked. Not as much salt is added (like it is for smoked fish) and sugar and dill have been added to the curing process. This method originated from the Nordic culture.
Store in the refrigerator or freezer (treat the same as raw fish).

These methods of preserving fish can also be done in the kitchen if the recipe calls for it in dish preparation.

Le Darne: slice of round fish cut on the bone

Le troncon: slice of flat fish cut on the bone

Le filet: cut of fish free from the bone

Le supreme: fillets of large round fish cut in a slanted direction

Le Delice: trimmed and neatly folded fish

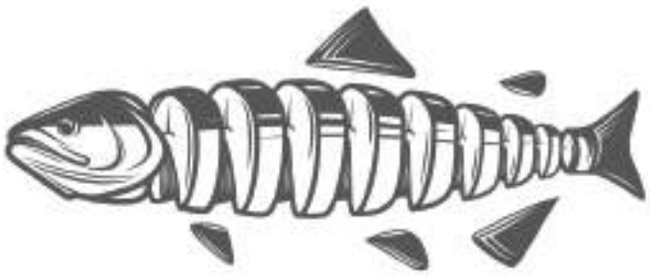
La goujon: fillet cut into strips
La goujonette: goujon cut into smaller strips

Le paupiette: fillet of flat fish, spread, stuffed and rolled

Le steak: trimmed darne of a round fish with no bone

Pan Dressed

Steaks



Fillets

COOKING Temperatures

As mentioned, fish meat is delicate compared to animal meat and when cooking great care must be taken not to over cook the fish. However, fish is considered a safety hazard, which means fish must be cooked through. Through practice using different types and cuts of fish you will learn how to recognize that the fish is done. As a general rule, opaque flesh turns milky white and flesh turns brown and salmon's pink colour turns a light pink.

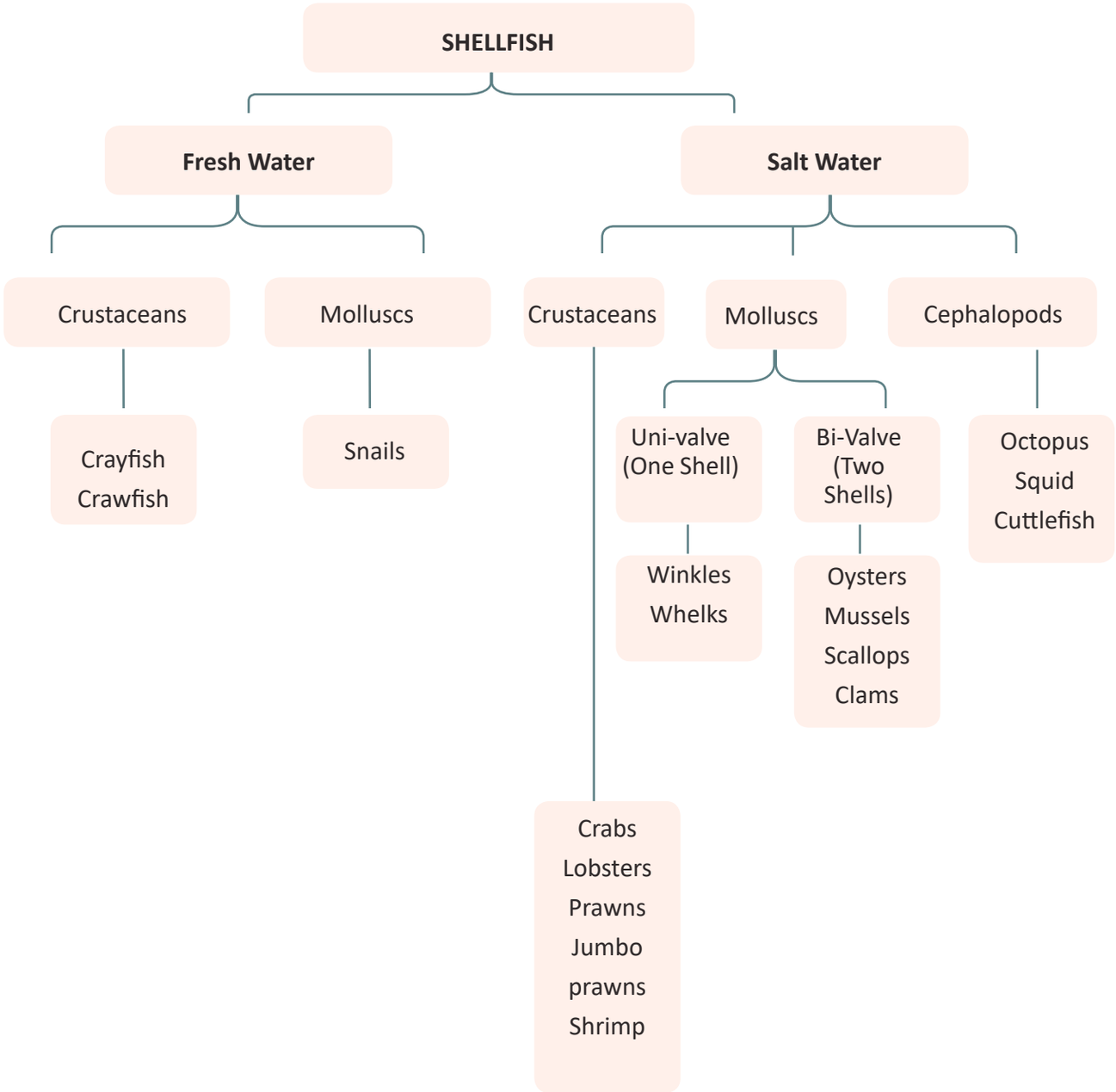
How to store cooked fish

Cool the dish down immediately, place in (preferably shallow) airtight, plastic container and can be kept for up to 3 days in the refrigerator. If placed in the freezer in a re-sealable, plastic bag, it can be kept for up to 3 months.




SHELLFISH

Here is a classification of commonly used shellfish:



Composition: 75-80% water, 15-20% protein, 2-5% fat, 1-2% minerals. The meat of crustaceans including lobster, shrimp, and crab is white fleshed, with connective tissue has more collagen and is therefore not as tender as fish.

How to check for freshness in shellfish

It is very important that shellfish be fresh before cooking or storing. This is to prevent contamination, cross-contamination and food poisoning.

How can you know if the shellfish is fresh?

- **Use your nose** – Smell the shellfish. They should smell of the ocean. Fresh shellfish does not smell bad.
- **Use your eyes** - Shellfish that has had the shell removed (shucked shellfish) should look plump and they should be covered in their juices. Their juices should be clear or slightly gray and should not contain sand or shell.
- **Use your hands** – Shellfish with shells should be clean and the shells should be closed. If they are open, they should close when you tap them.

Storage

- **All raw shellfish should be kept in the coolest part of the refrigerator, away from other raw food and cooked food.**
- Shellfish that are purchased live in their shells should be put in a shallow pan with NO WATER, covered with moist paper towels or cloth and place in the refrigerator below 4 degrees Celsius. Do not store in plastic or other airtight containers.
- Mussels and clams must be used within 2-3 days while oysters need to be used within 7 days. Shellfish that has had the shell removed (shucked shellfish) can be placed in a sealed container and frozen.
- Live lobsters and crabs should be cooked the day they are purchased (delivered) and then stored in the refrigerator for up to 2 days. Best to cook immediately and serve.
- Prawns and shrimp that are fresh but not live should be placed in a covered container or plate covered in plastic wrap and refrigerated immediately. Should be cooked the day they are purchased (delivered).
- Clean and rinse squid, cuttlefish and octopus and then place on a plate or in a container, cover with moist paper towel or damp cloth and then cover with plastic wrap or lid of the container. It can be kept in the refrigerator for up to 2 days.
- Frozen seafood should be kept frozen and dated. Follow package instructions for correct thawing/re-heating/cooking.

Shucking

Your trainer should show you how to shuck/fabricate different shellfish or how to prepare crab, lobster and shrimp. Below is an example of shucking an oyster. Instead of a towel, you can use thick gloves since shucking is hazardous and risks hand cuts. There are videos on the internet you can watch to help you practice.

Cooking Shellfish:

To ensure proper food safety, shellfish must be cooked to an internal temperature of at least 63°C for 15 seconds. Since it is often impractical to use a food thermometer to check the temperature of cooked shellfish, here are some tips and recommended ways to cook shellfish safely:

- Shucked shellfish (clams, mussels and oysters without shells) become plump and opaque when cooked thoroughly and the edges of the oysters start to curl. The FDA suggests boiling shucked oysters for 3 minutes, frying them in oil at 190°C for 10 minutes, or baking them at 232°C for 10 minutes. (Oysters are best eaten fresh.)
- Clams, mussels, scallops and oysters in the shell will open when cooked. The FDA suggests steaming oysters for 4 to 9 minutes or boiling them for 3 to 5 minutes after they open.

- Scallops turn milky white or opaque and firm. Depending on size, scallops take 3 to 4 minutes to cook thoroughly.
- Boiled lobster/crab turns bright red. Allow 5 to 6 minutes – start timing the lobster when the water comes back to a full boil.
- Shrimp turn pink and firm. Depending on the size, it takes from 3 to 5 minutes to boil or steam 454 grams of medium size shrimp in the shell.

How to prepare squid, cuttlefish and octopus (cephalopods)

Tenderising cephalopods

The flesh of cephalopods (such as squid, cuttlefish and octopus) must often be tenderized before cooking. This can be done by:

- gently pounding the flesh with a flat mallet
- honeycombing by scoring in a criss-cross pattern
- marinating in a liquid such as milk (this also helps reduce any unpleasant smells)

Overcooking will toughen the flesh. It is best cooked using:

- a slow low-heat cooking method (e.g. simmer for 1–3 hours, depending on size)
- a fast high-heat cooking method (e.g. stir-frying).
- You will know the flesh is cooked when the colour changes (pale white to milk white for squid and cuttelfish, brown/gray to reddish brown for octopus).

VEGETABLES

It is important as a chef to have a good general knowledge of vegetables as well a good knowledge of local produce varieties. Expand your knowledge by reading, looking on the internet or going to the market and asking questions. Did you know there are more than 5 types of lettuce?

Vegetables contain 65% - 95% water, as well as minerals, vitamins and fibre. Consumption of vegetables can lower blood sugar, blood pressure and is better for the environment. Vegetables can be prepared in a variety of ways and their flavors can be enhanced through seasoning. It is easy to make meat, fish or poultry the main attraction of a dish but the same can be done for vegetables!

Composition: water, dietary fibre, carbohydrates (starch), many vitamins and minerals
(and a small amount of protein depending on the vegetable)

Types of Vegetables:

	Example	
Leafy Vegetables	Spinach, Lettuce, Watercress, Endives, Chicory, Vine leaves, Kale, Bok Choy,	
Fruit	Pumpkin, Squash, Tomato, Eggplant, Brinjal, Bread fruit, Bell Peppers, Cucumber, Avocado, Gourd	
Pods and Seeds	Beans, Okra, Corn, Peas	

Root Vegetables	Carrot, Parsnips, Beetroot, Radish, Turnip	
Stems and Shoots and Flowers	Asparagus, Beansprouts, Globe artichoke, Celery, Broccoli, Cauliflower	
Tubers	Potato, Sweet Potato, Yam, Cassava (Manioc)	
Bulbs	Onions, Garlic, Spring Onion, Leek	
Mushroom and Funghi	Oyster, Shitake, Abalone, Truffle, Chanterelle, Button Mushroom, Ceps	

How to check for freshness:

- Use your eyes - Fresh vegetables and leaves should be vibrant in colour, with no black spots. Some even look glossy. Look for any damage, mould or fungus. If there is too much damage, or any mould or fungus the vegetable cannot be used. They should be clean and free from soil and un-blemished (no marks, dents, scratches, etc.). They should also be an even size and shape.
- Use your hands – Fresh vegetables and leaves should feel firm and not limp. If the vegetable is soft, it is already decaying and may not be suitable for certain types of cooking. Slightly old vegetables can be used in stews and soups or to make stock. Leaves like lettuce should make a crunching noise if you crush the leaf. Leaves like niviti (Sri Lankan spinach) should snap cleanly when you tear them. Root Vegetables should be firm and not spongy
- Use your mouth – most vegetables you can eat raw and one of the best ways to test for freshness is to wash it thoroughly and bite into it. Fresh vegetables should be crunchy, taste juicy or taste fresh. And of course, even raw, almost all vegetables should taste good.

Storage:

- Store vegetables in a cool, dry, well-ventilated space.
- Temperature should be about 4 – 16 degrees Celsius.
- Do not store strong-smelling vegetables with delicate-smelling vegetables.
- Remove root vegetables from their sacks and store in bins, or sacks. Remove/clean off soil and pat dry

before storing.

- Potatoes and onions are best kept in cool and dark areas.
- Store fresh mushrooms in an open container for up to 5 days (do not use mushrooms that have exposed gills, are darker in color, have wrinkles or look shriveled, have a strong smell or are slimy to the touch).
- If mushrooms are already in a sealed container, keep in sealed container for up to 5 days or until ready to cook.
- Do not store vegetables and fruits together.

Cleaning:

- DO NOT use soap or detergent to wash vegetables.
- Always wash your hands first.
- Wash in a bowl of water under running water. Rub the vegetables vigorously with your hands but do not squeeze.
- For vegetables that have hardy skins (potatoes, etc.) a vegetable cleaning brush can be used.
- Vegetables like broccoli and cauliflower should be soaked for 2-3 minutes before washing to allow dirt to fall out and down into the water bowl.
- Leafy vegetables such as lettuce, niviti or other leaves should be washed separately from other vegetables. Soak the leaves in cold water for a few minutes, drain and repeat the soak. Drain the leaves a second time with a clean strainer or colander, then dry with kitchen paper or salad spinner. **Salad spinners, strainers and colanders should be thoroughly cleaned with warm soapy water after every use.**
- MUSHROOMS – can be quickly rinsed (but not soaked) just before use. Supermarket bought mushrooms should be ready to use for cooking but always check for soil or dirt.
- **You can use a water dip containing potassium permanganate (Condy's crystals) to soak vegetables (5-8 minutes) safely but you must remove and rinse the vegetables under cold running water before using the vegetables.**

Vegetable Cuts:

Below are pictures of the basic vegetable cuts that you should identify and practice.

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

Macedoine
This is a diced cube 5mm square. Root vegetables are suited to this cut, e.g. carrot, turnip, swede.

Jardiniere
A short, thin baton or stick about 2.5cm long and approximately 3mm wide and 3mm thick. Size may be varied depending on end use.

Baton
Sticks of vegetables approximately 5cm long, 5mm wide and 5mm thick. Used as an accompaniment.

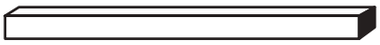
Paysanne
Various thin shapes such as squares, triangles, circles or half-rounds. In order to cut economically the shape of the vegetables will decide which shape to choose. All are cut thinly at about 1-2mm thick.

Julienne
Long, thin, matchstick shaped pieces about 4cm in length. Vegetables cut julienne are mostly used as garnish.

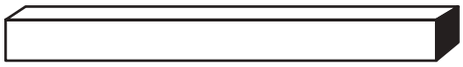
Mirepoix
Diced aromatic vegetables (usually carrots, onions, and celery) to make a flavour base for stocks and sauces.

Chiffonade
A technique for cutting herbs and green leaves into very thin strips or ribbons and is usually used for garnish.

Fine Julienne
1/16 “ / 1.5mm x 2” / 5cm



Julienne
1/8 “ / 3mm x 2” / 5cm

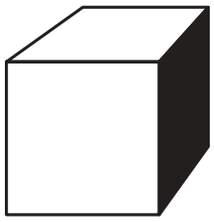


Batonnet
¼ “ / 12mm x 2” / 5cm

Brunoise Dice
1/8 “ / 3mm

Small Dice
¼ “ / 6mm

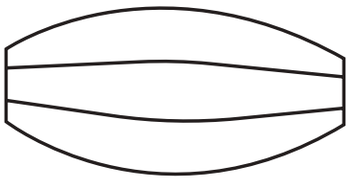
Medium Dice
½ “ / 12mm

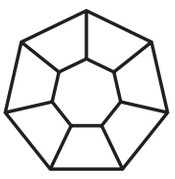


Large Dice
¾ “ / 2cm

Paysanne

Tourne
Side View





End View

NUTS

Nuts used in the culinary arts (cooking) are either edible seeds (with hard shell) or fruit (almonds, pine nuts, and peanuts). They can add crunchy texture and a warm flavour to any dish. Nuts contain a large amount of healthy fats, fibre, water, vitamins and minerals..
Many types of nuts are available commercially, either salted or unsalted. For cooking purposes they should not be salted.

Remember:

Nuts are considered a food hazard because they contain allergens. People who have a nut allergy can become very sick or even die if they consume any nut or nut essence.

This means you must NOT use nuts or nut essence or oils (for example, almond essence and peanut oil) if the customer asks for a nut-free dish. The entire dish must be completely nut free, even the sauce or garnish.
This also means you cannot prepare nut free dishes in the same place as dishes that contain nuts.

Storage:

- Make sure the nuts are dry before storing them. They will last longer if stored in their shells.
- Do not store with food that has strong smells (for example, onions).
- Store shelled nuts at room temperature for up to 3 months.
- Store shelled or unshelled nuts in the refrigerator or the freezer in an airtight container for up to six months.

Before cooking

Toasting nuts can help release the warm, nutty flavours.

- Pre-heat a pan over medium heat.
- Scatter nuts into pan without crowding – should be a single layer.
- Gently swirl nuts or stir nuts to get an even toasting.
- Immediately transfer nuts to a cool container. (This prevents the nuts from turning dark brown).
- Toasted nuts can be chopped or added whole to dishes.

Types of Nuts

Name		Used
Almond		In pastries and cakes, to make marzipan and essence, as an accompaniment at buffet tables
Brazil Nut		In ice cream, salad, pastries
Pine Nut		In salads, to make pesto, in savory dishes, cookies, bread
Cashew Nut		In curries, stir fry dishes, cakes, cookies
Peanut		In salads, to make peanut butter, savory dishes, stir fry dishes, pastries, cakes, ice cream

Hazelnut		In salads, cakes, chocolate, to make praline, for garnish, in pastries, pies
Pecan		In pies, tarts, salads, cakes, cookies
Macadamia		In salads, appetizers, desserts
Pistachio		In ice cream, cakes, pastries, garnish
Walnut		In ice cream, appetizers, salads, pasta dishes, soup, bread

POTATOES

Here we will look specifically at potatoes. This tuber is a highly versatile vegetable and used in many, many dishes and so it is worth understanding this vegetable a bit better.

A little history

Potatoes come from South America. It was brought to Sri Lanka by Europeans in the 1850's. One third of potatoes grown worldwide are grown in China and India, with Russia following close behind.. There is a great variety of potatoes and many are available globally. The most well-known form of potato is the Russet potato.

Commercial Food Production and Uses:

Potatoes can be found in raw form in markets all over the world. In raw form they can be found fresh (straight from the farm, with dirt and soil still covering the skin), brushed (dirt and soil brushed off) and brushed and washed (brushed and cleaned).
Potatoes are also widely available in ready-to-cook forms – frozen French Fries, mashed potato powder, buffalo potatoes (potato wedges), potato balls, and potato slices (usually available in canned form).

Dehydrated potato flour is used as a thickener for sauces and stews, and potato starch is used as a binding agent for cake mixes, biscuits and ice cream.

Local Varieties

In Sri Lanka most potatoes of different varieties are grown in Nuwara Eliya (pinkish yellow skln) and Welimada. The availability depends on the season. Potatoes from Pakistan are also available (pale skin and pale flesh).

NOTE:
It is important to know the local as well as the imported variety of potatoes because different potatoes react differently to various cooking methods. This will affect taste, flavor and texture. This is the same for a salad as well as a curry.

Type	Description
Starchy 	High starch content., low in moisture, fluffy and absorbent. Ideal for baking, frying, boiling and mashing Do not hold their shape. For example, Russet (pictured), Idaho, Maris Piper, yams, sweet potatoes (white flesh)
Waxy 	Low starch content, high is sugar and moisture Ideal for roasting, boiling Hold their shape well after cooking. (good for potato salads and gratins). For example, Red Bliss (pictured), French Fingerling
All purpose 	Medium starch content, relatively fluffy and absorbent. Ideal for many cooking methods. For example, Yukon golds (pictured) White Potato, Naxos Potato, Purple Potatoes Purple potatoes, King Edward
	New potatoes (or baby potatoes) are less in calories compared to mature potatoes. Usually served with the skin on, they are a good source of fibre. They have a sweeter flavour than mature potatoes. Ideal for salads, or as an accompaniment. Ideal for roasting or boiling.

Selection

- Choose potatoes that are heavy and very firm, with smooth skin and a just few eyes (indents).
- They should not have any soft spots, cracks or cuts.
- Any tuber with a green color or sprouts should be avoided – they have been over-exposed to light (remember, potatoes are at home in the ground) and therefore released too much solanine, a toxin that can make you sick. Potatoes should never taste bitter.

Storing

To store, they should be kept in a cool, dark area of the storage area – ideally between 7°C to 10°C. They should stored UNWASHED. Potatoes should not be washed on delivery unless they are going to be used immediately. Washing removes the potato's natural protection from bacteria.

You should avoid sunlight, warmth and humidity, as this will cause them to sprout or go bad.

Do not store with onions as both vegetables emit gases that cause the other to decay.

Fully grown potatoes have a shelf life of up to 2 months.

Do not refrigerate potatoes!

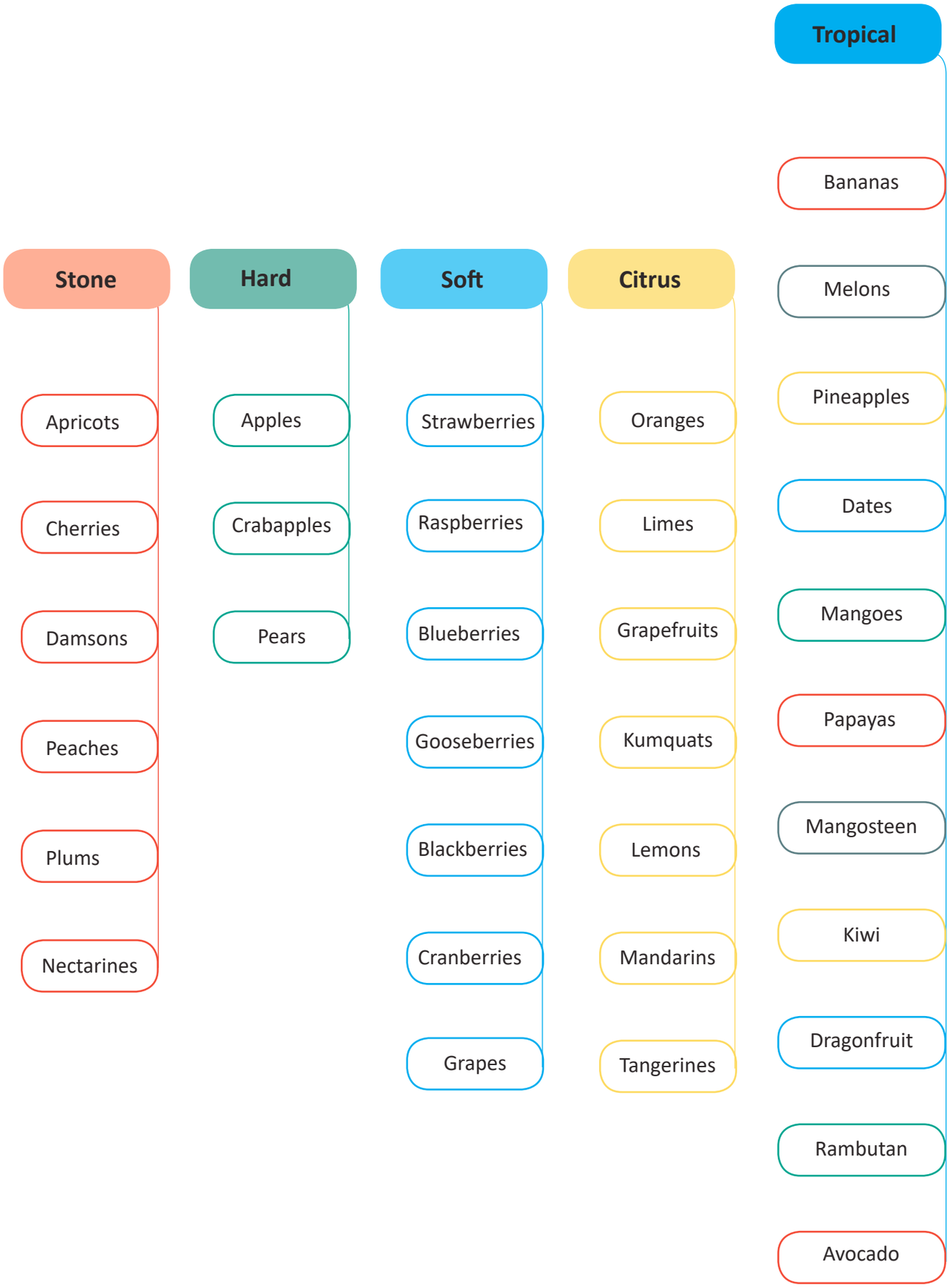
Temperatures below 40°F (4°C) converts the starch to sugar, resulting in a sweeter taste and potential burning when fried, and streaks or gray appearance after cooking. Starchy and all-purpose potatoes should last for up to two months, and waxy potatoes a few weeks when properly stored.

Cleaning

WASH BEFORE USING - Most potatoes will come with some dirt attached to the skin, so you'll want to get a brush and give them a light scrub with water.

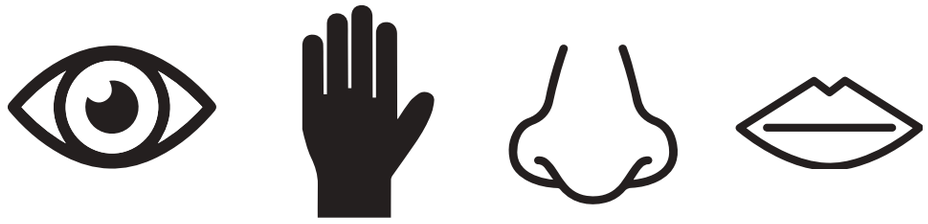
Another way is to fill up a large pot with water, put the potatoes in, and let them soak for a bit right before cooking–most of the dirt will fall to the bottom of the pot.
Give them one last rise, and you'll be ready to go. After peeling potatoes, especially Russets, immerse in a bowl of water to prevent enzymatic browning on the surface.

FRUITS


Tropical
Bananas
Melons
Pineapples
Dates
Mangoes
Papayas
Mangosteen
Kiwi
Dragonfruit
Rambutan
Avocado
Stone
Apricots
Cherries
Damsons
Peaches
Plums
Nectarines
Hard
Apples
Crabapples
Pears
Soft
Strawberries
Raspberries
Blueberries
Gooseberries
Blackberries
Cranberries
Grapes
Citrus
Oranges
Limes
Grapefruits
Kumquats
Lemons
Mandarins
Tangerines

How to check for freshness

Read the information below about how to check that fruits are fresh:



- **Use your eyes** - Hard fruits should have shiny skins with no bruises or dents. Citrus fruit should have smooth skins. Melons and watermelons should NOT be too shiny. All fruit should be vibrant in color.

- **Use your hands** – Hard fruits and stone fruits should be firm to the touch. Peaches can be slightly soft but not squishy. If they are soft they are over-ripe. Soft fruit (berries) should feel plump to the touch. Watermelons should sound hollow when thumped. Grapes should eb firmly attached at the stem.

  All fresh fruit should feel heavy for their size. This means the flesh is dense, and therefore should have good flavor.

- **Use your mouth and NOSE** – Citrus fruits, melons pineapples and some stone fruit should smell fragrant.

Storage:

- Store fruits and vegetables in separate produce drawers in the refrigerator to minimize the effects of cross contamination.
- To maintain flavor, color and texture, store fruit properly. Some fruits should be stored at room temperature, some ripen at room temperature and then are refrigerated, and others always should be refrigerated. If you plan to store apples longer than seven days, store them refrigerated to maintain quality.

- Do not refrigerate bananas, citrus fruits, mangoes, melons, papayas, persimmons, pineapple, plantains and pomegranates. Refrigeration can cause cold damage or prevent them from ripening to good flavor and texture.
- Sort fruit before storing and remove any fruit that is damaged or has black spots.

.

- Store fruit that needs to ripen on the counter in a paper bag, perforated plastic bag or ripening bowl on the counter away from sunlight to prevent moisture loss. These include avocados, kiwi, nectarines, peaches, pears and plums.

- Store frozen fruit at 0 degrees Fahrenheit or lower. It can be stored for eight to 12 months.

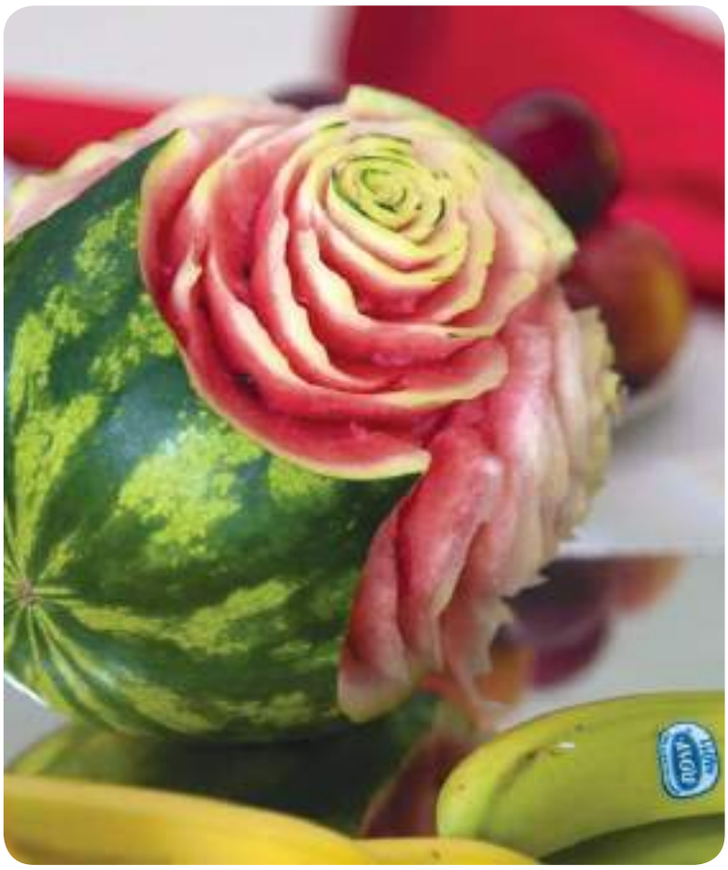
- Store canned fruit in a cool, dry place and use within one year for top quality.

- Store dried fruit in an airtight container in a cool, dry place. Use within a few months.

Fruit Cuts

Fruits can be cut using the same techniques as vegetables (most often cubes or slices) especially if being used in a fruit and vegetable salad or a dessert fruit salad. Fruit can also be carved for decoration.

There are many online tutorials that you can watch to help you practice some of these cutting skills. In addition your trainer should introduce some basic fruit cutting skills in your practical training.



Fruit cutting or carving requires a paring knife, a peeler, a corer, and sometimes a spoon (kiwi) or a special knife (grapefruit), or a melon baller.

Melon baller and carving knife

Parisienne Scoop

Peeler

Corer

Cooking Methods

Fruit can be cooked using moist or dry heat methods.

- Poaching and stewing methods are wonderful for dressing up plain fruit. Sauces and compotes are usually made using stewing fruit.
- Pears, apples, peaches, nectarines, plums and apricots are commonly poached fruits.
- Figs, grapes, quince and bananas will also poach well.
- Some fruits, such as berries, will not hold their shape after poaching or stewing, but they make a good hot fruit sauce.
- Apricots, bananas, apples, pineapples, peaches, plums, pears and cherries are excellent fruits for grilling or sautéing.

HERBS AND SPICES

Seasoning food is an essential part of cooking. Seasoning enhances taste and flavour and improves the eating experience. Besides salt, pepper, garlic, ginger and lemon, herbs and spices help us add flavour and smell to complement the dish.

Spices
Spices means “fruits of the Earth” and are different from herbs because they come from parts of plants such as the bark/seeds/roots that have been dried (and powdered or crushed). For example, Cinnamon is taken from the bark, cloves from the buds, saffron from the flower, allspice from the fruit, mustard from the seed etc.

Herbs
Herbs refers to leaves and stems of soft-stemmed, non-woody plants. The leaves can also be used in their fresh or dried form.

Below are the pictures of different herbs in their fresh or plant form:

Herb Leaves (See pictures above)

Fresh herbs can be categorized into robust (R) or fragile (F). This is important to know because you must handle and store the leaves of the fragile herbs carefully so as to not damage them.

NOTE: Fresh leaves are usually added at the last minute (before serving the dish). Dried leaves are usually added at the first stage of cooking.

Name	DESCRIPTION	Used in
Basil (F)	Used as dried whole leaf or crushed Very aromatic	Tomato dishes Salads Marinades
Bay Leaf (R)	Used as dried whole leaf Pungent aroma	Stocks Soups Sauces Roast dishes
Cilantro (F) (Coriander)	Used as fresh whole leaf or dried. Very pungent flavour.	Salads Soups Sauces Dressing
Dill (F)	Used as fresh whole leaf. Mild flavour of dill seed.	Salads Soups Fish Dishes Sauces
Mint (F)	Used as fresh whole leaf or dried. Very aromatic leaving a cool sensation on tongue.	Beverages Desserts Lamb Cooked Fruits Vegertable Dishes
Oregano (F)	Used as fresh whole leaf or dried. Pungent aroma	Tomato Sauces, Soups, Pizza, Meat Dishes, Pasta Dishes
Parsley (R)	Used as fresh whole leaf or dried. Delicate, sweet flavour.	Garnish Stews Sauces Salads Potato Dishes
Rosemary (R)	Used as fresh whole leaf or dried. Very aromatic.	Lamb Dishes Meat Dishes Fish Dishes Soups Stews

Tarragon (F)	Used dried or fresh. Mint and licorice-like flavour.	Poultry Dishes Fish Dishes Eggs Dressing
Thyme (R)	Used dried or fresh whole leaf. Very aromatic.	Soups Stcks Sauces Meat Dishes Poultry Dishes Dressing
Chives (F)	Used dried or fresh whole leaf Mild onion-flavour	Salads Eggs Fish Dishes Sauces
Sage (F)	Used as fresh whole leaf or dried Pungent flavour	Meat Dishes Poultry Dishes Soups Stew

Below are the pictures of different seeds

All Spice

Anise Seeds

Cardomoms

Coriander

Celery Seeds

Cumin

Fennel Seed

Cloves

Saffron

Dill Seed

Mustard Seeds

Nutmeg

Cinnamon

Vanilla Seed

Spice Seeds

Name	DESCRIPTION	Used in
Allspice	Used as whole ,dried berry or grounded. Similar flavour to clove, nutmeg and cinnamon.	Sausages Poached fish Cooked fruits
Anise Seeds	Star-shaped spice, licorice-like flavour	Cookies Pastries
Cardamon	Used as whole pod or grounded seed. Sweet and aromatic	Pickling Pastries Curry
Cinnamon	Used as stick or grounded. Aromatic but astringent	Cooked fruits Bread Pastries Ham Beverages
Cumin	Used whole or grounded.	Curry powder Sausage Meat Egg Cheese
Dill Seeds	Used as whole seed.	Pickling Soups Marinades
Fennel Seed	Used as whole seed. Similar to anise in flavour	Curry Sauces Marinades Fish dishes
Saffron	Used as whole threads. Mild distinctive flavour, makes a bright yellow colour	Curry Rice Sauces Meat Dishes
Nutmeg	Used whole or grounded. Sweet aromatic flavour	Baked goods Sauces Soups Poultry Dishes Vegetable Dishes
Mustard Seeds	Used whole or grounded. Pungent in flavour	Mustard Sauce Pickling Sandwiches Hams

Celery Seeds	Used whole or grounded. Has a strong celery flavour	Salad Pickling Tomato Dishes Marinades
Cloves	Used whole or grounded. Sweet, pungent smell and flavour	Marinades Sauces Meats Pastries Cakes
Coriander	Used whole or grounded. Aromatic flavour.	Pickling Sausages Stock Curry Salad Dressing
Vanilla	Seeds are used. Aromatic Flavour	Mostly used in desserts

Powders

Name	Description	Used in
Paprika	Made from dried, sweet, red pepper. Used grounded. Bright in colour, mild in flavor.	Fish Dishes Seafood Salads Sauces
Turmeric	Intense, yellow root, from the ginger family. Mild but peppery flavour.	Curry Powder Relish Salads Eggs
Curry Powder	Grounded, BLENDED spice containing more than 20 different spices. Creates yellow colour, peppery in flavour.	Curry Soups Sauces Meat Dishes Fish Dishes
Chili Powder	Grounded, BLENDED spice containing cumin, dried chili pepper, oregano and allspice	Curry Chili con Carne Stews Sauces

Basic Combinations for Soup and Stock:

Bouquet Garni

Fresh Herbs, Parsley, Thyme, Bay Leaf Wrapped in Celery and Leek

Mirepoix

2 parts Onions
1 part Celery
1 part Carrot

Sachet d'epice

Parsley Stems, Bay Leaf, Thyme, Crushed Peppercorns

Matignon

1 Part Onions or Leeks
1 Part Celery
1 Part Carrots
1 Part Bacon or Salted Pork

A bouquet garni (or sachet d'epice) and mirepoix, along with white wine, lemon juice, a little salt and water, make a basic poaching liquid / stock called **court-bouillon.**
Bouquet garni and Sachet d'epice are used in a similar way when making sauces or certain soups.
A duxelles is used to flavour soups, sauces, fill omelets and ravioli.

Duxelle

A combination of mushrooms, shallots and fresh herbs that is slowly cooked until it reaches a paste-like consistency.

Oignon Pique / Cloute
Onion
Bay Leaf
Clove
(For flavouring sauces or stews)

Oignon Brule
Halved Onion burnt in a skillet or on a grill to enhance the colour and flavour of stocks and soups

How to store dried herbs and spices:

Spices and herbs are weakened, spoiled or change colour when exposed to oxygen, heat, moisture and sunlight. Therefore spices and herbs must be stored away from these three things.

1. Store in a cool place.
2. Store in a dark place, away from direct sunlight.
3. Store in a dry place.
4. Store in stainless steel or glass containers whenever possible.

In a commercial/professional kitchen there will be dry storage areas where spices and herbs are stored. Make sure you are familiar with those areas.

Some powdered spices can easily lose their colour and potency quickly and may be stored in a refrigerated space.
As with all food handling and food storage rules, check the date of manufacture of dried herbs and spices and use the FIFO standard practice.

How to store fresh herbs:

Fresh herbs are best used as soon as cut from plant. If your establishment has their own organic herb garden, then follow the protocols of your establishment for using the fresh herbs.
If you are using herbs cut fresh from the plant that has been purchased and supplied to your establishment from outside sources and you want to store the leaves for cooking later, you can follow the following steps:

1. Rinse the leaves thoroughly to remove sand or soil or dust.
2. Dry thoroughly with paper towel. If you do not, mildew and fungus can grow on the herbs.
3. Wrap the stems of the leaves or leaves themselves in damp paper towel. Do not wrap tightly or the leaves will get damaged. Put herbs in plastic container or bag. Leaves should not touch side of container or bag.
4. Place in cool place (chiller or chiller drawer of refrigerator).

Sometimes fresh herbs are already packaged and ready for storing in a chiller or chiller drawer of a refrigerator after receiving. In that case follow the protocols set by your establishment.

Alternatively you can dry the fresh leaves for longer shelf life. There are a few methods for storing fresh herbs:

- **Air Drying:** Drying works well for herbs like oregano, thyme, marjoram, and sage. Before drying, shake to remove dirt and discard any withered leaves. (You can gently wash the herbs, but be sure to dry them thoroughly to prevent mildew.) Secure the stems together using twine or a rubber band and hang upside down in a warm, dry, well-ventilated place away from sunlight. If you do not have a dark spot, or if dust is a concern, you can cover the bundle with a paper bag; just ensure that there is enough space for air to circulate. Leave to dry until the leaves crumble, anywhere from 1-4 weeks. Store in an airtight container for up to a year.

- **Oven Drying:** Oven drying is faster than air drying and a good option for those living in humid environments. To oven dry, spread herbs on a baking sheet lined with parchment paper (metal can affect the flavor) and place in a 150° F oven with the door slightly ajar. Check herbs frequently and remove when crumbly; it may take between 1-4 hours. Store in an airtight container for up to a year.
- **Freezing:** Freezing is the best option for leafy herbs like basil, cilantro, parsley, and tarragon. One method consists of chopping the herbs, packing them into an ice cube tray, and topping off with broth or water. Another method is to blend the herbs into a paste with a little oil or water before freezing. Store frozen cubes in an airtight container in the freezer for up to 3 months.

DAIRY

What does "dairy" mean?

Dairy products are products made from cow's (or goat's) milk.
Butter, yoghurt, sour cream, and cheese all come from cow's milk. Some cheeses are made from goat's milk or buffalo milk.
Dairy products can be used as an ingredient in dishes or beverages. Dairy products are very nutritious because they contain protein, vitamins and minerals (such as calcium).
Dairy products are also highly perishable. This means they can easily spoil so they have to be stored correctly.

MILK

Milk has to be pasteurized before being used or consumed. Pasteurized milk has been boiled at approximately 72 degrees C for 15 seconds and then quickly cooled to 4 degrees Celsius. UHT milk has been heated to about 135 degrees Celsius for only 2-5 seconds and then quickly cooled to 4 degrees Celsius. By boiling at these temperatures microorganisms that cause spoilage and disease are killed. (UHT milk has a 6-9 month shelf life while pasteurized milk has a refrigerated shelf life of 1 week.)

Most commercially available milk has also been homogenized – this means the pasteurized milk has been strained to break down the fats and blend into a smooth liquid.

Composition of cow's milk: 87.7% water, 4.9% carbohydrate, 3.4% fat, 3.3% protein, and 0.7% minerals.

How to store milk:

- Pasteurized milk can be received at 7°C or lower. Then it must be cooled to 4°C or lower within four hours. Cream and other dairy products must be received at 5°C or lower.
- Store below 4°C. If there is even a small rise in temperature the shelf life is reduced by half.
- Containers of milk should be sealed.
- Do not freeze.
- Milk, cream, and cultured dairy products should have a sweetish flavour. Items that are too sweet or that have a sour, bitter, or mouldy taste should be thrown out. Always use the FIFO (first-in, first-out) method of stock rotation for these dairy products. With the FIFO method, store products to ensure that the older products are used first. For example, place products with an earlier use-by or expiration date in front of products with later dates. Any dairy product that has passed its use-by, sell-by, or expiration date should be thrown away.

Fresh Milk Products

Name	DESCRIPTION	Used in
Whole milk	3.25% fat Closest to milk direct from the cow.	Ice cream Yoghurt Cheese Butter Soups Milk puddings Beverages
Low Fat milk	1 – 2% fat Creamy but not as rich tasting as whole milk.	Ice cream Yoghurt Soups Milk puddings Beverages *
Skim milk	Less than 0.5% fat Is the least creamiest and has the least amount of calories	Ice cream Yoghurt Milk puddings Beverages *
Buttermilk	Made from fresh liquid milk that has bacteria added to it to create a sour taste. Does not actually contain butter. Has a rich, thick texture and tangy acid taste that is valued in baking and the preparation of many items, such as salad dressings	Baking and the preparation of many items, such as salad dressings
Evaporated milk	About 6.5 % fat 60% of water has been removed.	Baking
Condensed milk	About 8.5% fat 60% of water has been removed and sugar added. Tastes sweeter and richer than evaporated milk	Used in specialty baking where sweetness is required.
Milk powder	Usually made from whole or skim milk. It is made by removing all the water	Baking

NOTE: It is also important to recognize that low-fat and skim milks behave differently in cooking than whole milk does. Fat brings flavor, body, and mouthfeel to a dish. If a chef reduces the fat in the milk, the ingredient will perform differently in the recipe.

Milk Alternatives

Some people are unable to consume any milk products. It is a form of allergy and can produce very bad reaction in the body. If you have such a customer it is important to have alternatives handy.

Type of Milk Alternative	FAT CONTENT	NOTES
Lactose-free milk	Depends on the type of fresh milk used.	Made by adding enzymes to milk to break down the lactose
Soy milk (non-dairy)	Four grams of fat per eight-ounce serving (fortified)	▸ Often fortified with vitamins (including calcium, and perhaps vitamin D and riboflavin) and offered in low-fat forms ▸ Has a slightly nutty flavor with a rich texture ▸ Is available in different flavors ▸ Good source of protein; has no cholesterol
Rice milk (non-dairy)	Three grams or less per eight-ounce serving	▸ Often fortified with vitamins (check for the addition of calcium, vitamin D, and riboflavin) ▸ Usually made with water, brown rice syrup, starch, and other thickeners ▸ Has a sweet flavor and a thin texture ▸ Is available in different flavors ▸ Has less protein than milk or soy milk
Almond milk (non-dairy)	Two to three grams per eight-ounce serving	▸ Made from ground almonds and water ▸ Low in calories and saturated fat ▸ Contains no cholesterol or lactose ▸ May be sweetened and flavored (e.g., chocolate, vanilla) ▸ Often fortified with calcium and vitamin D

Coconut milk (non-dairy)	Thick: 20% to 22% Thin: 5% to 7%	❯ Made from grated brown coconut and water ❯ Mild, sweet taste, with little or no coconut smell ❯ Often used in baking and cooking

Cooking with milk:

We use milk a great number of ways. From milk we make cheese, cream, butter, yoghurt and ice cream. Milk can used to tenderize squid and octopus. And of course turns up in many recipes, such as for desserts like baked custard.

We mainly boil milk when we are using it for cooking purposes. Milk is a mixture (emulsion) of butterfat, proteins, and water. When milk is boiled, the three components of the emulsion break apart: the milk proteins coagulate and separate from the water, producing what is commonly known as curdled milk. This is how cheese is made.
However you will run into problems if the milk is over-boiled, or not boiled correctly.

The problems you can have when you cook with milk products:

CURDLING- this means the milk becomes lumpy

SCORCHING – this means the milk over boils and rises out of the pot, leaving bits stuck to you pot or pan.

How you can avoid these problem:

→ Boiling is a sure way to curdle or scorch milk. It is not just boiling. Heating milk too quickly, even if it never comes to a boil, can also curdle or scorch it. To prevent the milk from curdling or scorching, heat the milk gently over medium-low heat.

→ Stabilize with a Starch
Starches like flour or cornstarch help stabilize the milk emulsion. This will prevent it from separating. A common technique is to thicken your sauce or soup with roux before adding the milk. This changes the makeup of the liquid and prevents curdling.

→ Avoid Strong Acids
If your sauce or soup contains an acidic ingredient like wine, tomatoes, or lemon juice, the milk is more likely to curdle. To counteract the effect of the acid, you can use a starch along with the acid.

→ Season at the End
Salt is another ingredient that can cause milk to curdle. Do not avoid salt, since you'll need to season your sauce. The key is to add the salt at the end, rather than cooking or reducing it with the salt already in it. Seasoning your sauces and soups at the very end is a good habit to get into anyway.

→ Temper the Milk
Do not add cold milk directly into a hot liquid. Instead, whisk small amounts of the hot liquid into the cold milk. When the milk is warm, then add it into the hot liquid. This process is called tempering. Another option is to simply heat the milk gently in a saucepan before adding it.

CREAM

TYPES OF CREAM		
TYPE OF CREAM	**AMOUNT OF FAT**	**NOTES**
Light whipping cream	At least 30% but less than 36%	Used in sauces and soups, and as a garnish for desserts
Heavy whipping cream	36% to 38%	Used to make whipped cream
Very heavy whipping cream	40%	Produces a greater yield and a longer shelf life for the products made with it
Light cream	18% to 30%	Sometimes called coffee cream
Half-and-half	10.5% to 18%	One part milk/one part cream; technically half-and-half does not have enough fat in it to be called cream

CULTURED DAIRY ITEMS

CULTURED DAIRY ITEMS		
TYPE OF CULTURED DAIRY ITEM	**AMOUNT OF FAT**	**NOTES**
Buttermilk	1% to 2%	▸ Traditional buttermilk is the liquid left after churning butter out of cream ▸ Cultured buttermilk has been fermented using lactic acid bacteria ▸ Can separate as it sits; shake before use ▸ Also available in a powdered form

Yogurt	0.5% to 4%	›Many varieties are flavoured with fruit ›Source of protein ›Often consumed by vegetarians ›"Greek" variety has twice as much protein as regular yogurt; 15–20 grams per serving ›"Greek" yogurt is higher in fat
Sour cream	18% to 40%	›Available as "light," "low-fat," and "fat-free"
Crème fraîche	30% to 45%	›Unlike U.S. sour cream, it is less sour and thinner, with a higher fat content

BUTTER, MARGARINE, GHEE

Butter, margarine and ghee ARE NOT MADE FROM THE SAME SOURCE and therefore cannot be used in the same way.

Name		**NOTES**
Butter	DAIRY PRODUCT	4 Types: Salted – all-purpose butter European – light sour taste, creamy and good for spreading on bread and baking. Whipped – butter that has been whipped and so is very light. Not suitable for cooking. Clarified – milk solids and water has been removed so only butterfat is left. Ideal for cooking and sautéing.

Margarine	NOT A DAIRY PRODUCT It is made from vegetable or animal fats or oils.	Good for baking pastries, cakes and cookies.
Ghee	DAIRY PRODUCT Ghee is a type of clarified butter that originates from India.	Similar to clarified butter.

CHEESE

Cheese is one of the oldest food items in the history of cooking. Many cultures have their versions but all are made from cow, goat or buffalo's milk. Cheese can be served as a course, an accompaniment or used as an ingredient. It is a food that has high levels of fat and protein. Cheese is rich in fat, protein, mineral salts and vitamins. it is a body-building, energy-producing and protective food.

How cheese is made:

The enzyme rennet is added to milk, which then coagulates the milk protein. The coagulated milk separates into whey and curd. The whey is drained and the curd is pressed into moulds.
We need 5lt of milk to produce 500g of cheese.
There are many kinds of cheese depending on the moisture content and whether they are ripened with mold or un-ripened. Cheese can be used in a variety of dishes.

Categorization of cheeses:

There are a few ways to categorize cheeses. One way is to separate them into ripe and unripe cheeses. An un-ripe cheese has had acid (called casein) added to the milk protein. A ripe cheese has had the enzyme rennet and culture acids and bacteria or yeasts added, which will "ripen" then cheese. Most cheeses are ripe cheeses. They will have a strong or pungent aroma.
Other ways of categorizing cheeses are by texture or by country of origin.
Below are examples of cheeses categorized by texture.

Hard cheeses (30% water):

These cheese have been aged carefully and are therefore brittle (can be crumbled by hand). They are usually grated or melted and often used in cooking.

Name	Description
Parmesan (Italy) 	Hard, gritty texture, it is a low fat cheese with a fruity and nitty flavor. It is often grated and used extensively in cooking. Very pungent and flavorful.
Asiago (Italy) 	Nutty -flavored and can be fresh or mature. The mature is yellow and crumbly while the fresh asiago is smoothing and milder and white in color.

Firm Cheeses:

Although these cheese are harder to the touch, they are not brittle. They can be dense in texture. They are often used in soups, pasta, sauces and sandwiches.

Name	Description
Cheddar (USA or Britain) 	Golden, or white or orange in colour, it has a fresh, mellow and nutty flavor.
Emmentaler (Switzerland) 	It is sweet and tangy in flavor and melts easily. It has firm, dense body and is used for making fondue.

Gruyere (Switzerland) 	It is a hard, yellow cheese with a sweet and slightly salty flavor. Fresh gruyere is creamy and nutty but becomes stronger in taste as it matures. It melts well and is often used in soups, gratins, casseroles and fondue.

Semi – soft Cheese (50% water):

These cheeses can be mild in flavor, or have a very intense flavor. They usually have a buttery texture and are often eaten as part of a cheese board (hors d'oeuvres).

Name	Description
Gouda (Holland) 	It has a fruity, nutty flavor and melts well. Commonly used in sandwiches and hot dishes and soups.
Harvati (Denmark) 	It has a salty, buttery flavor and melts very easily at room temperature. It can be enjoyed as a dessert cheese but as it melts very well it is a popular burger, or hot sandwich cheese..
Roquefort. (France) 	It is one of the blue cheeses made from ewe's milk ,sharp flavor & salty aftertaste. Since it has such a strong aroma and taste it is used in sauces and dressing. It can also be enjoyed as a dessert cheese.

Stilton (England) 	It is white with blue veins soft and strong flavor. It makes a good dessert cheese and is also used in soups and salads.

Soft Cheeses (80% water):

Soft cheeses have a creamy center and ripen quickly. They can be used as an appetizer, hors d'oeuvre, or in soups.

Name	Description
Brie (France) 	White, soft creamy texture and is considered a dessert cheese. Enjoy at room temperature
Camembert (France) 	Camembert has an edible rind. Fresh camembert can be bland and has a harder texture but as it matures it has a rich, buttery flavor and texture becomes smooth.
Boursin (France) 	It is a soft, creamy cheese and is available in a variety flavours. It is usually used as a spread or as an ingredient in vegetable dips.

Fresh (unripened) cheese:

These cheeses have a mild flavor and can be used directly in salads, desserts, and on pizza.

Name	Description
Feta (Greece) 	White, moist and crumbly. It has a salty and sour taste. It is often used in Greek Salad.
Mascarpone (Italy) 	It is a thick, soft cheese with high fat content. It is smooth in texture and buttery in flavor. It is often used in desserts.
Mozarella (Italy) 	It is made from buffalo milk. It is pale white in colour with a little bite. It is used as a topping for pizza and when melted the flavors become stronger.
Ricotta (Italy) 	It is white and crumbly and similar to cottage cheese but it is smoother. It has a light flavour so it is good for many different dishes.

Cheese from buffalo and goat's milk:

Although it is important to have a basic knowledge of the cow's milk based cheeses in order to make many basic dishes, it will be important also to learn about cheeses made from goat's milk and buffalo's milk. This additional knowledge can help you expand your creativity when putting new recipes together, and can also help make commercial kitchen use more sustainable sources of food. Locally produced cheese made from goat's milk or buffalo's milk is more reasonably priced and can provide new flavours to a dish.

It is also important to know whether the cheese you are using is made from cow's milk or goat or buffalo, because the aromas will be very different, and this will affect how you arrange your cheese boards.

→ Goat (milk) cheese – sometimes called by the French name, Chevre, goat's milk can come in many textures and flavours. It can be creamy or crumbly and mild or tangy. Capric acid is added to goat's milk to make the cheese. Some people feel goat's cheese is the healthier choice.

→ Buffalo (milk) cheese – Using the milk of the domestic water buffalo, perhaps the most famous of cheeses using buffalo milk is buffalo mozzarella. It is traditionally a Southern Italian cheese, and produces a creamier mozzarella than cow's milk mozzarella. Bocconcini and Burrata are some other (creamy) cheeses made from buffalo milk. Buffalo milk has a higher fat,, protein and calcium content.

Hygiene

Cheese is a living product and should handle carefully. It should be always be wrapped
In grease-proof or wax pepper or foil, or put into a closed container.
Natural rind can be exposed to air. So it can be breathe .but when we cut, that surface should be covered with polythene film to prevent from drying out..

Storing cheese

1. Wrap cheese in waxed or parchment paper so it can still breathe without drying out. New wrapping should be used each time a cheese is rewrapped.

2. The optimal temperature for storing cheese is 35°F to 41°F (2°C to 5°C), at a high humidity level, which typically means toward the bottom of the refrigeration system.

3. Double wrap pungent cheeses (those with a strong smell and taste, ripened cheese), such as blue cheeses, so the aroma does not permeate other foods, and other food aromas do not permeate the cheese. Alternatively, cheese can be wrapped and held in an airtight plastic container or plastic bag.

4. Do not freeze cheeses, as they may lose their texture and flavor profile.

5. If stored cheese is overly dry or slimy or if it lets off a strong odor, throw it out immediately.

Food value

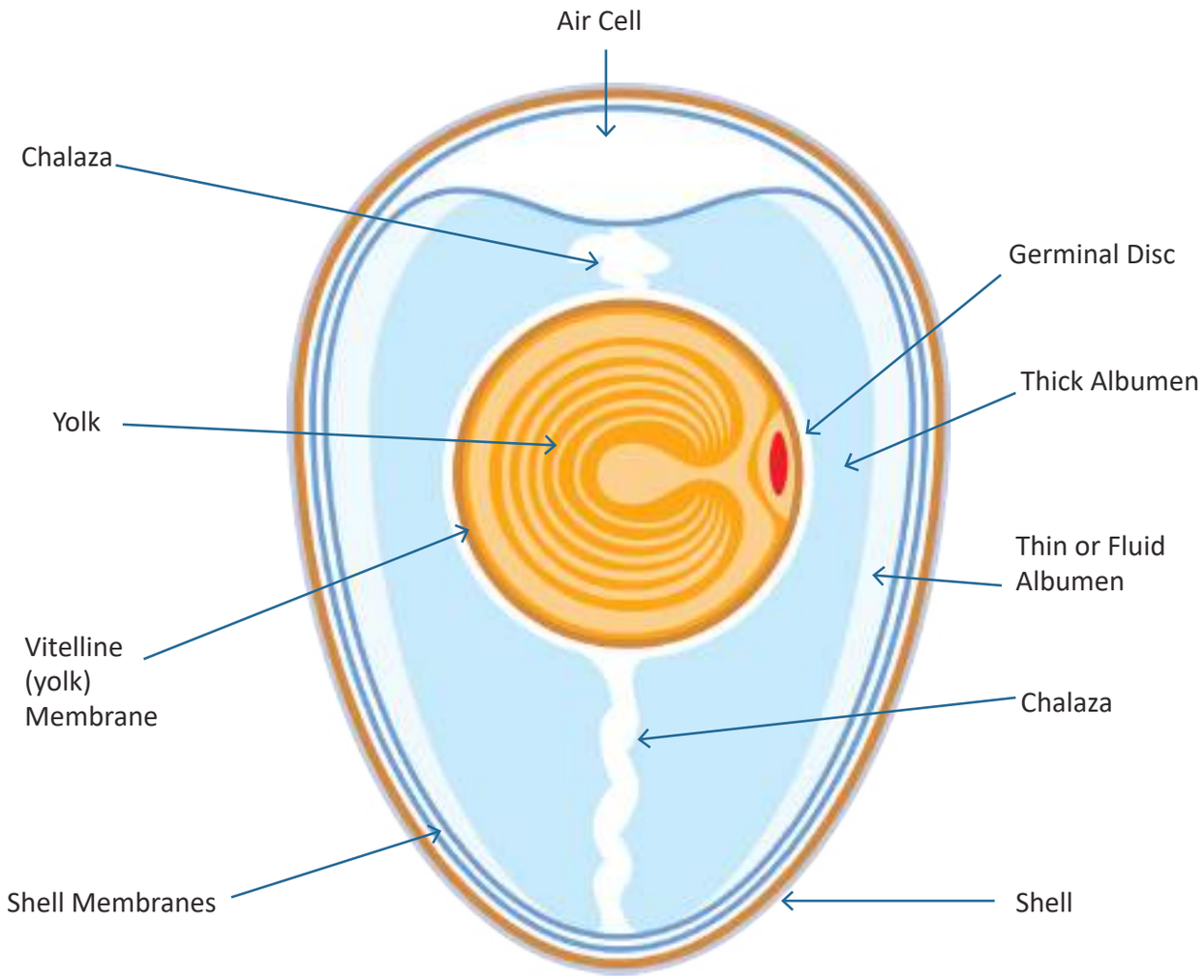
Cheese is rich in fat, protein, mineral salts and vitamins. it is a body-building, energy-producing and protective food.

Uses
As appetizers, for soups , for salads , for sauces , for main causes

NOTE:
Soft cheese when cut should not appear runny, but should have delicate creamy consistency. Hard, semi hard and blue vein cheese when cut should not be dry.

There are also vegetarian alternative:
Hard cheese made from vegetable fat and even tofu we can categorize under this category.

EGGS



Hens' eggs come in five sizes: small, medium, large, extra large and jumbo.

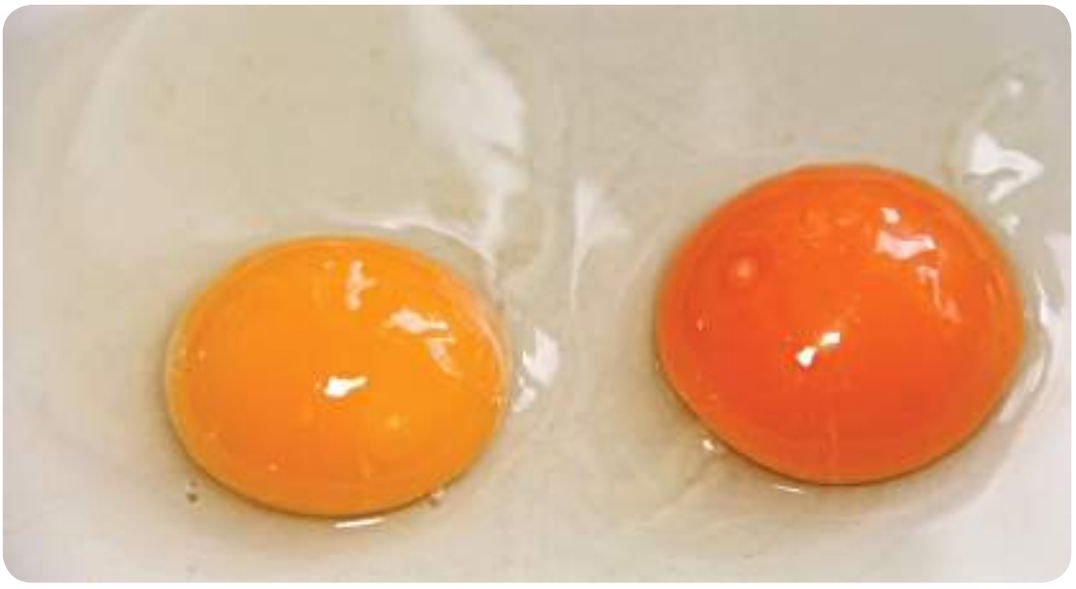
Small	42g
Medium	49g
Large	56g
Extra Large	63g
Jumbo-	70g

<u>How to know if the egg is fresh (receiving eggs)</u>

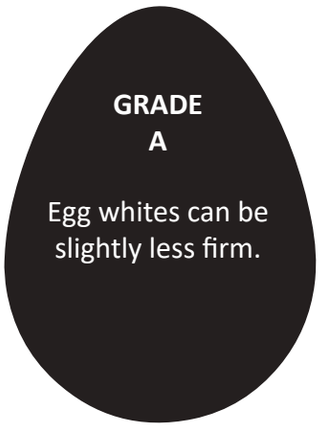
Egg shells should be clean, strong, and slightly rough.
When cracked open, there should be a high proportion of thick white to thin white. (As an egg ages, the thick white gradually changes into thin white.)
The yolks should be firm, round (not flat) and of a good, even, fresh-looking colour. As an egg ages, the yolk loses strength and begins to flatten.

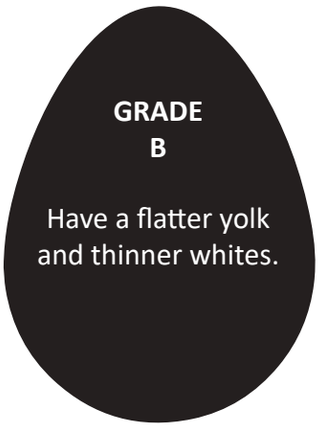
- No odour
- Clean and unbroken shells
  Reject any shell eggs with an off odour, a sulphur smell, or dirty or cracked shells.

Always check the expiry date of the egg cartons / containers.

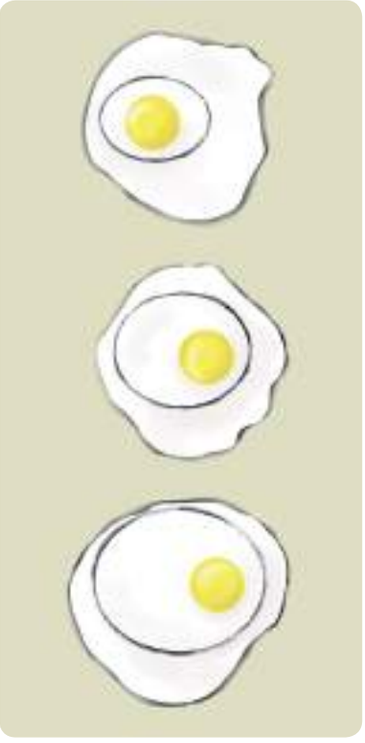


There are 3 different grades of egg:





Grade AA	Clean, normal shaped, unbroken shell. Firm, round, high and centered yolk. Thick white is firm.	Can be used in anything.
Grade A	Clean, normal shaped, unbroken shell. Firm, round, high and centered yolk. Thick white is quiet firm but thin white is spreading slightly.	Can be used in anything.
Grade B	Shell has some staining and may be abnormal in shape but is unbroken. Yolk is large and a little flat. Thick white is clear but watery. Thin white spreads over wide area.	BAKING SCRAMBLING



How to store eggs:

- Store at 4 degrees Celsius.
  Eggs can be received at an air temperature of 45°F (7°C) or lower. Store eggs and egg products in refrigeration of 41°F (5°C) or lower and frozen eggs in the freezer until ready to be thawed.
- Store at humidity level 70 – 80%
- Keep for up to 4 weeks.
- Rotate egg stock to maintain freshness
- Eggs can be frozen but must be thawed before cooking and then cooked thoroughly.

Eggs age faster at room temperature so storing them in a cool room is advisable.
Old eggs are used for hard cooking to eliminate bacteria.
DO NOT USE dirty, cracked or broken eggs.

Other edible eggs:

Most of the eggs you will use will be hen's eggs. However there are other eggs that are used in cooking.

Quail Eggs

Goose Eggs

Hen's Eggs

Guinea Fowl Eggs

What can you do with eggs?

Other than cooking or cooking with eggs, we do a great many things with eggs. You can use whole eggs to make cakes, you can use just the egg whites to make fluffy pancakes, and so on.

What are the basic egg dishes?

Scrambled eggs
Fried eggs (sunny side up, over easy)
Poached eggs
Omelette
Soft and hard boiled eggs

What basic dishes are eggs a part of?

Crème Caramel

Scotch Eggs

Quiche

Egg Salad Sandwich

Devilled Eggs

Frittata

Other Uses of Eggs in Commercial Food Production:

Eggs are used in many different ways to enhance other dishes. Eggs play a very important role in the making of desserts, stocks, fried meats and so on.

Thicken	Beaten egg yolks can be used to thicken soups and sauces (Mayonnaise, Hollandaise) or milk in custard. When heat is applied the egg coagulates and holds the liquid in suspension.
Emulsify	The emulsifying property of egg yolks means that they can hold ingredients which do not normally mix together, such as oil or butter, in suspension. This is the basis of many sauces. E.g. In emulsion sauces such as mayonnaise and hollandaise, egg yolks are used to combine oil or fat with vinegar to make a sauce.
Bind	Eggs bind ingredients together, for example, pane l'Anglaise. (egg wash and breadcrumbs) or coat ingredients in batter for deep frying (batter fry)
Aerate	When an egg is whipped, it aerates by trapping millions of tiny air bubbles within itself. The air bubbles help to raise up other ingredients to make light and fluffy dishes such as sponges and soufflés.
Glaze	Beaten egg has a shiny texture which gives a gloss or glaze and a golden brown colour to pastry and bread. The egg is called an egg wash and is applied with a pastry brush.
Clarify	Egg whites are used to clarify stock (mixed with mince to make a clarifying 'raft') and in the making of consommé and aspic
Enrich	Eggs add flavour and nutritional value to cakes, puddings, pasta and drinks such as eggnog.

CEREALS *What are cereals?*

Cereals are plants such as corn, rice, wheat, barley, oats and buckwheat.

What are grains?

Grains are the seeds of cereals. There are many types of grains eaten in different cultures.

Grains are low in fat content and high in dietary fibre, vitamins and minerals. Whole grains are more nutritious than polished grains (red rice is healthier than white rice).

Wheat grain and plant

Rice grain and plant

From rice or wheat grains we make cereals, bread and pasta.
But there are other grains or grain parts that are becoming popular as a healthier choice to rice and wheat.

Quinoa

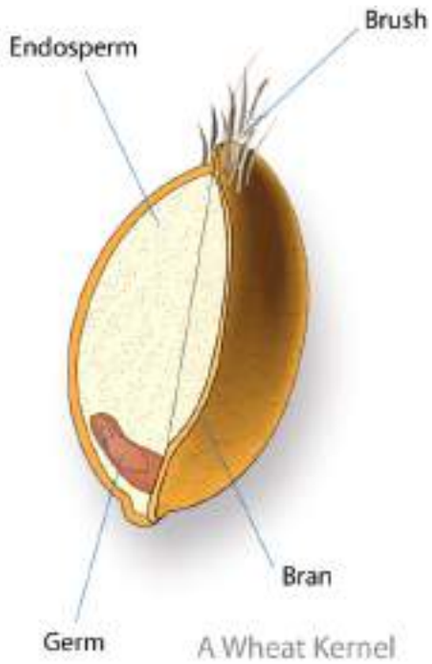
Couscous

Rice and Wheat Germ:

BRAN LAYER
(Includes Aleurone)
Fibre
Vitamins
Minerals
Phytonutrients

Endosperm
Carbohydrate
Protein

Germ
Essential Fatty Acids
Vitamin E
B Vitamins
Minerals
Phytonutrients



It is important to know the parts of the rice and wheat germ because this informs you of the composition of the grains you will use in recipes, which are in turn affected by whether you use whole grain or polished grain.

RICE

White Rice has been milled to remove the outer husk, the bran, and the germ. Milled rice is also called processed or polished rice. That is why it is white in colour. Though less nutritious, white rice has some advantages over brown rice: it stores longer and cooks faster. White rice comes in short, medium, and long grain varieties.

Brown rice has been given the lightest touch in terms of processing. It is the whole grain version with just the outer husk removed, leaving the nutrient-rich bran and germ. It is nutty, chewy, and more nutritious than white rice. Brown rice comes in short-, medium-, and long-grain varieties. Sweet brown rice is a short-grain, starchy brown rice that becomes very soft and sticky when it is cooked, and is popular in Asian cuisines.

Black rice is a highly nutritious source of iron, vitamins, antioxidants, and fibre. It actually turns purple when you cook it. It has mild nutty flavour and is slightly sticky when cooked. It is used in a variety of Chinese and Thai dishes and can be used in combination with white rice to make a colourful pilaf.

Aromatic rice has a distinctive perfumed aroma when cooked. Popular examples are basmati (India) Jasmine (Thailand), Texmati (Texas, U.S.A), and Wehani and pecan wild rice (both from Louisiana, U.S.A).

Arborio rice is a medium-short-grain, starchy white rice, used most famously to make risotto Continuously stirring risotto helps the rice give up starch that helps thicken the dish. Arborio rice is most easily found in the market, but other risotto rice varieties include Carnaroli, Vialone Nano, and Baldo.

Sticky rice, or "glutinous rice," or “sweet rice”, is a short-grained rice that is typically used in Asian specialties such as sushi or Asian desserts and sweets. The rice is often ground to make rice flour.

Wild rice is actually the seed of a grass plant, and so not a "true" rice, though it is often found in rice blends and pilaf mixes and casseroles. Wild rice has a nutty flavour and a chewy bite.

Instant or quick rice is cooked before being dehydrated and packaged. While it is fast, it lacks the flavour and texture of regular rice.

Parboiled rice has gone through a steam-pressure process before milling that gelatinizes the starch in the grain. This process produces a more separate grain that is light and fluffy when cooked. Ideal for many types of rice dishes.

Type	Description and Name	Dishes
Long Grain White rice	Thin and long in appearance, not sticky after cooking. Low starch content means it is lighter and drier and easy to separate. Best as a side dish or as a bed for dish with sauce. Examples: Basmati (India) Jasmine (Thailand)	Fried Rice Rice and Curry Buriyani 
Medium Grain White rice	Shorter, but not as plump as short grain rice. It has a higher starch content than long grain, so it is a little sticky after cooking. Examples: Spanish rice (Spain) Arborio (Italy)	Paella  Risotto 

Short Grain White rice	Shorter, rounder and plumper than long grain and medium grain rice. It has a much higher starch content, so it is quite sticky after cooking. Examples: Koshi Hikari (Japan)	Sushi 

- Do not forget about corn!
  Corn is a very versatile grain. Most often it is grouped as a vegetable and prepared very much like many vegetables (steamed, boiled or sautéed). But it is a grain and can be barbecued, blended for soup, or used an alternative to wheat and made into corn bread.

- Local varieties of rice
  Sri Lanka also has a great variety of local rice. From samba rice to red rice, sometimes they are a healthier choice compared to processed rice.

Selecting Rice:
Good quality rice is – whole and unbroken grains, uniform shape and size, the correct color depending on variety, chalky to the touch, and SHOULD NOT be damaged, dirty, discolored, or have foreign material like dirt, sand and stones. The rice should be dry.

Storage and Cleaning:

Rice should be stored in sealed containers at room temperature in a cool and dry place.

Brown rice needs faster stock rotation than other varieties of rice.

Most processed rice has already been effectively cleaned but some types of rice recommend rinsing before cooking. Follow the protocols of your establishment.

Some rice grains like the Arborio variety, which is used to make the Italian dish, Risotto, needs to be soaked before cooking. This is to remove the starch and make it less sticky.

Cooking Tips

There are many different ways to cook rice: stovetop, rice cooker, multi-cooker (Instant Pot), microwave and oven-baked.
If you are using a rice cooker, follow the guidelines set by the manufacturer. If you are using a pot over heat on a stove, follow the S.O.P of your establishment.

Some general rules

- if cooking in a pot the ratio of water to rice is two cups to one. (one cup of rice takes 20 mins)
- Do not lift the lid when the rice is cooking. Moisture will escape and the rice will become dry. Use a timer to have the correct time for boiling or steaming.
- After rice is cooked let the right sit with the lid on for 5 minutes.
- After 5 minutes, lift the lid and with a fork, separate the grains, which will make the rice fluffier.
- You can serve rice immediately, or put the lid back on to keep it warm but it should not be left out at room temperature for more than 2 hours.
- To chill rice for a salad, spread it out on a sheet pan and cool quickly.

LEGUMES

What are legumes?

Legumes are plants whose seeds are found in pods. Sometimes the pods are also edible. For example, green beans and long beans are legumes whose seeds and pods can be cooked and eaten.

What are pulses?

Pulses are the edible seeds of legumes (some of whose pods may not be edible). Pulses are usually found in dried or frozen form. Lentils and mung beans are example of pulses.
Composition: protein, folate, fibre, fatty acids and minerals such as iron.

LEGUMES

Vegetable Crop:
Green Beans
Green Peas

Pulses:
Chickpeas
Lentils
Kidney Beans
Adzuki Beans
Mun Beans
Cowpea

Oil Seeds:
Peanuts
Soybeans

Name of Pulse	Description and Name	Dishes
Peas 	Contains protein (22%) and starch (over 50%)	Fried Rice Pilaf Cream of Pea Soup Salad Accompaniment to main dish

Lentils 	Contains protein (27%) and starch (over 48%) low fibre content Lentils come in many colours and sizes. Usually purchased in dried form and some varieties require rehydration before cooking.	Dhal Curry Soup
Kidney Beans 	Contains protein (22-27%) and starch (39-47%), and relatively low in fibre Usually found in dried form so must be rehydrated before cooking Must be boiled well as kidney beans have natural toxins.	Salad
Chick peas (Garbanzo Beans) 	Contains protein (19-25%) and starch (35-50%) Usually found in dried form so must be rehydrated before cooking Must be boiled well.	Salad Soup
Mung Beans 	Contains protein (20-30%) and starch (over 45%) but not a lot of fibre or oils. Usually boiled.	Salad Soup

Cow Pea Beans 	Usually found in dried form so must be rehydrated before cooking (Black eyed peas are a variety of the cow pea)	Curry Stew Salad
Soya Beans 	Main ingredient in soy products, soya sauce and tofu and miso paste	Miso Soup Stir-fry with soy product Vegetarian dishes
Peanuts 	Contains 40-50 % oil so it is a rich source of protein Can be purchased fresh or dried Usually boiled or roasted before eaten.	Soup Desserts

PASTA

Pasta is the name given to the dried food items that originate from Italy.
Pasta is made from semolina (type of wheat flour) with water and eggs, and is made into a dough, which is then kneaded and shaped and sized accordingly. Pasta can also be made from rice flour or corn flour to make a gluten free pasta.

Pasta can be found dried or fresh or stuffed (filled).

Fresh Pasta

This is usually made locally with fresh ingredients. Fresh pasta is usually made with a mixture of eggs and all-purpose flour or low-gluten flour. Since it contains eggs, it is more tender compared to dried pasta and only takes about half the time to cook. Delicate sauces are preferred for fresh pasta in order to let the pasta take front stage.

Fresh pastas do not expand in size after cooking; therefore, 0.7 kg (1.5 lb) of pasta are needed to serve four people generously. Fresh egg pasta is generally cut into strands of various widths and thicknesses depending on which pasta is to be made (e.g. fettuccine, spaghetti, and lasagne). Dough, which is made out of egg yolk and flour, results in a very refined flavour and texture. Pasta can also be made without eggs.
Fresh pasta should be eaten the day as it contains raw egg.

Dried Pasta

Dried pasta can also be defined as factory-made pasta because it is usually produced in large amounts that require large machines with superior processing capabilities to manufacture. The ingredients

required to make dried pasta include semolina flour and water. Eggs can be added for flavour and richness, but are not needed to make dried pasta. In contrast to fresh pasta, dried pasta needs to be dried at a low temperature for several days to evaporate all the moisture allowing it to be stored for a longer period. Approximately 0.5 kg (1 lb) of dried pasta serves up to four people.

Stuffed (filled)

Stuffed pasta is usually fresh pasta stuffed with a filling. The filling could be meat, cheese, seafood, poultry, vegetables, mushrooms. Stuffed pasta, like fresh pasta, is very tender and takes little time to cook. Since they are filled with other ingredients, great care must be taken when storing. They can be frozen and stored. They do not need to be thawed before cooking. They are commercially available already frozen. Sometimes they come in different colours if the pasta shell has been tinted with spinach, tomato or mushroom. Common stuffed pasta are cannelloni, ravioli and tortellini.

Storage

Uncooked, dried pasta can sit in the cupboard for a year if airtight and stored in a cool, dry area. Cooked pasta is stored in the refrigerator for a maximum of five days in an airtight container. Adding a couple teaspoons of oil helps keep the food from sticking to itself and the container. Cooked pasta may be frozen for up to two or three months.

There are many shapes, types and colors of pasta but below are some of the most common pasta you should know:

Pasta sticks/rods – (Spaghetti)

Spaghetti comes in different widths and so there are different names

Angel Hair, Capellini, Spaghettini, Vermicelli, are all names of very thin, long rods of pasta. Usually dried pasta packaging will have the name of the pasta.

Since they aer very thin, they are most commonly served with broth, or thin or delicate sauces.

Spaghetti is a well-known and popular pasta.

It is a very versatile pasta and can be served with tomato sauce, cream sauce, chunky sauce, meat, poultry, but it is generally not used in salads.

Fettucini

Long, wide and flatter than spaghetti, thicker texture

Served with cream based sauces

Linguine

Long, slender ribbons of flat pasta

Served with seafood

Pasta Sheet

Lasagne

Very wide thick pasta with a ruffled edge

Lasagna al Forno (lasagna layered with meat in tomato-based sauce, and bechamel sauce)

Pasta Shapes

Farfalle

Pasta in the shape of a bow tie or ribbon

Served with chunky sauces or pasta salads

Fusili

Pasta in the shape of a screw or spring

Thick sauces, casseroles, salads

Conchiglie

Pasta in the shape of conch shells

Served with meat or tomato sauces, salads

Rotelle

This pasta looks like wheels. The name derives from the Italian word for “little wheels”.

Served with chunky sauces or pasta salads

Penne

Pasta in the shape of a tube

Served with chunky sauces or pasta salads

Macaroni

Short pasta tubes, sometimes straight, sometimes curved.

Like spaghetti it is very versatile. It can be served with tomato or cream sauces, salads, soups.

Stuffed (filled pasta)

Cannelloni

Very large pasta tubes, usually made for stuffing with other ingredients

Cheese, meat (stuffed inside)

Ravioli

Small, square pillows of stuffed pasta (traditional filling is ricotta cheese with spinach)

Tomato-based sauce or cream-based sauce

Tortellini

Small, ring-shaped pasta stuffed with meat or cheese.

It is traditionally served with broth.

Cooking Basic:

Al Dente – Pasta should never be over-cooked. Pasta is best served “al dente”. This is the Italian word for “firm to the bite/teeth”. It means the pasta should not be soft when it is bitten or chewed. It should have some resistance. If pasta is over-cooked all the flavor of the semolina flour and egg will be greatly reduced. The extra water in the pasta will also reduce the flavor of the pasta sauce. This is a skill you must master.

NOODLES

Noodles is the word we use to describe food that looks like pasta but is not pasta. Noodles originate in Asia and many Asian countries have their version of noodles. Noodles can be made from wheat flour or rice flour.

Like pasta, most noodles are in dried form and have to be rehydrated (boiled or SOAKED) before eating. Some noodles however can be bought in fresh form and used after lightly simmering in broth or lightly stir fried.

Name	Description	Served with -
Lo Mein Chow Mein (Chinese Noodles) 	Made from wheat flour and egg, these noodles look very similar to spaghetti Have to be boiled	Soup Stir fry

Thai flat rice noodles 	Thin and flat Have to be soaked in hot water	Soup Vegetable/meat stir-fry
Rice Vermicelli 	Very thin and transparent Have to be soaked in hot water	Soup Salad Spring roll Stir fry
Kuay Taew 	Slightly thicker and wider than the Thai flat noodles. But these noodles are flat in shape Sold as fresh sheets Have to be rinsed in warm water	Stir fry Can be used to make stuffed noodles
Ramen (Japanese noodles) 	Very similar to Chinese noodles but can vary in width, Have to be boiled	Soup

Glass noodles 	Made from mung bean, potato, sweet potato, or tapioca starch (sometimes known as bean thread noodles) Often used in Asian cooking Usually available in dried form and must be soaked before using.	Soup Stir fry Braised dishes

Cooking Basic:

Whether you use fresh noodles or dried noodles, make sure you use a lot of water.
After boiling, rinse the noodles in cold, potable water to wash of the extra starch. This also stops the cooking process making sure the noodles are not over-cooked.

Cook exactly to the advised time – if using packaged noodles read the guidelines on the package for cooking times.

BREAD

Bread, like rice, is a staple food. That means it is part of almost every meal in many, many cultures. It is made from flour and water and is baked. Commercially-made bread has yeast added to it to improve texture and flavour.

Bread is used in many different ways and in many different dishes. It can accompany a main meal, or be used to thicken a sauce. It can even made into a dessert.

Although there are so many different types of bread, only 14 will be listed here.

Name	**Description**	
Banana Bread	Dense, moist, and sweet	

Baguette	Chewy crust, soft inside	
Breadstick	Crunchy, biscuit-like	
Brioche	Sweet and soft – commonly used to make bread (dinner) rolls and hamburger buns	
Ciabatta	Broad, flat and slightly collapsed in the middle	

Cornbread	Crumbly, rich and crispy	
Focaccia	Flat, dimpled, topped with rosemary	
Multi-grain	Contains more than one type of grain	
Pita	Flat, soft and round	

Pumpernickel	Flavourful, dark, dense – made with rye	
Rye	Can be light or medium dark in colour – made from rye	
Soda	Dense with a thick crust, sometime contains raisins	
Sourdough	Slightly sour in taste, hard crust	

Whole wheat	Contains a lot of fibre and vitamins, rich flavour	
Bagels	Made from wheat dough and yeast, traditionally hand-shaped into a ring, very dense, and chewy. Often cut in half and various fillings added	

PROCESSED FOOD

Most of the food you will handle will be fresh. However there are many types of processed food or canned/tinned food that are of very high quality and can make your life a little easier.
Processed food is any kind of food that has been through a process, such as, canning, to help preserve the food and give it a longer shelf life.

Processing can be done through adding various chemicals (additives and preservatives) through smoking, salting, pickling with oil or vinegar, drying or even washed/cut and frozen.
This means much of what we eat, and much of our ingredients are processed, for example, rice, bread, tin tuna or mackerel, peanut butter, cornflakes, frozen vegetables, ham and sausages and frozen meatballs, salad dressing, etc.

HEALTH

- Processed food, while convenient and sometimes required in a recipe, does have a few disadvantages.
- Additives and preservatives: Some people are allergic to such chemicals. Over time such chemical can build up in the body.
- Too much salt – many processed food contains a lot of salt, which is bad for blood pressure and overall health.
- Over-processed – If the sugar is refined or the rice is refined, a lot of the nutritive value of the food has been lost.

What does this mean for cooking?

- Whenever possible cook fresh ingredients.
- Do not over – wash processed and packaged rice.
- Do not use too much salt or sugar – consider how much salt or sugar you will get from the processed food ingredient and balance the tastes and flavors accordingly.
- Frozen food is the least processed and usually frozen fresh from harvest.
- Educate yourself – READ THE PACKAGING. All the information is written on the package.

Whatever the process in which the food has undergone, always follow the manufacturer's guidelines for de-frosting or re-heating or cooking or storing

Processed food Types

	Type of processed food	**Used in**
Salted and / or Cured Meat	Sausages	Bangers and Mash, Hot Dogs, appetizers, sandwiches, pizza toppings, soups
	Ham	Roast Ham, appetizers, sandwiches
	Salami	Pizza toppings, appetizers, sandwiches
	Cured Bacon	Bacon and Eggs, Cobb Salad, sandwiches, hamburgers
	Corned Beef or Mutton	Sandwiches, appetizers,
	Smoked Meat	Salad, sandwiches, stew, pate
Cured Fish	Canned / Tinned Fish (brine-preserved or oil-preserved or fermented)	Different types of appetizers and salads, sandwiches, fish paste (anchovies) for spreads, pizza toppings, and sauces
	Smoked fish	Appetizers, salads, sandwiches, fishcakes, chowder, pate
	Frozen Fish Fillets	Fish and Chips

Vegetables and Fruits	Chutneys, Pickles, Salted Vegetables	Appetizers, sandwiches and are often used as an accompaniment to main dishes
	Frozen Peas, Corn, Mixed Vegetables	Salads, fried rice, as an accompaniment
	Dried Fruit	Appetizers, salads, dessert pastries
	Frozen Pastries	Appetizers
	Dried Lentils	Dried lentils can be rehydrated and used in soups or salads
	Stock Cubes	Soups, Sauces
	Cordials and Syrups	Juices, dessert sauces
	Wines, Vinegars and Spirits	Sweet or savoury sauces, glazes, salad, dressings, shooters, stews

FOOD ALLERGIES, DIETARY REQUIREMENTS

In your career as a chef/cook you will have the opportunity to serve many different types of customers. This also means you must be sensitive to certain people's dietary requirements.

Dietary Requirement

This means that some individuals will ask for certain types of ingredient to be removed from a dish because of their condition (high blood pressure, diabetic, pregnant, infant) or because they have food allergies.

Food Allergies (See Section 3)

Allergic reactions can be mild, such as itchy throat/eyes, coughing, mild nausea and turning red. But some allergic reaction can be fatal.

An allergic reaction is the body's response to allergens in food.
For example: milk, egg, nuts, fish, shellfish, wheat, soybean, pineapple, etc.

What can we do?

If you receive an order for a dish with no milk or no eggs DO NOT USE egg or milk.
You can use a milk substitute or an egg substitute.

Examples of milk substitute:

- Soy Milk
- Almond Milk
- Coconut Milk
- Oat Milk
- Rice Milk
- Cashew Milk
- Macadamia Milk

Examples of egg substitute:

- Applesauce. Applesauce is a purée made from cooked apples.
- Mashed Banana. Mashed banana is another popular replacement for eggs.
- Ground Flaxseeds or Chia Seeds
- Commercial Egg Replacer
- Silken Tofu
- Vinegar and Baking Soda
- Yogurt or Buttermilk
- Arrowroot Powder

If you are preparing a gluten free dish you will NOT USE wheat flour. Instead you will substitute with flour or starch made from RICE, SOY, TAPIOCA, CORN or POTATO.

NOTE: You should EDUCATE yourself in what food items contain common allergens.

And listen to your customers/ follow the order given to you:
If you are making a salad that contains nuts but the instruction is to remove the nuts, YOU MUST REMOVE NUTS FROM THE SALAD AND DRESSING..
You risk the health of your customer if you ignore the customer's demand.

STANDARDIZED RECIPES AND RECIPE YIELDS

How are standard recipes created?

Recipes can come from anywhere. A chef may have a recipe that he or she inherited from another chef, or has taken from his or her family recipe book. Sometimes a recipe is created based on one special ingredient. A chef takes this recipe and perfects it over many years, constantly preparing, revising and experimenting. Once the desired dish is created, the recipe is set and it becomes a standard recipe for the chef's establishment. A standard recipe usually determined by the executive chef of that establishment.

What is in a standard recipe?

A standard recipe is a set of instructions used to consistently prepare a known quantity and quality of food for a specific establishment. A standardized recipe will produce a dish that is almost identical in taste and yield every time it is made, no matter who follows the instructions.

Here is an example of standard recipe:

- RECIPE CARD -

Recipe for : Country Biscuits

Yield: 60 oz	**Equipment / Utensils:**	**Prep & Cooking Time:**
Portion Size: 3 oz	Scale	40 minutes
Number of Portions: 20	Measuring cup	
	Measuring spoons	
	Baking sheet	
	Biscuit cutter	

Ingredients:

All-Purpose flour	6 cups
Baking powder	2 teaspoons
Salt	1 ¾ teaspoon
Vegetable shortening	¾ cup
Whole milk	3 cups

Preparation Steps:

1. In a large bowl, sift together the flour, baking powder and salt; cut in shortening until the mixture resembles coarse crumbs.
2. Stir in milk; knead dough gently.
3. Roll out to ½ inch thickness. Cut with a 2 ½ inch biscuit cutter and place on a lightly greased baking sheet.
4. bake in a 450 degree preheated oven for 15 minutes or until golden brown.

Storage:
Seal extra product in plastic container mark with date and product name.

Clean up:
Clean as you prepare, sanitize all surfaces when finished.
Return all equipment to proper place.

FINAL STEP: Return card to Recipe File.

A standard recipe will include

Product Name	Customers expect to receive what they order from the menu. The recipe name should be same as the menu name.
Yield	The number of portions that recipe will make. The yield is also an important factor of costing.
Portion Size	This refers to the size of each portion
Ingredient Quantity	This refers to how much of each ingredient you will need. Always follow the recipe measurements. If you make a mistake with your measurments this will affect yield and portions, which will lead to a change in taste and quality.
Method of Preparation and Cooking	This refers to the steps to follow to cook the dish. Always follow the steps or the recipe taste will change and this may lead to customer disatisfaction.
Cooking Temperatures	This refers to the temperature you will expect to have when using this recipe. Follow the cooking temperature or risk spoiling the dish.
Cooking Time	Standard Recipes list the recommended cooking time. Follow the recommeded cooking time or risk over-cooking or under-cooking.
Mise en Place	Standard Recipes may linclude a list of small equipment required for the recipe.
Service Instructions Plating / Garnish	There may instructions for hot or cold storage. There may be a plating design, and / or instructions for garnish.

In addition to the list above, standard recipes may also include recipe cost, nutritional analysis, variations, work simplification tips, suggested accompaniments or companion recipes, and photos.

What are the advantages of a standard recipe?

Benefits of using a standardized recipe include:

- a consistent quality and quantity
- standard portion size/cost
- assuring nutritional content and addressing dietary concerns, such as special diets or food allergies
- aiding in forecasting and purchasing
- fewer errors in food orders
- incorporating work simplification principles and aids in cross-training
- assisting in training new employees
- incorporating HACCP principles
- reducing waste
- more easily meeting customer expectations

What is a standard yield?

The yield of a recipe is the number of portions it will produce. Yields can also be expressed as a total volume or total weight the recipe produces. An example would be a soup recipe that yields 700g portions which could also be stated as a volume yield of 5.7 litres or a 1 ½ gallon. A weight example would be a recipe that yields 578g portions of taco meat or a total yield of 5 pounds.

But it must be remembered that all food commodities have a certain amount of wastage. That is to say that not all the parts of an ingredient is used in a recipe. For example, paraw fish is 50% wastage after the fish has had the head and tail removed. The usable quantity of the food commodity (consumable amount) is what is calculated into the yield.

What is a yield test?

A yield test is defined as a technique to determine the number of portions produced after the required processing has been performed. This may include trimming, butchering, cutting, cooking or a combination of these. During these processes fat, bone and other inedible or unnecessary parts are removed.

What is a standard portion?

A standard recipe includes the size of the portions that will make up a serving of the recipe.

Controlling portion size has two advantages in food management:

- portion costs for the item will be consistent until ingredient or labour costs change
- customers receive consistent quantities each time they order a given plate or drink.

Standard portions mean that every plate of a given dish that leaves the kitchen will be almost identical in weight, count, or volume. Only by controlling portions is it possible to control food costs. If one order of bacon and eggs goes out with six strips of bacon and another goes out with three strips, it is impossible to determine the actual cost of the menu item.

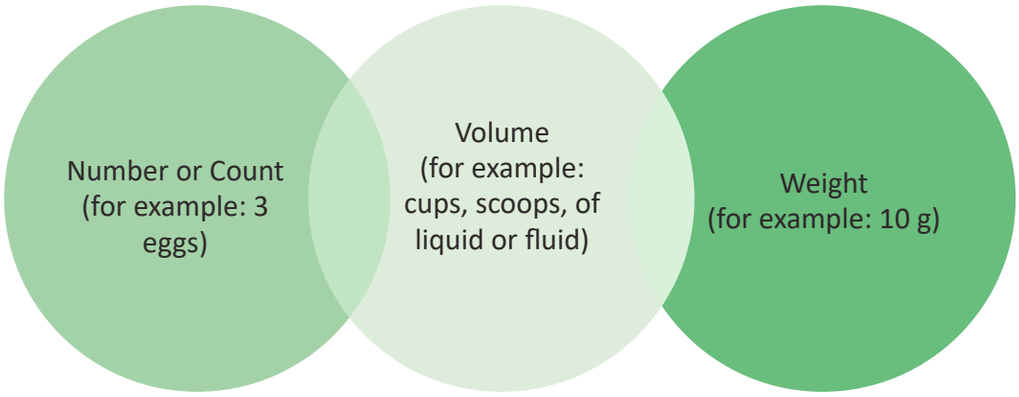
Adhering to the principles of standard portions is crucial to keeping food costs in line. Without portion control, there is no consistency. This not only could have drastic effects on your food costs (having no real constant costs to budget for) but also on your customers. Customers appreciate consistency. They expect that the food you prepare will taste good, be presented properly, and be the same portion size every time they order it. Consider how the customer would feel if the portion size fluctuated with the cook's mood. A cook's bad mood might mean a smaller portion or, if the cook was in a good mood because the workweek was over, the portion might be very large.

It may be hard to grasp the importance of consistency with one single portion, but consider if fast-food outlets did not have portion control. Their costs, as well as their ordering and inventory systems, would be incredibly inaccurate, all of which would impact negatively on their profit margin.

Simple methods to control portion include:

- weighing meat before cooking
- using the same size juice glasses when juice is served
- portioning with scoops and ladles that hold a known volume
- using processed or convenience products. (These products are received usually frozen and are ready to cook. Portions are consistent in size and presentation and are easily costed out on a per unit basis. This can be helpful when determining the standard portion costs.)

Types of measurements used in the kitchen



Unit Count

Number measurement is only used when accurate measurement is not critical and the items to be used are understood to be close in size.
Numbers are also used if the final product is countable. For example, 24 pre-made tart shells would be called for if the final product is to be 24 filled tart shells.

Volume

Volume measurement is usually used with liquids or fluids because such items are awkward to weigh. It is also used for measuring portions, for example, portion scoops are used to dole out vegetables, potato salad, and sandwich fillings to keep serving size consistent. Ladles of an exact size are used to portion out soups and sauces. Often scoops and ladles used for portioning are sized by number.

Weight

Weight is the most accurate way to measure ingredients or portions. When proportions of ingredients are critical, their measurements are always given in weights. This is particularly true in baking where it is common to list all ingredients by weight, including eggs (which, as mentioned earlier, in almost all other applications are called for by count). Whether measuring solids or liquids, measuring by weight is more reliable and consistent.

Weighing is a bit more time consuming and requires the use of scales, but it pays off in accuracy. Digital portion scales are most commonly used in industry and come in various sizes to measure weights up to 11 lbs. This is adequate for most recipes, although larger operations may require scales with a larger capacity.

Recipe Conversion

Recipes often need to be adjusted to meet the needs of different situations. The most common reason to adjust recipes is to change the number of individual portions that the recipe produces (convert up or convert down). For example, a standard recipe might be written to prepare 25 portions. If a situation arises where 60 portions of the item are needed, the recipe will be properly adjusted. Or only 10 portions need to be prepared of that same recipe so the recipe will be converted down.

This is usually NOT the job of a Commis 3 so you will not be expected to know how to do this. It will take several years of experience before you will get any practice for recipe conversion.

Remember – Standardization Always Meets Expectations. Food service operations need to meet the expectations of their customers, every time they visit. Food service operations need to meet expectations for employees, their skill level and training. Food service businesses need to meet expectations for costs and profit for all menu items. Standardized recipes are critical to the food service industry.

SUSTAINABILITY IN THE COMMERCIAL KITCHEN

What is sustainability? WHY is it important?

In the last few pages you have been reading about standard recipes. You now understand that standard recipes help manage food costs and reduce waste. Another way to reduce costs and waste is to consider the sustainability of the ingredients you are using.

In the past people in cold countries ate only what was available in that season. In tropical countries, although we have vegetables and fruit all year round, people also used to eat according to what trees and plants were producing at that time of year.

In the modern world we have access to anything we want because of modern transport systems, refrigerated cargo planes, trains and automobiles and heated greenhouses. However, this globalisation of food movement has created a lot of environmental damage.
There is less fish in the sea. More chemicals are put on plants and vegetables. Hormones are used in meat production. None of these things help to keep us healthy or the planet healthy.

So what can we in the food service industry do?

To achieve sustainability, food should be sourced "locally" wherever possible, so minimising the energy used in production, transport and storage. It should also support farmers, sustainable agriculture and local communities, and give farmers in developing countries a fairer deal. Minimising packaging and food waste is also key. The food thrown away by the US and Europe could feed the world three times over. The food service industry is very. A part of this waste problem.

Sustainable operating practices include using tap water not branded bottled water where possible. Hotels and restaurants with a growing social conscience are eliminating bottled water from the menu and donating profits to help fund access to sanitary tap water in the developing world.

It is not just about a product's carbon footprint, says Mark Sainsbury, co-director of the recently launched Sustainable Restaurant Association (SRA), based in the UK: "Being sustainable in our industry includes paying staff properly, not overcharging customers, paying suppliers on time, getting involved with the community."

The business benefits of sustainable sourcing are:

- Economic as restaurants and hotels will continue to come under increasing pressure from customers, regulators, investors and tour operators to employ green procurement policies.
- Reduced operating costs through bulk buying from local suppliers, demanding reduced packaging, buying seasonally, etc. If you grow your own produce, costs can be cut even more dramatically.
- Improved quality of food and service from suppliers as establishments improve relationships with suppliers. They will also reduce the environmental and health risks, and avoid the negative publicity associated with purchasing "problem products".
- Better community relationships, increased customer loyalty, and improved morale and loyalty among staff. It is also an opportunity to demonstrate to stakeholders the importance placed on sustainability issues.

Resource:
https://www.greenhotelier.org/our-themes/community-communication-engagement/sustainability-in-the-kitchen-food-drink/

Resource:
https://www.greenhotelier.org/our-themes/community-communication-engagement/sustainability-in-the-kitchen-food-drink/

Section 08

PROFESSIONAL COOKERY SKILLS MANUAL

Cooking Methods

COOKING METHODS

Why do we cook?

The object of cooking is to make it palatable, pleasing to the eye and to help the stomach digest food particles and absorb nutrients easily. Cooking also plays a part in ensuring no harmful bacteria enters the body.

What is cooking?

It is the transfer of heat from its source to the food.
There are three types of heat transfer:

- → Conduction – Direct contact with heat source, for example, when a flame touches the bottom of a frying pan.
- → Convection – Heat is transferred through currents of air, steam, water or fat, for example, boiling.
- → Radiation – Heat transfer by means of waves of heat or light striking the food, for example, as happens in a microwave oven.

What happens to food when it is heated?

Proteins coagulate: Proteins transform from a liquid state to a solid state. For example, meat becomes firmer when cooked, egg whites change colour and become solid when cooked.

Starches gelatinize: The starch granules swell to occupy more space. When they do that the starch and liquid space they occur in becomes thicker.

Sugars caramelize: Sugars turn brown and change flavour, which changes the flavour in the food the sugars can be found.

Water evaporates: All food contains an amount of water. By reducing the water the food can change appearance, flavour or texture. For example, reducing sauces or soups to thicken them.

Fats melt: Fats melt but do not evaporate when heated. This adds flavour to the food in which it can be found (for example, pork or beef) or the melted fat can help with the cooking of other food.

When the proteins, starches, sugars, water, and fats found in food change or transform, this affects the colour, texture, appearance, smell, flavour and nutritive value of the food. It is important for you as a cook to know that.

Why are there different methods of cooking?

There are different methods of cooking because there are many types of food and each type of food will react in a different way to heat.

Why is it important to know different methods?

By over-cooking or by under-cooking or by using the incorrect cooking method, you will alter food in a way that makes it unpleasant to eat, and certainly the nutritive value of the food will be lost. You will need to always improve your understanding of what happens to food when it is cooked, and that includes:

- Knowing how cooking is affected by how the food ingredient is prepared before cooking (how it has been cut, marinated, processed, etc.)
- Knowing different cooking methods
- Understanding temperature control

Nutritive Value	The nutritive value of raw food is affected by how and how long you cook it. For example, boiling vegetables for an incorrect amount of time will cause nutrient loss compared to boiling for a short time or steaming.
Texture	Over-boiling vegetables break the fibres that give vegetabes their pleasant crunch. Over cooking proteins (meat or fish for example) hardens the texture, making them rubbery and dry.
Colour	Colour and smell is what makes dishes appetizing to a customer. There are cooking techniques that help preserve the colour of vegetables. There are cooking methods that help us know when a food is safe to eat, for example, the colour of meat.
Smell	Smell or aroma, like colour, enhances our appetite and taste. It is the caramelization of the sugars in food that create these aromas, and likewise, if a food item is over-cooked or burnt, you get the smell of burnt sugars.
Flavour	Cooking changes the flavour of raw food. The correct or appropriate cooking techniques and methods can enhance the natural sweetness of a vegetable or fruit, or the juiciness of meat or simply make eating a cooked egg more pleasant than eating a raw egg.

Today customers are attracted to dishes that appeal to their eyes, nose and taste buds. They will return to an establishment time and time again if the dishes that are produced are not only consistent in maintaining this appeal but also because the dishes have high nutritive value.

What are the different cooking methods?

- Moist Heat Cooking
- Dry Heat Cooking
- Combination Methods

What else do I need to know?

You need to know that stock is an important element in several methods of cooking. Stock forms the basis of all meat sauces, soups and purees. See Module 12 to learn more about stocks, soups and sauces.

What are the utensils I need for cooking?

In Section 6 of the Orientation Manual you will find pictures of some of the different tools, utensils and large equipment required for preparing and cooking food. Review the information.

MOIST HEAT COOKING

Method	Average Temperature	WHAT TO KNOW
Boiling	100°C (212°F)	To boil food items, first you must heat a liquid such as water, court bouillon, milk or stock, to boiling point. Then the food item can be immersed in the boiling liquid. The boiling point temperature must be kept constant. Boiling cooks food quickly but it can also damage the structure of the food item (for example, soft, white fish can break into pieces if it is over boiled). Utensils/Equipment: deep pan/pot, slotted spoon, colander Good for pastas, noodles, rice, dumplings, hardy vegetables such as potatoes, carrots, are food items that can be boiled. **TOP TIP: "al dente" pasta** You must learn and understand this expression. It is an Italian word meaning, firm when bitten". This means that you MUST NOT OVERCOOK pasta. Any kind of pasta should be firm to the bite but cooked thoroughly. You must pay attention to the cooking times of different types of pasta. Ask or read the packaging and follow the instructions. Top Tip: Lid off or Lid on → When liquid is boiled all the energy (steam) rises to the top. Keeping a pot lidded allows the liquid to reach boiling point faster. This saves time and heat source energy. → By keeping the pot lidded you can maintain the desired cooking temperature at a lower heat setting. → You do not need to keep the pot lidded if you are trying to reduce the amount of liquid (evaporation). → If you need to monitor the food, keep the lid off. → If you are boiling vegetables keep the lid off.
Poaching	87°C – 95°C (150°F – 185°F)	To poach you only need enough liquid to cover the food item. The water should not be boiling. It should be simmering. This means there are bubbles rising but the water itself is not moving very much. Keep the heat low and cooking time should be short. Utensils/Equipment: shallow pan Good for eggs, poultry, fish and fruit.

Steaming	100°C or more	To steam you will cook the food in an enclosed environment that is filled with steam. The food should never touch the source of the steam (boiling water). Steaming is quite a fast process and is especially beneficial for vegetables as this method helps retain the nutritive value of the vegetables. There are three kinds of steam – Direct, Indirect and High Pressure Utensils/Equipment: steamer, pressure cooker, steaming rack or basket Direct steaming is good for vegetables and seafood. Indirect steaming is good for making certain puddings. High Pressure is good for tenderizing vegetables and poultry and meat.

Pots and Pans Set

DRY HEAT COOKING METHODS

Dry heat can be further divided into cooking with fat or cooking without fat. Fat can mean vegetable oil, olive oil, butter, ghee, et, cetera. Cooking without fat means using hot air or hot metal.

Cooking without fat:

Method	Average Temperature	WHAT TO KNOW
Roasting		To roast you will use dry heat in an enclosed space, such as an oven. The oven has to be **PRE-HEATED**. In the oven the food item will be placed uncovered on a RACK inside a BAKING PAN. Food cooked in an oven will continue to cook even after you have removed it from the oven. That is why temperature control and time control is important to understand. Roasting usually takes longer than baking and is done at a higher temperature setting. Utensils/Equipment: Oven, metal rack and metal pan, gloves Meat and poultry and vegetables that are commonly roasted.
Baking		To bake you will use dry heat in an enclosed space, such as an oven. The food is baked uncovered in a metal tin or pan, or ceramic dish, to let any moisture evaporate. Food cooked in an oven will continue to cook even after you have removed it from the oven. That is why temperature control and time control is important to understand. Utensils/Equipment: oven, baking pan, bread tin, cake tin, pie pan, quiche pan, sheet pan, cast-iron pan (skillet), ceramic dish, cooling rack, gloves Bread, cakes, and meat, poultry and fish are food items that are commonly baked.
Broiling		To broil you will need a direct, primary heat source that comes from above the food item. Temperature is controlled by how close the food item is to the heat source. Thicker food (for example, meat) needs to be further away than thinner food (for example fish). Broiling is a fairly quick process. Broilers are heated only by gas or electricity. Utensils/Equipment: overhead broiler, SALAMANDER, broiling rack, heatproof platter, gloves

Grilling		Food can be grilled using a gas, electric, charcoal, or wood-fired grill. To grill the direct, primary heat source comes from below the food item. Grilling is a fairly quick process and to grill correctly you must pre-heat the grill. Food items can be lightly brushed with oil before placed on the grill. Utensils/Equipment: Grill oven, tongs, grill spatula, two-prong fork, skewers, grilling basket, aluminium drip pan, gloves Meat, poultry, fish and vegetables can be grilled.
Barbecuing	107°C – 121°C (225 °F -250°F)	This method is roasting or grilling using a wood/coal fire. Traditional barbecuing is done in wood/coal burning ovens or pits. In the commercial kitchen it is done in a smoke oven. Food is suspended above the heat on a grill/rack or spit and the food comes into contact with the wood or coal smoke. Utensils/Equipment: smoke oven, tongs, two-prong fork, grill or rack, spit, gloves. This method of cooking is good for tougher meats such as beef brisket or pork shoulder.

Grill

Salamander: overhead grill for toasting or browning or hot holding

Grill Oven

Oven gloves

Skewers, Two-Prong Fork, Spatula, Tongs

Roasting and Baking Trays

Cooking without fat:

Method	Average Temperature	WHAT TO KNOW
Sautéing		To sauté food, you will pre-heat the pan and a very small amount of fat before adding the food. You will add the food just as the fat is starting to smoke. You will not cook many food items at once as temperature control is very important for sautéing. After the food is sealed you will reduce the heat to make sure the food is cooked evenly. This is very a quick method of cooking. Sautéed food is usually served with a sauce. (see deglazing) *Deglazing* – after the food that was sautéed has been removed, a liquid such as wine is added to the pan to dissolve the small bits of food left in the pan. This liquid will become the base for the sauce for the food that was sautéed. Top tip – to prevent fat from sticking to the pan it is usually lightly dusted with flour. Utensils/Equipment: sauté pan, sauté paddle This method is used for food that is thin or delicate, such as fillets of fish, seafood, tender cuts of meat fruit and vegetables.
Pan-frying (shallow frying)		To pan-fry you will heat a moderate amount of fat in a pan before adding the food to be fried. Use enough fat to cover half or three quarters of the food. The fat should not be so hot that it smokes. It should be hot enough so that the food sizzles when placed in the fat. The food will need to be turned over. Utensils/Equipment: shallow frying pan, spatula Fish and chicken and potatoes are often pan fried.
Broiling	175°C – 190°C (350 °F -375°F)	To deep fry you need to place the food in a large amount of heated fat completely. Temperature and time control will help you know whether the food has been fried all the way inside. Once deep fried, the food needs to be drained of the excess fat. The fat (oil) used in deep frying has to be changed regularly to prevent the colour from darkening and the changing of the smell of the fat/oil.

		Top Tips: → Fry at the correct temperature depending on the food. → Do not overload the baskets. → Use good quality fat. → Replace 15-20% of the fat with fresh fat after each daily use or follow S.O.P of your establishment. (The dark colour and smell of old fat/oil transfers to the food and make the food taste unpleasant.) → Avoid frying strong tasting food and delicate tasting food in the same fat/oil. → Remove excess water from food before frying. → Do not add salt during frying. → Fry close to service → Skim fat of food particles often. → Clean baskets appropriately after service. Utensils/Equipment: deep fryers, frying basket, gloves Potatoes, onions, fish and poultry are popular fried food items.
Stir – fry		Fast-frying strips of meat, poultry or vegetables in a wok with a small amount of fat. It is a method of cooking common in Chinese cuisine. The fast-frying seals in flavour as well as helping the food retain its natural crunchiness. Utensil/Equipment: Wok

Griddle: can cook many different things at the same time

Deep Fat Fryer: for deep frying food

Shallow pans

Saute Pan

Wok

COMBINATION COOKING

Combination cooking means that you combine both a dry heat method and a moist heat method to produce the dish. This method is usually used for tougher cuts of meat to help make the meat soft and flavourful for eating. Therefore it is important that the right cut of meat is used in the different combination cooking methods. In general, pot roasting is for very touch cuts of meat such as beef or pork shoulder. This sort of meat does not have large ribbons of fat.

Method	Average Temperature	WHAT TO KNOW
Braising	230°C	To braise, you will first sear the meat in a pan over high heat. Then you will deglaze the pan and replace the meat. Then you will add more stock, sauce or water but NOT to immerse the meat. You might even add aromatic vegetables such as onions or carrots or even mushrooms to the braising liquid. When the meat is successfully braised and removed from the pan, the leftover cooking / braising liquid (along with any vegetables you added) can be strained and thickened to make a sauce. Braising takes a long time and therefore it is important to maintain the correct temperature and time control. Utensils/Equipment: stove top, pan, tongs, wooden spoon
Stewing		To stew, you will first sear the meat in a pan, pot over high heat. Then you will add the stewing liquid (water or stock) until it completely covers the food. Cover the pan/pot and reduce the heat so that it is simmering (not boiling). Vegetables may be added part way through simmering. Stewing takes a long time and therefore it is important to maintain the correct temperature and time control. Utensils/Equipment: stove top, stewing pot or pan with lid, tongs, wooden spoon
Pot Roasting	175°C – 190°C (350 °F -375°F)	This is the same as braising but instead of using meat that has been cut up before cooking, pot roasting is used for meat that has not been cut up. In pot roasting you will need a pot large enough for the whole piece of meat to be placed in. Also, pot roasting requires an oven to finish the cooking process (in an uncovered roasting pot)

		Pot roasting takes a long time and therefore it is important to maintain the correct temperature and time control. Utensils/Equipment: OVEN, large roasting/stewing pot or pan with lid, tongs, wooden spoon OR slow cooker

Combi-Oven
(A three-in-one oven that allows you to cook with steam, hot air/convection or both)

Accident Prevention:

Hot water or liquid is a hazard. Take the necessary precautions:

- Always wear your apron to prevent your skin being burned by drops of hot water. Use gloves or cloth when necessary.
- DO NOT put your face over any kind of boiling liquid. The steam can also cause burns.
- DO NOT lift the lid of a boiling pot or pan towards you or anyone else. Always remove the lid away from you and anyone else who is standing close by.
- Lower food into boiling liquid, do not dump.
- Turn pot and pan handles away from your sleeves (sleeves get caught on handles easily).
- Use commercial steamers correctly. (Read the manual for safety guidelines)
- Do not attempt to open a pressure cooker unless it is completely finished (follow S.O.Ps or manual guidelines).

Using ovens, grills, griddles and hot cooking utensils is a hazard. Take the necessary precautions:

- Use oven gloves or heavy oven cloths when taking trays out of the oven.
- Use tongs, fish slices, heat resistant spatulas, etc. Do not use your hands!
- Do not overload trays as this risks spills.
- Open oven doors slowly as hot steam can suddenly hit your face.
- If you have used too much oil or the marinade you are using contains oil, there is a risk of fire. Use the correct amount of oil for cooking , and drain oil marinades before placing it on heat source.

Using cooking utensils and equipment requires you to understand these tools and how they can be used to maximise the efficiency of different cooking methods.
Use the appropriate coking tools at all times.
Know the safety guidelines or S.O.P of your establishment concerning large equipment such as deep fat fryer, grills and griddles, stove tops and ovens

OTHER METHODS OF COOKING

Method	Average Temperature	WHAT TO KNOW
Sous-Vide		This is a method of cooking that cooks food that has been vacuum-sealed in special plastic bags using precise temperature control. The benefit of precise temperature control is that it allows for meat, fish and seafood, poultry and even vegetables to be cooked to the exact texture desired. Method: You will use either (sous-vide) pre-packaged food or you will vacuum pack food items or ingredients in an appropriate bag at your establishment. When it is time to use the food item or ingredient, DO NOT **REMOVE FOOD FROM BAG** – instead place the bag inside the sous-vide machine at the correct temperature. Top Tips: → Follow your establishment S.O.Ps for using sous-vide food, or use a HACCP system to manage risks and hazards. → CHILL food items or ingredients BEFORE vacuum packing. → Use the food immediately or freeze immediately. → Thaw frozen food in the refrigerator. → After cooking and opening the bag, serve immediately. Utensils/Equipment: Vacuum Packaging, Vacuum Packer, Sous Vide Machine
Microwave		Cooking in a microwave oven. Although the microwave oven was invented to help re-heat food or thaw food quickly, it is perfectly possible to cook food using this equipment. Follow manual instructions and establishment guidelines for cooking times and dish positions of different food. (Food at the edge of a dish in the microwave will heat up faster than in the middle. Factor this into your cooking.) Be careful – you cannot put non-microwaveable glass, ceramic, metal or plastic in the a microwave. Make sure you learn and understand how to use a microwave before you use one. Utensils/Equipment: microwave, microwave proof cooking plates/dishes

Paper Bag Cooking		Known as “en papillote”, this method means putting food in a tightly sealed, oiled, grease-proof paper bag or foil, so that during cooking no steam escapes. This method truly seals nutritive value of the food as well as the flavour and aroma. Bag is opened by or in front of customer. Utensils/Equipment: oven, oven-cooking bag, grease-proof bag or foil Good for red mullet (fish), veal scallops,

Sous-Vide machine

Microwave oven

Paper bag cooking

In addition to the cooking methods in this section, you should learn, understand, practice the following:

Method	Meaning	Why should I know this?
Season adequately:	The process of adding salt, pepper, herbs, spices.	To enhance flavour of food ingredient.
Marinate correctly:	The process of resting food in its seasonings between an hour and 24 hours.	To help the marinade penetrate and tenderize - this is done for meat and poultry.
How to simmer:	A gentle boiling which means the water or liquid never reaches 100°C.	Simmering in water is required for poaching. Simmering soup or stock or sauces is necessary when reducing (removing water content) in order to enhance or strengthen flavor.
How to BLANCH and REFRESH	Immerse in boiling water for a short time (check recipe). Then remove food and dip into ice bath (bowl of ice water), or run under cold water. This stops the cooking process.	This is a food preparation method and is very useful for keeping colours of vegetables and fruit, as well as seal flavors, and speed up food production cooking time. Blanching can also be used to re-heat certain vegetables (beans, carrots, leeks) Blanching can also help remove skins from tomatoes.
Parboiling	This means to partially boil food in boiling until it is a little soft but not fully cooked. Unlike blanching there is no ice-bath stage in parboiling. You would parboil food to prepare them for another cooking method, such as roasting or frying.	Parboiling helps soften the food (especially potatoes) to help produce a crispier outer texture. RICE is also parboiled before stir-frying or wok frying to ensure the rice is not hard.
How to sear:	This means to brown or cook marinated meat or poultry before it is braised or stewed.	Searing helps seal the flavor of the marinade inside the meat and poultry.

How to baste:	Pouring braising liquid over meat or poultry. Or, pouring fats from roasting meat/poultry over the pieces or joint.	Braising and roasting reduces water content and there is a danger that the meat or poultry piece/joint will become very dry.
How to de-glaze:	Add wine or stock to remove food bits left in a pan after sauteeing	To create a sauce using the flavors left in the pan.
What is “pane l’anglaise”? (BREADING)	This means the food has been passed through flour (seasoned), egg wash and bread crumbs.	This is a preparation method for frying or deep-frying.
What is “Milanese”?	This means the food has been passed through flour (seasoned), beaten egg and parmesan.	This is a preparation method for frying or deep-frying.
What is “Batter”?	This means the food has been dipped into a batter before frying. The batter is made from flour and water or milk (sometimes with egg).	This is a preparation method for frying or deep-frying or Japanese tempura.

The above preparation methods are vital to the final cooking stages of many dishes, whether they are meat and poultry dishes or whether they are vegetable dishes.

Below are example of the methods of cooking for some well-known dishes:

Main Course Dish	Method of cooking main ingredient	Serving
Fillet of Sole 	Poached, simmered, baked	As you can see from the pictures chosen here, a dish is not considered complete if they are not accompanied by the appropriate accompaniment. This is usually a sauce, secondary ingredients such as vegetables, potatoes, and garnish. Plating is another aspect of serving that will be part of your learning. At this point you will follow the plating guidelines of your establishment (Standard Recipes)
Mullet Meuniere 	Shallow fry a fillet of mullet	
Crumb Fried Fish 	Fish is passed through seasoned flour, egg-washed and breaded (P'ane L'anglaise) Fish is deep fried	

Grilled fillet Steak 	Grill beef fillet steak	In addition to mastering different cooking methods, making sauces, soups and stocks, you will also learn, over time, the degree to which an ingredient is cooked - not only temperature wise, not only if an ingredient is cooked through, but also for the desired texture for a particular dish. For example: if you are cooking beef or lamb, are you serving it rare, medium rare or well-done?
Roast Chicken 	Roast a whole chicken	
Crème Caramel 	Baked egg custard	

Section 09

PROFESSIONAL COOKERY SKILLS MANUAL

Mise En Place

MISE EN PLACE

In this section you will learn one of the most important, if not the most important stage in cooking. This is called "mise-en-place". This means to put everything you will need for cooking into its correct place before cooking can begin.

Mise-en-place is a French word for "putting in place" and is used for preparing kitchen equipment and food before serving. By practising and attaining good skills for mise-en-place, you will also learn how to be disciplined, methodical and organized in your actions and thinking. These are important skills for becoming a chef.

NOTE: This is not the same mise-en-place that is used by Food and Beverage staff (wait staff) who serve the meals to the customer. The procedure is different even though the meaning is the same.

The 4 Stages of Food Production

In Section 5 you will have read about how to manage your time in the kitchen. As there are a few stages to producing a dish, it is advisable to review this Section.

Production

Production is the last stage of cooking. It is the moment when you assemble all the ingredients of the dish for service. This is when a dish is cooked and plated and made ready for service. Before production can happen there are three preliminary stages: Production Planning stage, Preparation stage and Pre-Preparation stage.

Production Planning:

The executive chef or the chefs-de-partie decide what type of service will be given to the customer that day (extended meal service or set meal service). Then they decide what is on the menu for that particular service. Then comes the planning stage when mise-en-place schedules, cooking schedules, recipe checks, food purchase schedule, food store checks, etc. will be planned.
Every establishment will have its own style of production planning. Sometimes you will be part of the planning stage. Sometimes you will not.

Pre-preparation:

Once the menus and schedules have been confirmed then the work begins on pre-preparing the kitchen. Every establishment will have its own S.O.Ps concerning this (standard operating procedures). You will most certainly be part of this stage.

Here is a pre-preparation example:

If you have been told you are assisting hot desserts, you may be asked to prepare by checking food stores for the ingredients that will be needed according to the recipes that are going to be used that day. You will be asked to collect and bring the ingredients to the work station. You will be asked to check the oven or the temperature of the hot holding equipment , and then gather all the necessary utensils to bring to the workstation. You will be asked to check that all equipment is CLEAN, UNDAMAGED, and FUNCTIONING CORRECTLY.

If at this point there is something faulty with any of the utensils or equipment, your chef-de-partie or your immediate supervisor must be informed IMMEDIATELY. If at this point you find that the ingredients are below standard, or the ingredients are spoiled or not fresh, your chef-de-partie or your immediate supervisor must be informed IMMEDIATELY.

Pre-preparation is also the time to think of WASTE MANAGEMENT and CLEANING PROCESS and RISK MANAGEMENT. When you gather your ingredients you must think of how to prepare the ingredients and how to deal with left over parts (meat trimmings, fish bones, vegetable peels, et cetera). You have to think about the time it will take you to get the ingredients from storage. You have to think about how to avoid cross contamination of ingredients as you bring them together.

Ask yourself some of these questions:

- Do I have to thaw anything?
- Do I have to re-heat anything?
- How often will I need to clean my work area?
- How and where will I get the ingredients from?
- How and where will I get utensils and equipment from?
- What do I clean my work area with?
- Where is the waste disposable container?
- Is it easily accessible?
- Is the waste container clean far away from the ingredients?
- Can any left overs be re-purposed (for example, fish, chicken and meat carcass for stocks and soups)?
- What do I need to be careful about (hazard check)?
- Do I have my gloves if I am using the oven?

Pre-preparation may also a time to prepare stocks or sauces or marinades or stuffing that may not necessarily be used the day you make it. There are many dish ingredients that are made in advance.

Pre-preparation may also the time to create a WORK PLAN.

What is a work plan?

A work plan is a list of instructions that are in order of priority. A time line ensures that tasks are done in the right sequence.

The purpose of a work plan is:

- to increase productivity
- to ensure all tasks are completed in an appropriate time
- to ensure all required equipment is available

YOUR WORK PLAN SHOULD INCLUDE:

- The time required or the time you have been given for each task.
- Cutting, chopping, trimming, seasoning, marinating.
- Preparing your workstation and ingredients for cooking.
- Pre-heating equipment.
- Cooking time.

As you can see, time management is important. Knowing how much time one task will take will dictate how much time you will need to prepare the correct amount of food.

Mise en place:

A large part of your time in a commercial kitchen is spent doing mise en place. A large part of successful cooking depends on how efficient your mise en place is. A large part of smooth food service depends on your good your mise en place is.

You will need to:

A. Check hygiene and sanitation of yourself and your workstation / kitchen

B. Check the recipes

C. Prepare your knives:
Collect the knives you need, sharpen, clean, sanitize

D. Prepare your utensils and equipment

E. Know which types of vegetable and fruit cuts you will be using

F. Know the types of meat, poultry, and seafood cuts / trimming you will be using

G. Know about marinating, seasoning, salting, and portioning

H. Know about blanching, par-boiling, breading etc.

I. Dealing with processed or pre-prepared food items.

A. REFER to Section 1 and 2

Have you gone through your personal hygiene checklist?

For example

	Yes / No
Tie hair back	
Wear uniform	
Wear correct shoes	
Wash hands	

Have you checked the cleanliness and sanitation of your workstation?
Is your waste system in place?

For example

	Clean / Not Clean
Food storage areas	
Utensils and equipment	
Counter surfaces	
Floors	

B. RECIPES

Do you have the recipes you need?
Are you using standard recipes?
What is the yield of the recipe?
How many portions do you have to make?

Standard Recipes, Yields and Yield Conversion Method
In Section 7 there is information about standard recipes. Review the information.

Advantages

- If you follow the instructions of a standard recipe, you will always get the same dish. This is quality and quantity control.
- Expectation of Consistency: Customers expect to have the same quantity and quality if they order the same dish as they have before.
- Portion control is easier with a standard recipe.
- Allows for good work flow in the kitchen.
- Food wastage is reduced.

Parts

- Product Name
- Yield
- Portion Size
- Ingredient Quantity
- Preparation Procedures
- Cooking Temperatures
- Cooking Time

Yield Conversion Method

- If there are more or less customers than expected the yield of a standard recipe will be increased or decreased. This is called recipe conversion.
- If a recipe's yield is converted a method of conversion will be used to adjust the quantity of ingredients taht will be needed.
- This is the job of the Chef de Partie and you will need several years cooking experience before you are able to use a conversion method.

C. PREPARE THE KNIVES YOU WILL NEED

Check your knives – have they been cleaned and sanitized?
Are they in good working order – is the handle or blade loose or tight?
Have they been sharpened?

D. UTENSILS AND EQUIPMENT

Do you have:

- Measuring utensils
- Holding utensils (bowls/containers)
- Cooking utensils and equipment
- Hot holding and cold holding equipment

Measuring Utensils example:

Holding Utensils example:

Resistant to heat, cold and hard work

Air-tight lids for hygiene and odour-free storage

For food preparation and storage

Sizes customized for all needs

E. VEGETABLE AND FRUIT CUTS

What types of cuts for vegetables or fruits does the recipe ask for? (See Section 7)

Brunoise
This is a very small diced cube sized between1-3mm square. Often used as a garnish for consommé. Typical vegetables are carrot, onion, turnip and celery.

Macedoine
This is a diced cube 5mm square. Root vegetables are suited to this cut, e.g. carrot, turnip, swede.

Jardiniere
A short, thin baton or stick about 2.5cm long and approximately 3mm wide and 3mm thick. Size may be varied depending on end use.

Baton
Sticks of vegetables approximately 5cm long, 5mm wide and 5mm thick. Used as an accompaniment.

Paysanne
Various thin shapes such as squares, triangles, circles or half-rounds. In order to cut economically the shape of the vegetables will decide which shape to choose. All are cut thinly at about 1-2mm thick.

Julienne
Long, thin, matchstick shaped pieces about 4cm in length. Vegetables cut julienne are mostly used as garnish.

Mirepoix
Diced aromatic vegetables (usually carrots, onions, and celery) to make a flavour base for stocks and sauces.

Chiffonade
A technique for cutting herbs and green leaves into very thin strips or ribbons and is usually used for garnish.

Concasse
This is a rough chop or dice of vegetables and fruits, usually tomatoes for use in sauces and soups. The tomatoes are peeled and the seeds removed before chopping.

F. MEAT, POULTRY AND FISH CUTS

In Section 7 there is information about the different cuts you need to know about. Review the information.

Poultry

There are different ways to “trim” poultry meat. This means there are different ways to present the poultry meat. One popular way is to “French trim”.

Meat

For beef, lamb, pork or game meat, check the recipe for what cut of meat you will need and how many grams of it. Usually commercial kitchen have ready-cut meats purchased and delivered. Some kitchen have in in-house butchery.

Some points to remember when dealing with meat:

- Find out what your responsibilities (or S.O.P) are in regards to cuts of meat during pre-preparation / mise en place.
- Depending on the dish, red meat may have to be tenderized or marinated before mise en place. Check the recipe to see what tenderizing technique or marinade you are using and how long the marination should take.
- Factor this into your mise en place time.

Fish and Seafood

Fish will need to be cleaned and trimmed during the pre-preparation time, especially if you are using cuts from a whole fish rather than ready-cut fish. Seafood, such as squid and cuttlefish need to be de cleaned and trimmed but remember that seafood is a hazardous and delicate food so you can only prepare seafood just before cooking. Factor this into your time management.

Cleaning and Filleting Fish

1. What to remember when scaling and gutting fish:
- Use the correct knife. (Has the knife been sharpened?)
- Remove the scales and guts completely.
- Wash well but do not damage the fish.

2. What to remember when filleting fish:
- Use the correct knife. (Has the knife been sharpened?)
- Follow the method that you have been trained in.
- Skin on or skin off? If you are removing the skin you may need a thinner knife.
- Remove any small bones by hand BUT do not damage the fish.
- Practice with round and flat fish as often as possible to improve your skills.

Filleting a Fish

Cleaning squid and cuttlefish

Remove head, guts, arms and tentacles from the body. Grasp the animal with one hand and reach inside the body with your other hand, using your fingers to gently pull away the arms, tentacles, head and guts.

Wash the tube, which will be empty except for a mucous membrane and transparent “pen”. Pull the pen and membrane away under cold running water.

Pull the skin off the tube and fins. Do this under cold running water, using your fingers. Discard the skin.

Remove the ink sac. The narrow ink sac is attached to the head, and can be retained and used for sauces. If the sac is broken, the ink can be washed off with cold running water without affecting the quality of the squid or cuttlefish.

Cut the tentacles and arms from the head. These can be eaten, but the remains of the head which contain the guts and small hard beak are discarded. Depending on where the tentacles and arms are cut, the beak may need to be squeezed from the fleshy rim where the tentacles and arms were connected to the head.

Squid and cuttlefish flesh should be tenderized. This makes the flesh soft even after cooking. You can tenderize by gently pounding the flesh with a flat mallet, honey-combing by cutting a criss-cross pattern or marinating in a liquid such as milk.

(Criss-cross pattern)

Cleaning octopus

Octopus can be prepared using either of the method A or method B below. After preparation, tenderize.

Preparing octopus — Method A

This method allows the octopus to remain in one piece. Under running water:

a) Using a small knife, nick the membrane just inside the base of the head.
b) Turn the head inside out, through the opening at its base.
c) Pull away the guts and beak, while washing the inside of the head.
d) Turn the head back to the right way out.
e) Use your fingers to remove the skin of the head.

On a clean cutting board:

Cut away the skin of the head and the guts. These can be discarded although the ink sac is edible. The eyes can be cut out and discarded if not needed.

Octopus — Method B

This method is simple and quick.

a) Cut out the eyes by slicing either side. The eyes can be eaten, but are usually discarded.
b) Remove the hard beak in the centre of the arms.
c) Clean out the head by removing the guts, which are discarded, and the ink sac, which can be used for sauces.
d) Wash the head under cold running water.

Optional: using your fingers, peel the skin from the head and, if desired, from the arms.

The head can be kept whole and stuffed, or cut into rings. The arms, depending on size, can be left whole or cut into pieces.

> Tip:
>
> The skin can be loosened by blanching the octopus, making peeling easier. This should be done before cooking. If it is not done correctly the octopus can be very tough, especially if large.

G. MARINATING, SEASONING AND PORTIONING

Seasoning and Marinating
(See Section)

How to season adequately:	The process of adding salt, pepper, herbs, spices.	To enhance flavour	Seasoning usually happens during or after cooking.
How to marinate correctly:	The process of resting food in its seasonings between an hour and 24 hours.	To help tenderize or enhance flavour - this is done for meat.	Marinating is usually done before cooking.

Check the recipe to see if the meat or game or poultry needs seasoning or marinating. If it is required you must account for the time it will take to marinate or season the food item.

Seasoning

Marinating

Portioning:

(See Section 7)

This refers to the amount of food that you will need to make . First check the recipe you are using. What is the yield?
Will that yield be enough for the number of customers you will serve?
If not how will you adjust the ingredient amounts?
How long will adjusting take?
Have you prepared enough crockery and cutlery?

H. BLANCHING, BREADING, PARBOILING, etc

If you are making dishes that require two steps of production or cooking (which is sometimes required for meat, poultry, fish and some vegetables), the first step will be done during the mise en place (or sometimes even during the pre-preparation stage.).

The following are some of the basics you will need to know how to do.

	Meaning	**Why should I know this?**
How to simmer:	A gentle boiling which means the water or liquid never reaches 100°C.	Simmering in water is required for poaching. Simmering soup or stock or sauces is necessary when reducing (removing water content) in order to enhance or strengthen flavor.
How to BLANCH and REFRESH	Immerse in boiling water for a short time (check recipe). Then remove food and dip into ice bath (bowl of ice water), or run under cold water. This stops the cooking process.	This is a food preparation method and is very useful for keeping colours of vegetables and fruit, as well as seal flavors, and speed up food production cooking time. Blanching can also be used to re-heat certain vegetables (beans, carrots, leeks) Blanching can also help remove skins from tomatoes.

Blanching and Refreshing

	Meaning	Why should I know this?
Parboiling	This means to partially boil food in boiling until it is a little soft but not fully cooked. Unlike blanching there is no ice-bath stage in parboiling. You would parboil food to prepare them for another cooking method, such as roasting or frying.	Parboiling helps soften the food POTATOES to help produce a crispier outer texture. RICE is also parboiled before stir-frying or wok frying to ensure the rice is not hard.

Parboiling

“Pane L’anglaise” **(BREADING)**	This means the food has been passed through flour (seasoned), egg wash and bread crumbs.	This is a preparation method for frying or deep-frying.

Pane L’anglaise

	Meaning	Why should I know this?
"Milanese"	This means the food has been passed through flour (seasoned), beaten egg and parmesan.	This is a preparation method for frying or deep-frying.
Batter fry	This means the food has been dipped into a batter before frying. The batter is made from flour and water or milk (sometimes contains egg).	This is a preparation method for frying or deep-frying or making Japanese tempura.
How to sear:	This means to brown or cook marinated meat or poultry before it is braised or stewed.	Searing helps seal the flavor of the marinade inside the meat and poultry.

I. DEALING WITH PROCESSED OR PRE-PREPARED FOOD ITEMS.

In Section 7 there is information about processed and pre-prepared (convenience) food. Review the information.

TYPES of PROCESSED FOOD

Processed food refers to products that have been partially or completely cooked or processed by an outside manufacturer. Such food products include:

- frozen vegetables and fruits
- frozen meat and fish and seafood
- canned food
- cured meat (ham, sausages, bacon, etc.)
- frozen food like pizza, pastries, pies, tarts
- stock cubes
- frozen puff pastry

→

GUIDELINES FOR USE

When using processed food remember to:

Store correctly

Check shelf life

Check that there is no damage before using.

Defrost or thaw correctly

Read the manufacturer's instructions on how to store and use (and maybe cook) the product.

To cook or prepare at the right temperarture for the right amount of time, using the the correct methods.

Handle with care.

Some very basic guidelines for mise en place:

- One by one, wash, cut, dice, chop, mix, prepare, measure all of your ingredients and place them into appropriately sized dishes, bowls, and containers for easy grabbing.
- Pre-heat oven or grill, according to the recipe requirements.
- Arrange your ingredients and utensils around your cooking station for better/easy accessibility (this helps makes your workflow more efficient and this skill improves with practice and good knowledge of your workstation set up.)
- You can place all of your cold ingredients in lidded or covered containers that fit in a commercial refrigerator to easily grab from as you cook.
- Clean as you go: this means if there is an opportunity for you to clean (the cutting board, the knife, holding bowls, the surface, etc.) then do so. This will cut down time spent on cleaning after food production is over and help prevent cross-contamination.
- After food production is completed and your shift has ended, clean and sanitise your workstation.

Here is an example work plan for making Spaghetti Bolognaise:

Ingredients: (List all of your ingredients and the quantities that you will need.)	Processes (skills) (List the processes that you will use. These are the verbs, 'doing words'.)	Safety Rules (List 3 safety rules. they must be linked to your recipe. They should display your knowledge of the recipe.)
1 onion, chopped 1 clove garlic, crushed 250 gm mince beef 1 tablespoon oil 1 teaspoon dried mixed herbs 2 tomatoes, chopped 1 tablespoon tomato paste ½ cup water 200 gm spaghetti 1 litre boiling water ¼ teaspoon salt 4 tablespoons grated parmesan cheese	chop crush fry add simmer boil cook drain serve pour sprinkle	1. Turn saucepan handle to the side. This will prevent the pan being accidently knocked over. 2. Use knives carefully. Bend your fingers back to prevent cuts. 3. Use a wooden spoon to stir hot food in the frying pan. Wooden spoons do not conduct heat and will therefore protect you from burns.

EXAMPLE with time frame

Time	Steps	Equipment
Divide your times into 5 or 10 minute intervals.	List the steps that you will complete to make your recipe. Remember to include any processes from the ingredients list. (any preparations that must be done before you start)	List all of the equipment that you will use in this box. be sure to include the measuring equipment that you will use to collect your ingredients. (check the ingredients list)
1.35	Put on apron, wash hands, collect equipment and ingredients.	1 tablespoon, 1 teaspoon, measuring jug, 1/4 teaspoon, large saucepan, knife, chopping board, garlic crusher, frying pan, wooden spoon, sieve,
1.45	Put water on to boil. Dice onion, crush garlic. Chop tomatoes.	large saucepan knife, chopping board, garlic crusher
1.55	Fry onion and garlic until transparent. Add beef. Cook until browned.	frying pan, wooden spoon
2.05	Add herbs, tomatoes, tomato paste, water and pepper. Simmer for 20 minutes.	frying pan, wooden spoon
2.10	Add spaghetti to boiling water. Cook 15 minutes. Stack dishes, wipe bench, begin washing up.	saucepan
2.25	Drain spaghetti. Serve onto plates. Spoon sauce over spaghetti. Sprinkle with cheese. Serve.	sieve, saucepan plate
2.35	Eat. Complete washing up. Check bench.	

Resource Credits

SECTION 1 - Hygiene Standards	
How to wash hands diagram	Giacomo Baldon, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Allergic reaction 2	OpenStax College, CC BY 3.0 <https://creativecommons.org/licenses/by/3.0>, via Wikimedia Commons

SECTION 2 - Food Safety Standards	
Bread	Bread by Melvin Salas from the Noun Project
Soup bowl	soup bowl by Icongeek26 from the Noun Project
Cleaning product	cleaning products by Darri from the Noun Project
Peanut butter	Peanut Butter by Nhor from the Noun Project
Chicken	Chicken by priyanka from the Noun Project
Knife	Knife by arif fauzi hakim from the Noun Project
Cucumber	vegetables by Icongeek26 from the Noun Project
Vacuum packaging machine	Jwallingford1, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Freezer burn 1	“Freezer Burned Steak Frozen IMG_1025” by Steven Depolo is licensed under CC BY-NC 2.0
Freezer burn 2	Netpilots, CC BY 3.0 CH <https://creativecommons.org/licenses/by/3.0/ch/deed.en>, via Wikimedia Commons
Thermometer	Thermometer by Wawan Hermawan from the Noun Project
Whole chicken	Chicken by Clockwise from the Noun Project
Chicken leg	Chicken Leg by Vectorstall from the Noun Project
Sandwich	Sandwich by Pascal Heß from the Noun Project
Pork joint	pork by Chanut is Industries from the Noun Project
Burger	Burger by Adrien Coquet from the Noun Project
Fish	seafood by ProSymbols from the Noun Project
Roast beef	roast beef by Vectors Point from the Noun Project
Commercial kitchen	https://en.wikipedia.org/wiki/File:Kitchen_at_the_Universidad_de_Especialidades_Esp%C3%ADritu_Santo.jpg

SECTION 4 - Kitchen Organization Structure	
Toilets	Toilet by Ayub Irawan from the Noun Project
Towel	towel by Jo Santos from the Noun Project
Tap	tap by Dairy Free Design from the Noun Project
Watering can	watering by Ines Simoes from the Noun Project
Rain clouds	raincloud by Linseed Studio from the Noun Project
Man on toilet	Toilet by Laymik from the Noun Project
Alarm clock	Alarm Clock by vectlab from the Noun Project
TV	TV by Lars Meiertoberens from the Noun Project
Boiler unit	Boiler by ProSymbols from the Noun Project
AC unit	eco Air conditioner by Brand Mania from the Noun Project
On switch	switch by luca fruzza from the Noun Project
Solar panel	solar panel by Rockicon from the Noun Project
Light bulb	Light Bulb by Oksana Latysheva from the Noun Project
Compost bin	Compost Bin by Gemma Evans from the Noun Project
Recycle arrows	rotation by yudi from the Noun Project
Man putting litter in bin	Trash by Adrien Coquet from the Noun Project
Three leaves	three leaves by Sweet Farm from the Noun Project
Sewage plant	Factory by Tippawan Sookruay from the Noun Project
Septic tank	Septic tank by Gan Khoon Lay from the Noun Project
Gas to leaf	Eco Gas by Saeful Muslim from the Noun Project

SECTION 5 - Time Management	
Georges Auguste Escoffier	https://snl.no/Georges_Auguste_Escoffier
Kitchen layout	https://images.saymedia-content.com/.image/t_share/MTczODM3MzQzOTcwMDQzMDEz/blueprints-of-restaurant-kitchen-designs.gif

SECTION 6 - Introduction to Kitchen Utensils, Tools and Equipment	
Measuring jug 2	Stilfehler, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Measuring spoons	carol, CC BY-SA 3.0 <http://creativecommons.org/licenses/by-sa/3.0/>, via Wikimedia Commons
Measuring jug	othree, CC BY 2.0 <https://creativecommons.org/licenses/by/2.0>, via Wikimedia Commons
Measuring temperature	Ildar Sagdejev (Specious), CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Mandolin slicer	westwind, CC BY-SA 3.0 <http://creativecommons.org/licenses/by-sa/3.0/>, via Wikimedia Commons
Zester	Dvortygirl, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Egg slicer	Rainer Zenz, CC BY-SA 3.0 <http://creativecommons.org/licenses/by-sa/3.0/>, via Wikimedia Commons
Larding needle	Ellywa, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Trussing needle	Ll1324, CC0, via Wikimedia Commons
Piping bag	Scott Fillman, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Soup ladle	Piotr Miazga pmiazga, CC0, via Wikimedia Commons
Sauce ladle	Grenadille, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Sizzling plate	Ceeseven, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Large stock pot	www.cooksandkitchens.co.uk, CC BY 2.0 <https://creativecommons.org/licenses/by/2.0>, via Wikimedia Commons
Saucepan	www.cooksandkitchens.co.uk, CC BY 2.0 <https://creativecommons.org/licenses/by/2.0>, via Wikimedia Commons
Savouring mould	No machine-readable author provided. Dbenbenn assumed (based on copyright claims)., CC BY-SA 3.0 <http://creativecommons.org/licenses/by-sa/3.0/>, via Wikimedia Commons
Double boiler 1	Veganbaking.net from USA, CC BY-SA 2.0 <https://creativecommons.org/licenses/by-sa/2.0>, via Wikimedia Commons
Double boiler 2	https://commons.wikimedia.org/wiki/File:Bain-marie.jpg
Sous vide machine	Athikhun.suw, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Griddle	Cyungbluth, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Electric convection oven 1	Turaids, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons

Waffle grill	me, Per Erik Strandberg, CC BY-SA 2.5 <https://creativecommons.org/licenses/by-sa/2.5>, via Wikimedia Commons
Panini grill	Rivalinb2, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Bain-Marie: for hot holding	http://www.aerdt.de/ aerdt gif gastronomietechnik, CC BY 3.0 <https://creativecommons.org/licenses/by/3.0>, via Wikimedia Commons
Hand-held liquidizer / blender	Donovan Govan., CC BY-SA 3.0 <http://creativecommons.org/licenses/by-sa/3.0/>, via Wikimedia Commons
Food processors1	Donovan Govan., CC BY-SA 3.0 <http://creativecommons.org/licenses/by-sa/3.0/>, via Wikimedia Commons
Food processors2	Myself, CC BY-SA 3.0 <http://creativecommons.org/licenses/by-sa/3.0/>, via Wikimedia Commons
Batter mixer	Arge300exx at en.wikipedia, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Food slicer	Brett L., CC BY-SA 2.0 <https://creativecommons.org/licenses/by-sa/2.0>, via Wikimedia Commons
Fly machine	Mk2010, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Grapefruit knife	Coyau / Wikimedia Commons
Cheese knife	Thomas Kees (Powerbiker1), CC BY-SA 3.0 DE <https://creativecommons.org/licenses/by-sa/3.0/de/deed.en>, via Wikimedia Commons
Cooking pot	Cooking Pot by Dara Ullrich from the Noun Project

SECTION 7 - Food Knowledge and Practices	
Food pyramid	Stephreyn85, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Food pyramid	Pyramid by iconixar from the Noun Project
Flank steak	Bortz60, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Flatiron steak	https://en.wikipedia.org/wiki/File:Flatiron_steak.jpg
Porterhouse	© Alice Wiegand / CC-BY-SA 4.0 (via Wikimedia Commons), CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
T-Bone steak	MCB at English Wikipedia, CC BY-SA 2.5 <https://creativecommons.org/licenses/by-sa/2.5>, via Wikimedia Commons
Leg of lamb	Jan in Bergen, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
French-trimmed rack of lamb	Joe Mabel, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Lamb loin	Naotake Murayama from Los Altos, CA, USA, CC BY 2.0 <https://creativecommons.org/licenses/by/2.0>, via Wikimedia Commons

Pork shoulder	© Alice Wiegand
Pork belly	Rainer Zenz, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Pork rib	Enrico BBQness, CC BY 2.0 <https://creativecommons.org/licenses/by/2.0>, via Wikimedia Commons
Pork loin for roasting	ja:User:NEON / User:NEON_ja, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Appearance	Eye by Alice Design from the Noun Project
Aroma	nose by Nociconist from the Noun Project
Taste	tongue by Becris from the Noun Project
Le steak	Spanish4foodies, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Melon baller	© Alice Wiegand
Celery seeds	Howcheng, CC BY-SA 3.0 <http://creativecommons.org/licenses/by-sa/3.0/>, via Wikimedia Commons
Cumin	Sugeesh, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Mustard seeds	Dsaikia2015, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Matignon	Pigup, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Duxelle	https://commons.wikimedia.org/wiki/File:Duxelles.jpg
Asiago	Marco Cattaneo, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Emmentaler	Guy Waterval, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Gruyere	© Rolf Krahl / CC BY 4.0 (via Wikimedia Commons), CC BY 4.0 <https://creativecommons.org/licenses/by/4.0>, via Wikimedia Commons
Gouda	Pierre-Yves Beaudouin / Wikimedia Commons
Havarti	Anna Rydin, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Roquefort	Thesupermat, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Stilton	Coyau / Wikimedia Commons
Brie	Thesupermat, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Camembert	Coyau / Wikimedia Commons
Boursin	M.Minderhoud, CC BY-SA 3.0 <http://creativecommons.org/licenses/by-sa/3.0/>, via Wikimedia Commons

Mascarpone	Ramagliolo9 at Italian Wikipedia, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Egg diagram	de:Benutzer:Horst Frank, SVG code cs:User:-xfi-, text removed by User:Kjoonlee, CC BY-SA 3.0 <http://creativecommons.org/licenses/by-sa/3.0/>, via Wikimedia Commons
Egg salad sandwich	jill, jellidonut... whatever from Raleigh, NC, USA, CC BY 2.5 <https://creativecommons.org/licenses/by/2.5>, via Wikimedia Commons
Quinoa	Vi..Cult..., CC BY-SA 3.0 <http://creativecommons.org/licenses/by-sa/3.0/>, via Wikimedia Commons
Wheat grain	Wheat-kernel_nutrition.svg: Jkwchuiderivative work: Jon C, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Lasagne	MMFE, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Conchiglie	Popo le Chien, CC0, via Wikimedia Commons
Rotelle	MOs810, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Tortellini	scott feldstein from waukesha, United States, CC BY 2.0 <https://creativecommons.org/licenses/by/2.0>, via Wikimedia Commons
Kuay Taew	Takeaway, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Glass noodles	CC BY 4.0 <https://creativecommons.org/licenses/by/4.0>, via Wikimedia Commons
Banana bread	Ginny, CC BY-SA 2.0 <https://creativecommons.org/licenses/by-sa/2.0>, via Wikimedia Commons
Breadstick	Shisma, CC0, via Wikimedia Commons
Pita	Guillaume Paumier, CC BY 3.0 <https://creativecommons.org/licenses/by/3.0>, via Wikimedia Commons
Rye	Veganbaking.net from USA, CC BY-SA 2.0 <https://creativecommons.org/licenses/by-sa/2.0>, via Wikimedia Commons
Meat and fish	Food by mynamepong from the Noun Project
Milk and cheese	dairy by Sou from the Noun Project
Bread and cereal	Bread by parkjisun from the Noun Project
Fruit and veg	harvest by supalerk laipawat from the Noun Project
Water bottle	Bottled Water by Nikita Cherednikov from the Noun Project
Mouth	mouth by Mello from the Noun Project
Vegetable chopped	Robert Loescher, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Macadamia	sunnysun0804, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Egg icons	Egg by Vectors Point from the Noun Project

SECTION 8 - Cooking Methods	
Oven	Turaids, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Oven gloves	Lymantria, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Griddle	Cyungbluth, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Wok	Caureus, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Vacuum-packaging machine	Jwallingford1, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Sous-vide machine	Erikoinentunnus, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Microwave oven	Mk2010, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
Mullet meuniere	Krzysztof Golik, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons
Crème caramel	SajjadF, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons

SECTION 9 - Mise en Place procedures	
Marinating	https://commons.wikimedia.org/wiki/File:Lamb_marinated_in_Cabernet_Sauvignon.jpg
Refreshing	ilovebutter from Houston, TX, USA, CC BY 2.0 <https://creativecommons.org/licenses/by/2.0>, via Wikimedia Commons
Pane L'anglaise 1	https://commons.wikimedia.org/wiki/File:Chicken_marsala_05.jpg

Skills for Inclusive Growth