Competency Based Learning Materials (CBLM's)

Domestic Food Preservation

NSDA, Level 3

Asset Project

Barishal Mohila Technical Training Center (BMTTC)

Table of Contents

About this module

Overview

Learning Outcomes

At the end of the training you will be able to

- Observe OSH policies and procedures as per specification of food industry.
- Conduct work safely in the food industry.
- Identify, control and report OSH hazard in the food industry.
- Follow emergency procedures to prevent to a hazardous event in the food industry.

Performance criteria

1.1 Housekeeping standards are maintained in the workplace following OSH requirements.

1.2 Personal hygiene is maintained and PPE worn as per OSH requirements.

1.3 Equipment is cleaned for production and hygiene requirements.

2.1 Workplace procedures for controlling risks are followed when carrying out work tasks.

3.1 Immediate work area is routinely checked for safety hazards prior to starting and during work.

3.2 Hazards and unacceptable performance are identified.

3.3 Hazards and unacceptable performance are rectified or removed within the level of responsibility and in accordance with workplace procedures and OSH standards.

3.4 OSH hazards and incidents in the work area are reported to appropriate personnel according to workplace procedures.

4.1 Emergency situations are promptly identified.

4.2 Emergency situations are reported to appropriate personnel according to workplace reporting requirements.

4.3 Workplace procedures for dealing with accidents, fires and emergencies are followed whenever necessary within scope or responsibilities.

Content This learning package includes the following:

- Occupational safety and health
- Conduct work safety in the food industry.
- Identify, control and report OSH hazard in the food industry.
- Follow emergency procedures to prevent to a hazardous event in the food industry.

Pre-requisites To complete this learning module you will need to have completed module Follow quality and food safety programs (FODSS10006A) which covers:

- Apply OSH practices in the workplace
- Follow quality and food safety program

How to use this learning guide

This Learning Guide will lead you through a series of learning activities. These activities may be completed as part of structured classroom activities or you may be required you to work at your own pace. These activities will ask you to complete associated learning and practice activities in order to gain the knowledge and skills you need to achieve the learning outcomes as stated.

Refer to the **Learning Activity table on** pg 5 to know the sequence of learning tasks. This page will serve as your road map towards the achievement of competence.

Information . These will give you an understanding of the work you are learning about, and explain why things are done the way they are. Once you have finished reading the Information complete the questions in the **Self Check .**

Self-checks follow the Information in the learning guide. Completing the **Self-checks** will help you know how you are progressing. To know how you fared with the self checks, review the answer keys.

Complete all activities as directed in the **Job** (**and/ or Activity)**. This is where you will apply your new knowledge while developing new skills.

When working though this module always be aware of safety requirements (as highlighted in this material). Should you require some assistance and clarification consult your trainer or facilitator.

When you have completed all the tasks required in this learning guide, an assessment event will be scheduled to assess if you have achieved competency in the specified learning outcomes and are ready for the next task or module

A review of competency is provided on the last page to help remind if all the required assessment criteria have been met. This record is for your own information only and not an official record of competency.

Learning Activities

In order to achieve the objectives stated in this learning guide, you must perform the learning steps below. Beside each step are the resources or special instructions you will use to accomplish the corresponding activity.

Learning Steps	**Resources specific instructions**
1 Student will ask the instructor about the materials to be used.	1 Instructor will provide the learning materials in 1 to 4 from the UoC :FODSS10007A .
2 Read the **Information sheet/s**	Information sheet 1: Observe OSH policies and procedures as per specification of food industry. Information sheet 2: Conduct work safely in the food industry. Information sheet 3: Identify, control and report OSH hazard in the food industry. Information sheet 4: Follow emergency procedures to prevent to a hazardous event in the food industry.
3. Complete the **Self Checks & Check answer .**	3. Self Check1, Self Check2, Self Check3, Answer sheet 1, Answer sheet 2 and Answer sheet 3.
4. Read the **Job Task** and **Specification Sheet**	4. Job Task sheet and Specification sheet 1
5. Complete Activities (if applicable)	5. Activity
6. Perform the **Job Task**	6. Job Task and Specification.

Note: If you have multiple Information and Job repeat the above Learning Steps 2 to 6 for each job

Information Sheet 1: Observe OSH practices in Food Processing.

Introduction

Occupational Safety and Health or OSH as it is known Hygiene and Safety in the food processing industry

Hygiene

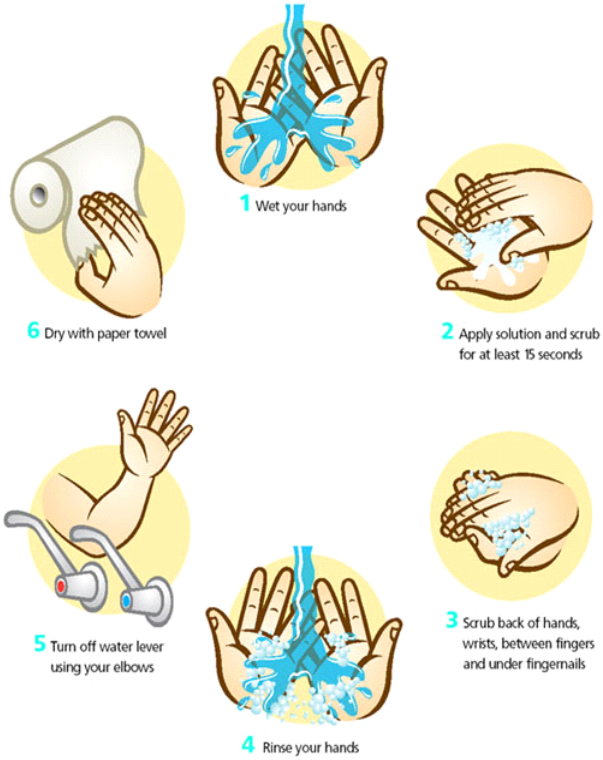
Hygiene is the procedure to maintain personal, environmental and other cleanliness. It is important in the food sector because we do not want to make people fall sick after consuming food.

What is personal hygiene?

Personal hygiene may be described as the principle of maintaining cleanliness and grooming of the external body persons suffering from ill health or who are not clean about themselves should not handle food.

Wash hand (personal hygiene)

Hand washing Procedure:



Cleansing materials suitable for use in hand washing

Liquid soap (e.g. Dettol liquid saop, Sevlon liquid soap)

Anti septic liquid (e.g. Savlon and Dettol)

Soap (e.g. Lifebuoy bar soap, Savlon bar soap)

Clean running water should be used to wash hands (e.g. clean tap water)

Hand sanitizer (Dettol)

Cleaning Agent (e.g. Liquid soap and Bar soap)

Food Safety Control Measures

All people entering food processing, storage, distribution and holding areas should have an appropriate degree of personal cleanliness and take appropriate precautions to prevent the contamination of food and food contact surfaces**.**

Hand Washing

- Before starting work
- After handling chemicals (e.g. Savlon, Fenyl, Aerosol)
- After handling raw/cooked and ready to eat food.
- Before coming back to work from every break.
- After coughing or sneezing or blowing their nose.
- After using toilet facilities.

Cleaning material

Cleaning apparatus

Self Check No 1: Observe OSH practices in Food Processing

Q1: Explain about hygiene in the food processing industry?

Q2**:** Explain what is personal hygiene?

Q3: Describe three clean habits a baker needs to develop.

Answer Sheet No 1: Observe OSH practices in Food Processing.

Q1: Explain about hygiene in the food processing industry?

Ans. Hygiene is the procedure to maintain personal, environmental and other cleanliness. It is important because we do not want to make people sick.

Q2**:** Explain what is personal hygiene?

Ans. Personal hygiene is something we all must attended to maintain cleanliness and prevent germs from getting onto food. It is the process of keeping ourselves clean and tidy in a way of preventing the transfer of diseases or infections.

Q3: Describe three clean habits a baker needs to develop.

Ans.The practice of clean habits in kitchen is the only way to achieve satisfactory standards of hygiene. These habits are as follows:

- Hands must be washed frequently and always after using toilet.
- .Hair must be kept clean and covered in kitchen; it should not be combed or handled near the kitchen.
- Jewellery rings, and watches should not be worn.

I**nformation Sheet-2 Conduct work safety**

Workplace consultation

Efforts to achieve a safe and healthier workplace are more successful when

Employers and employees work together, consult on safety problems, and

Cooperatively find solutions.

In your workplace it is likely that you will find people or groups of people with specific

roles relating to workplace health and safety. Not all workplaces will have every

type of person, but some of the most common safety groups you will find are:

- Health and safety representatives
- Supervisors
- Safety officers
- Health and safety committees.

Health and safety representatives

Health and safety representatives are an important link between employees and Employers. They are elected by co-workers to act on their behalf, telling Employers about safety and health concerns and cooperating with employers to Implement and maintain workplace health and safety.

OHS laws

In an effort to make workplaces healthier and safer, government has written Occupational health and safety (OHS) laws which must be followed. Each of the States and Territories has made their own health and safety laws called an OHS Act, but much like road rules they are similar to each other, and have a lot in common. Under the OHS Act, almost everyone at the workplace has legal responsibilities for occupational health and safety. These responsibilities are known as a duty of

care. Just like road rules, failing to meet a duty of care is against the law, and can result in prosecution. Fines from being prosecuted can be very substantial.

Employers' duty of care

Employers have responsibilities to:

• provide a safe environment to work in, eg safe equipment and materials, safe ways to work

• provide information, instruction, training and supervision to employees as needed to ensure they can work as safely as possible

• identify unsafe situations before problems arise, and take corrective action to make them as safe as possible

• take action to investigate any accidents, and to prevent them from happening again.

• ensure that the work done does not cause harm to anybody at or involved

with the workplace

• consult and cooperate with employees, and their representatives on Occupational health and safety matters.

Employees' duty of care

Employees, including volunteer workers, have responsibilities to:

• Obey all reasonable safety instructions

• Take reasonable care of their own health and safety, and for the safety of

Others in the workplace

• Report any dangerous situation

• Work with the employer to improve safety at the workplace.

Your duty of care

In some OHS Acts volunteers are treated as employees, so you will have a legal responsibility. In any case, as a volunteer you should aim to have the same safety responsibilities as an employee. You are still working like an employee, so it makes sense you would do the same as a paid employee for OHS.

Supervisors

Supervisors need to make sure that the people they are looking after are given the safety instructions they need, and are able to perform their job safely.

Safety officers

These are trained people who are hired by the employer to help with the Management of health and safety at the workplace. Some of the tasks safety

officers may do are:

• Organize OHS training

• Investigate accidents

- Provide first aid
- Undertake risk assessments at the workplace.

Health and safety committees

Health and Safety Committees can assist with health and safety planning, and in the development of safety plans, procedures and documentation. This group brings together workers, managers and representatives of other important groups to help improve safety at the workplace. The group can also serve as a forum for discussion, and can recommend solutions to more complex OHS problems.

Safety committees can be formed at the request of the employees at the workplace, or an employer can organize to help form one.

Health and safety inspectors

Each State or Territory uses the OHS Act to appoint inspectors to make sure OHS laws are followed. Inspectors are a little like police officers who deal with workplaces. They have a wide range of powers to help them do their job, including the ability to enter workplaces, interview people, and investigate workplace accidents.

Improving safety. They can provide an independent opinion that can be very useful if people in the workplace cannot Inspectors are a good source of advice and are able to help workplaces inagree on a safety issue.

If needed, an inspector can also enforce the OHS Act by instructing that a safety problem is fixed, or ordering a stop to activities that might cause serious harm.

Your OHS rights

If you have concerns about your health and safety, you should talk to your supervisor, health and safety representative or a similar person at the workplace. The person you speak to should then discuss the matter with the employer, who is responsible for taking action. Together you should agree on ways to resolve the problem, if there is a Health and Safety Committee at the workplace they may also be able to helpIn the meantime if you are in immediate danger you should be given alternativework so you are not put at risk.If you raise an OHS concern at a workplace you should be treated fairly, and yourconcerns should be investigated.

If an issue remains unresolved it may be that an inspector could be asked to

provide assistance.

OHS Instructions

OHS instructions are general safety rules that cannot be described as a policy or procedure. OHS instructions might be for:

- taking regular breaks
- wearing protective equipment
- using equipment and machinery correctly• lifting techniques
- taking part in regular emergency drills.

Rules for safety handling of food

Rule	Outcome if rule disobeyed
Always wash your hands before handling food.	May cause cross contamination and food poisoning.
Use separate chopping boards when preparing foods that could get cross contaminated.	May cause cross contamination and food poisoning.
Store food at the correct temperature.	Food could 'go off' and not be suitable for human consumption.
Check the sell by date on any food you are using.	Food could 'go off' and this could cause food poisoning.
Store raw meat away from the cooked meat on the bottom shelf of the fridge.	Juices may drip and cause cross contamination.
Throw out old and out of date equipment.	May contain hidden bacteria to contaminate food and cause food poisoning.
Wash tea towels and dish cloths regularly.	May transfer bacteria onto clean appliances.
Wash your hands after touching high risk foods such as eggs and meat.	You could cross contaminate food and cause food poisoning.

Self Check No: 2 Conduct work safety

Q1. Describe the role of a health and safety inspector?

Q2. Write down the 5(five) rule for safety handling of food.

Q3. What are the OHS instructions?

Answer Key No: 2 Conduct work safety

Q1: Q1: Describe the role of a health and safety inspector?

Ans: Each State or Territory uses the OHS Act to appoint inspectors to make sure OHS laws are followed. Inspectors are a little like police officers who deal with workplaces. They have a wide range of powers to help them do their job, including the ability to enter workplaces, interview people, and investigate workplace accidents.

Q2.Write down the 5(five) rule for safety handling of food .

Ans: **Rules for safety handling of food**

Rule	**Outcome if rule disobeyed**
Always wash your hands before handling food.	May cause cross contamination and food poisoning.
Use separate chopping boards when preparing foods that could get cross contaminated.	May cause cross contamination and food poisoning.
Store food at the correct temperature.	Food could 'go off' and not be suitable for human consumption.
Check the sell by date on any food you are using.	Food could 'go off' and this could cause food poisoning.
Store raw meat away from the cooked meat on the bottom shelf of the fridge.	Juices may drip and cause cross contamination.

Q3.What are the OHS instructions?

.Ans:OHS instructions might be for:

- taking regular breaks
- wearing protective equipment
- using equipment and machinery correctly• lifting techniques
- taking part in regular emergency drills.

Information Sheet 3. Identify, control and report OSH hazards

Introduction

Occupational safety, health and Environment is a very growing concern for its importance and necessity in workplace or industries. The subject is composed of very basic needs of working people, while engaged at the work place. "Work place is dangerous. It always will be as long as human beings have to operate the processes of production. Again production will constitute hazards."

Hazard

Hazard is a very Familiar word, commonly used to mean risk, accident, fear etc. In industrial situation, hazard is any undesirable situation or system that exists, can cause inconvenience, which may end-up with fire, explosion, toxic release etc. Hazard in severe play can cause death, property damage, environmental impact or inconvenience in production operation. Food hazards may be biological, chemical or physical:

Biological Hazards:

Micro-organisms and their metabolic products are the cause of biological hazard. *Examples:*

(i) Some micro- organisms found generally in the waste water drains, if consumes sulphur content material (such as grease, oils etc.) release hydrogen Sulphide gas as a metabolic product from their body. Hydrogen Sulphide of certain dose is seriously toxic, may cause death. Bacteria and mite those live in dust is the prime causes of respiration trouble are also a type of biological hazard.

(ii) Hazards those spreads from animals or animal products (hides, wool, hair etc) are also of biological category. Bacteria, viruses, fungi or parasites, may be transmitted via, contact with infected animals, persons or contaminated body fluids. *Examples are:* Anthrax (Bacteria), Tuberculosis (Mycobacterium), HIV, Hepatitis B (Virus), Aspergillus's (Fungi), Byssinosis (Endotoxin), Bird flue (virus), Mad cow, Swine flue etc.

Chemical Hazards:

- Chemicals intentionally used in food processing (for example, food additives (Baking powder, Bread improver, vinegar, citric acid etc.) Sulphites, machine lubricants, ex- mobil, grease and machine oil

- Industrial Chemicals (For example – cleaning agents, oils, gasoline, lubricants, ammonia.

- Naturally occurring toxicants (for example, products of plant, animal)

- Agricultural chemicals (for example pesticides, antibiotics and fungicides etc.)

- Food allergies: for example peanut, tree nuts, sesame seeds, milk, egg, fish, shelfish, soy wheat and sulphites.

- Chemical hazards may occur naturally or may be introduced during any stage of food processing.

Physical hazards:

- Physical hazards include glass, plastic, metal, wood, stone, bone, dust and insect parts.
- Physical hazards can be introduced anywhere along the food processing line from equipment or employees or can be inherent in the raw materials.

Beside these three main hazards, there are few more hazards which also affect food production:

Psychosocial Hazards

Psychosocial hazards are those resulting from working relationship Or situational factors that create psychological/ mental pressure in the employee. *Examples are*: hazard out of mental stress, Monotony of work, Fatigue, Brain fag and Irritation.

Human factor failure Hazards.

Human factors failure hazards are those outcome from human faults & lagging. *Example are:* Unsafe work practice, Ergonomic factors (forceful movement, position of person in relation to the work, lifting & carrying of excessive weight, improper use of hands, legs and feet), lack of communication and co-ordination, poor training, improper manning, accident proneness, negligence of management etc.

How to determine and apply control measures for reduce food safety hazards:

- **For biological hazards**, control measures may include an appropriate time/temperature, cooking step and other post processing treatment to destroy microbiological organisms.

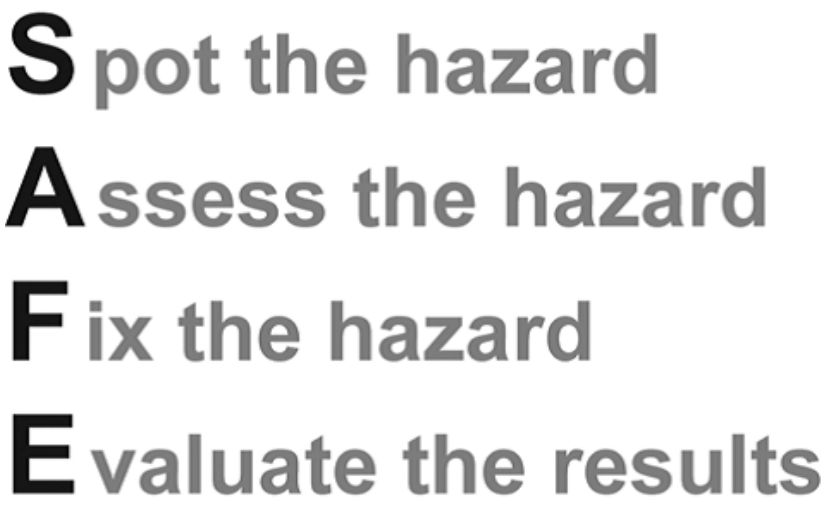
- **For chemical hazards**, such as allergies, control measures may involve implementing an allergen prevention plan.

- **For physical hazards**, control measures may include suitable detection or screening devices.

Hazard management

One of the most important safety duties required by OHS law is to keep the

workplace as safe as possible. A good way to do this is to use the four-step Hazard Management process. The process is represented by the following diagram:



Hazard identification and control

Hazard may be identified into four- severity rating considering their adverse consequences:

- **Catastrophic hazards** which results death, widespread or severe occupational illness or loss of an entire production operation/process.

- **Critical hazards which** may result in death but additionally, include situations that may produce serious injuries such as the loss of an eye or a limb, illness requiring medical treatment or extensive property damage.

- **Marginal hazards may** cause minor injury such as cuts and contusions, illness such as headache, nausea or mild eye, skin or respiratory tract irritation or slight damage to equipment or property.

- **Negligible hazards** are those which will not result in serious injury or illness and will cause little or no damage to property or equipment.

Probability of Hazard Occurrence:

The Probability or likelihood that a hazard will result in an adverse consequence may be classified as:

- Frequent - likely to occur virtually every time
- Probable - likely to occur most of the time
- Occasional - likely to occur sometimes
- Remote - very unlikely chance of occurring
- Improbable – no chance of occurrence

Spot the hazard

Identify the hazard in each picture, and identify what harm the hazard might

Cause, if it is not fixed.

Hazard control

Hazard control is a continuous process in industries. This start with the design phase, continue during the operation and ends with the dismantling/ close down of the industry. Here, we will discuss a very basic and primary concept of hazard control. Now a days, different specialized concept is developed and is used according to the merit of requirement. But following procedures as described below are the basis of all concepts.

Steps for Hazard control are

- Hazard identification
- Hazard inventory
- Hazard ranking
- Assessing probability of occurrence
- Hazard rank assessment
- Hazard elimination/reduction/control.

Hazard control measures

Here are some examples of hazard control measures in a workplace (examples could be for noise, chemicals, electricity, machinery or odours).

Level 3:

PPE

Rehana prints a lot of newsletters, which involves setting up the

photocopier and leaving it run. Rehana notices that when the

machine has been working for a while she gets a headache from

the solvents. She arranges to move the photocopier to a separate

room so she is away from it.

Level 2:

Substitution

Kamal works in a kitchen. He notices that new people who use the meat slicer are hurting themselves. Kamal makes a sign which states that only trained people can use the meat slicer.

Level 1:

Elimination

Selina a volunteer gardener thinks her brush cutter is a bit too loud. Selina talks to her supervisor, and is given hearing protection to wear as a temporary measure until the problem can be assessed properly.

Level 3:

Administrative controls

Nadim trips over an electric cord to an old wall-mounted fan. An assessment reveals the fan is broken, and has not been used since the air conditioning was put in two years ago. Nadim removes the fan and its cord.

Level 2:

Engineering controls

Masud, a volunteer at a community library notices that the glue he is using is labelled "very toxic", and has a health warning on it. Masud arranges to use glue that is not as dangerous.

Safety signs

Safety sings: As you go about your work on a construction site you will see a variety of sings and notices. Some of these will be familiar to you –a ` no smoking' sign for example; others you may not have seen before. It is up to you to learn with they mean-and to take notice of them. They warn of the possible danger, and must not be ignored.

Safety sings fall into four separate categories. These can be recognised by their shape and colour. Sometimes they may be just a symbol; other signs may include letters or figures and provide extra information such as the clearance height of an obstacle or the safe working load of a crane.

Prohibition signs

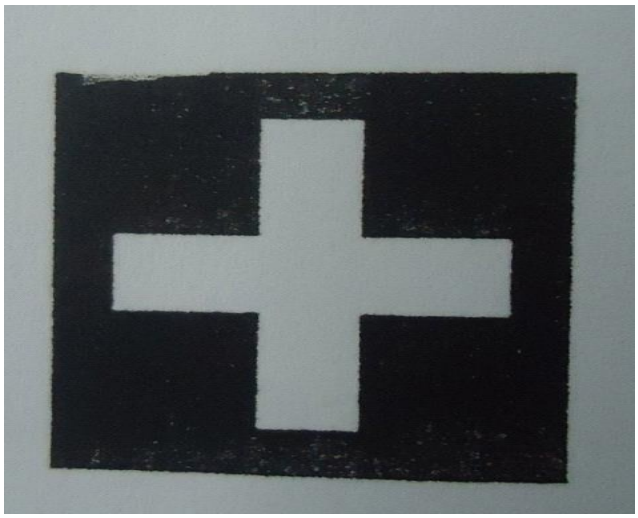
Shape and colour: Circular. Red border and cross bar. Black symbol on white background. Meaning: It must not be done. Example: No smoking.

More Prohibition signs

Warning signs

Shape and colour: Triangular. Yellow background with black border and symbol. Meaning : Warns of hazard or danger. Example: Caution, risk of electric shock.

Information signs



Shape and colour: Square or oblong. with symbols on green background.

Meaning: Indicates or gives information of safety provision. Example: First aid point.

Self check 3: Identify, control and report OSH hazards

Q.1.What is Hazard?

Q.2. How many kinds of Hazard?

Q.3. In a pastry kitchen how many times you have to wash your hands for food safety?

Q4: How many Steps are in Hazard control?

Answer Sheet No 3: Identify, control and report OSH hazards

Q.1.What is Hazard?

Ans.1:. A hazard is anything that may cause injury or illness if not controlled, reduced or prevented.

Q.2. How many kinds of Hazard?

Ans.. Food hazards may be biological, chemical or physical.

Q.3. In a pastry kitchen how many times you have to wash your hands for food safety?

Ans.. We should wash our hands:-

a. Before starting work

- After handling chemicals (sevlon fenyal aerosol)
- After handling raw/cooked and ready to eat food.
- After breaks
- After coughing or sneezing or blowing their nose
- After using toilet facilities.

Q4: How many Steps are in Hazard control?

Ans: Steps for Hazard control are

- Hazard identification
- Hazard inventory
- Hazard ranking
- Assessing probability of occurrence
- Hazard rank assessment
- Hazard elimination/reduction/control.

Specification Sheet no 1. Observe OSH practices and housekeeping standards.

List of Cleansing Materials:

- Liquid hand washing
- vim bar,
- water (hot and cold)
- liquid dish washing
- sevlon
- vim powder
- Dettol disinfected lotion
- Soap
- Equipment and hand sanitizer

List of Equipment:

- Mixing Machine
- Hook,Whisk,Paddle
- Mixing Bowl
- Dough Sheeter
- Rolling Pin
- Table Scrapper
- Dough Scrapper
- Refrigerator
- Deepfreeze
- Electric/Gas Oven
- Working table

PPE (Personal Protective Clothing):

- Chef Coat
- Apron
- Hairnet
- Neckerchief
- Cloth Duster
- Hand Gloves

Job 1: Observe OSH practices and housekeeping standards.

1**.** Wear clean personal protective clothing.

2. Wash hands with Liquid hand wash and water. Dry with paper napkin.

3. Set equipment and tools safety for handle for making bakery product.

4. Clean equipment with water, liquid dish washing and equipment sanitizer according to specification sheet.

5. Clean Production area using cleansing materials according to specification sheet before and after work.

Information no 4: Follow emergency procedures to respond to a hazardous event

Assess the hazard

- After a hazard has been identified, an assessment should be done to determine the risk it presents. Risk is an estimate of the chance of an injury/illness happening in a hazardous situation.

- Rating a risk will help you decide what hazards are more dangerous and should be corrected first. It can also tell you if action you have taken to correct a safety problem has been effective.

- A simple way of rating a risk from a hazard is to consider two questions:

    - How likely is the hazard could cause an injury or illness? (likelihood)

    - How serious would the consequences be if an accident or illness occurred?

- People often do risk assessments without even realizing it. For example two pedestrians deciding to cross a street is an example of a risk assessment.

Risk assessment

The use of a risk table will help provide a better rating of the risks posed by hazards. A risk table uses the two likelihood/consequence questions, but considers four different answers to each question to create a rating from 1 (highest risk) to 6 (lowest risk). Below is an example of using a risk table to rate the risk.

Example of risk assessment

Scenario - Experienced volunteer fire brigade fighting a large out of control bushfire in remote area which is difficult to access

Action 1: Rate the Likelihood - How likely is it to hurt someone? (tick answer)

- Very likely (could happen any time)
- Likely (could happen sometime)
- Unlikely (could happen, but very rarely)
- Very unlikely (could happen, but probably never will)

Reasons supporting decision - Fire is 'out of control', and area is difficult to access so they may not be able to get out. Crew is experienced which would make a difference.

Action 2: Rate the Consequence - How severely could it hurt someone? (Tick answer)

- Kill or cause permanent disability or ill health
- Long term illness or serious injury
- Medical attention and several days off work
- First aid needed

Reasons supporting decision - If anyone is injured it is likely to be very serious. More than one person may get injured

Action 3: Rating the risk - Rating is 2 (see table below)

Likelihood – How likely is it to hurt someone?	Consequence - How severely could it hurt someone?				
		Kill or cause permanent disability or ill health	Long term illness or serious injury	Medical attention and several days off work	First aid needed
	Very likely (could happen any time)	1	1	2	3
	Likely (could happen sometime)	1	2	3	4
	Unlikely (could happen, but very rarely)	2	3	4	5
	Very unlikely (could happen, but probably never will)	3	4	5	6

The risk assessment chart has been adapted from Hazpak from Workcover NSW.

Fix the hazard

Where a risk to health and safety has been identified, controls must be introduced to eliminate or reduce it. There are a number of ways to control risks. Some are better than others.

Level 3 - 'Back up controls'

Risk is controlled by taking action on the people exposed to the hazard.

- Administrative controls - altering how people work, e.g. safety signs, safe working procedures, checklists.

- PPE - wearing protective safety equipment, e.g. earplugs, hardhats, safety boots, high visibility jackets.

Level 3 controls should only be used if Level 1 or Level 2 cannot be achieved, as they do not work as well.

Level 3 controls work well with Level 2 controls at the same time, e.g. using a less dangerous cleaning chemical and supplying gloves and training a person to use the chemical in a safer way.

Level 2 - Minimize the risk

Risk is controlled by taking action on the hazard.

- Substitute - replace the hazard with a safer similar option, e.g. changing a poisonous cleaning chemical to a less harmful one.

- Engineer - altering how the work takes place, e.g. putting a photocopier away from the work area in a separate room, putting a guard on a guillotine.

Level 1 - Eliminate the risk

Risk is controlled by complete removal of the hazard.

Best

Learning activity - Hazard control measures

Level 3: PPE Level 2: Substitution		Rehana prints a lot of newsletters, which involves setting up the photocopier and leaving it run. Rehana notices that when the machine has been working for a while she gets a headache from the solvents. She arranges to move the photocopier to a separate room so she is away from it. Kamal works in a kitchen. He notices that new people who use the meat slicer are hurting themselves. Kamal makes a sign which states that only trained people can use the meat slicer.
Level 1: Elimination Level 3: Administrative Controls		Selina a volunteer gardener thinks her brush cutter is a bit too loud. Selina talks to her supervisor, and is given hearing protection to wear as a temporary measure until the problem can be assessed properly. Nadim trips over an electric cord to an old wall-mounted fan. An assessment reveals the fan is broken, and has not been used since the air conditioning was put in two years ago. Nadim removes the fan and its cord.
Level 2: Engineering controls		Masud, a volunteer at a community library notices that the glue he is using is labeled 'very toxic', and has a health warning on it.Masud arranges to use glue that is not as dangerous.

Step 4: Evaluate the results

Deciding on and implementing hazard control measures is not the end of the process. Once the appropriate fix has been chosen, it is important to check the control is working, and has not created any new problems.

For example using safety glasses in a steamy/foggy environment might assist in protecting a person's eyes, but the safety glasses will soon fog up and another hazard will be created because the person cannot see.

It is also important to recheck a hazard occasionally, because after a while a chosen control measure may be less effective or there may be a better way to control the hazard that could not be managed before.

Hazards in the workplace

Some workplace hazards are more common than others, so it's important to know a little more about them. In your volunteer role, hazards you might need to be aware of include:

- Noise
- Manual handling
- Hazardous substances
- Machinery and equipment
- Electricity
- Biological hazards.

If you need more information on a hazard to help you work safely, have a safety concern, or just want to learn more about a particular hazard you should raise the issue in your own work area.

Noise

Excessive noise destroys delicate nerve cells in the inner ear that transmit sound messages to the brain resulting in permanent hearing loss. Some early warning signs of hearing loss include:

- ringing in the ears after a noisy activity
- Difficulty in understanding what people say
- failing to hear noises like the telephone ringing or the doorbell
- having to turn up the television or radio when others seem to hear it
- Things sounding different after noise exposure.

The best way to tell if a noise is harmful is for a trained person to measure it. However as a general rule if you need to raise your voice to make yourself heard a meter away, your hearing is at risk.

Where noise is a problem every effort should be made to quieten the source of the noise, by removing it or changing the design. If this cannot be done then efforts should be made to try to prevent the noise from reaching people. This might include moving the source of the noise away from people or putting up a barrier between them.

Swapping people between noisy and quiet jobs may also help, although this is not a good option. Hearing protection can also be used, but this should only be a temporary measure or as a last resort.

Learning activity - Noise

Complete the noise mini-quiz by ticking the correct answers to the statements below. Your coach may ask you to explain how you decided on an answer.

1. The best way to tell if a noise is harmful is to have a trained person measure it.

   - True
   - False

2. Hearing protection is a good way to protect people from noise.

   - True
   - False

3. If you hear ringing in your ears after doing a noisy job there is no need to tell anyone because it will go away after a while.

   - True
   - False

4. Excessive noise can cause permanent hearing loss.

   - True
   - False

5. Really loud noises are something that people should put up with, as it's all part of being a worker.

   - True
   - False

Manual handling

Manual handling is any activity that involves lifting, lowering, pushing, pulling, carrying, moving, holding or restraining an object, animal or person.Unsafe manual handling activities can cause injuries that include:

- strain and sprains
- neck and back injuries
- slips, trips, falls and crush incidents
- cuts, bruises and broken bones
- occupational overuse syndrome (OOS), also known as RSI (repetitive strain injury).

Some examples of actions that may cause manual handling injuries are:

- work involving sudden, jerky or hard to control movements
- too much bending, reaching or twisting
- work where a long time is spent holding the same position or posture
- work that is fast and repetitious
- heavy weights which have to be lifted and carried manually
- work where force is needed to carry out a task.

Where manual handling is a problem the best way to reduce the risk of injury is to remove the activity altogether. If this cannot be done efforts should be made to redesign the task or work area to make it safer. This might include using lifting aids, packing products in smaller cartons, taking adequate breaks, using height adjustable equipment and team lifting.

Training staff in proper lifting techniques, and making changes to the work environment such as improving lighting, controlling temperature and keeping areas free of clutter can

Also be useful.

Examples of manual handling activities

Examples of manual handling activities

Learning activity - Manual handling

Complete the manual handling mini-quiz by ticking the correct answers to the statements below. Your coach may ask you to explain how you decided on an answer.

1. Working at a computer desk is not an example of a manual handling activity.

- True
- False

2. Fast repetitive work will not cause manual handling injuries.

- True
- False

3. Unsafe manual handling activities can cause strains and sprains.

- True
- False

4. Keeping areas free from clutter can help avoid manual handling injuries.

- True
- False

5. Taking regular breaks can help reduce the risk of some manual handling injuries.

- True
- False

Hazardous substances

Many chemicals used in the workplace can be dangerous to your health. These are called hazardous substances. A workplace may use many different hazardous substances. Some may be familiar to you, and might even be everyday chemicals such as glue, cleaning liquids and powders.

How dangerous a hazardous substance is depends on the type of substance it is, how it enters the body, and the amount of substance that enters. Hazardous substances enter the body in three main ways:

- breathing in
- swallowing (eg eating or smoking with contaminated hands)
- skin contact.

The effects of exposure to hazardous substance can occur suddenly eg dizziness, nausea, itchy eyes and burns. Harm can also happen over a number of years such as dermatitis or cancer. There are two basic sources for identifying the risks from a hazardous substance:

- reading the label
- reading the Material Data Safety Sheet (MSDS).

The MSDS is a safety information sheet that tells you how a hazardous substance may be a danger to your health. It also describes how to use the chemical safely and what to do in the case of an emergency. An MSDS should be available at the workplace for every hazardous substance.

The use of hazardous substances should be eliminated wherever possible. If this cannot be done then the chemical should be substituted for something that is less harmful. If this cannot be done efforts should be made to isolate the work area, and introduce engineering controls like fans and booths to limit exposure to people.The use of personal protective equipment such as gloves, coats, masks, and safety glasses may be used as back up controls.

Some chemicals you find in the workplace may not be hazardous substances, but if they are used incorrectly may cause you harm. You should only use chemicals if you are sure you know how to use them safely.

Learning activity - Hazardous substances

Complete this hazardous substances mini-quiz by ticking the correct answers to the statements below.

1. It is all right to eat your lunch in the area where you use hazardous substances.

- True
- False

2. Reading the label and the MSDS can help you tell how a hazardous substance may cause you harm.

- True
- False

3. If a hazardous substance does not affect you straight away it's OK to use.

- True
- False

4. Its alright to use a chemical that is not labelled as long as you make a good guess about what it is.

- True
- False

5. Before using any chemical you should know how to do so safely.

- True
- False

Mechanical equipment

Mechanical equipment can cause serious injuries that include sprains and strains, open wounds, fractures and amputations. Some injuries can even be fatal. The most frequent injuries from mechanical equipment are to hands and fingers. Eye injuries are also common. You should not use mechanical equipment if it is:

- not designed to be safe
- not well made
- not properly guarded
- not well maintained
- going to be used to do something other than what it was designed for
- going to be used in different conditions
- has been illegally modified or changed.

Before operating mechanical equipment you need to be trained in its safe use. Mechanical equipment should not be used in circumstances where you are unable to pay attention to the task. Three important procedures used for mechanical equipment are:

• Yellow and black Out of Service tags are used to prevent accidents or damage to machinery that is out of service for repairs, for example a drill that has an electrical fault.

• Red and black Danger tags are used to warn workers about hazards associated with equipment and machinery maintenance.

● Locking out of equipment – this procedure prevents the equipment from being operated during maintenance by putting a lock on the switch so it cannot be turned on. The person working on the machine should hold the only key to the lock.

Learning activity - Mechanical equipment

Complete the mini-quiz of mechanical equipment by ticking the correct answers to the statements below.

1. It is alright to use mechanical equipment if the guard has been removed for cleaning because it will not be off for very long.

- True
- False

2. Using unsafe mechanical equipment can kill you.

- True
- False

3. You should be trained how to use equipment before operating it.

- True
- False

4. An 'Out of Service' tag means it's alright to use the equipment but not very often, and you need to be extra careful.

- True
- False

5. If you are experienced in using a piece of mechanical equipment, you do not need to pay as much attention as someone who is new to using it.

- True
- False

Electricity

Electric shock occurs when a person becomes part of an electrical circuit and the current flows through their body. A fatal shock is called an electrocution. Electrical accidents are usually caused by a combination of factors, which include:

- hazardous work environment
- lack of training
- lack of supervision
- poorly maintained equipment.

A common cause of electrocution is contact with overhead electrical wires when operating equipment with height extension such as cranes. Performing maintenance on live electrical circuits, or equipment becoming 'live' due to electrical faults are also frequent causes of electric shock. When working with electricity you should observe the following precautions.

- Appliances and leads should be in safe working order, and regularly inspected.
- Broken or damaged electrical equipment should be removed from service and repaired/replaced.
- Appliances should always be switched off at the power point before pulling out the plug.
- Read the instruction booklet and follow all instructions when using electrical equipment.
- Keep electrical equipment away from wet areas, only cordless tools should be used in damp or wet conditions.

- The location of cables (overhead, underground, under floor and in walls) should be known before digging or drilling.

- Metal ladders should not be used for electrical work.

- Only licensed electrical workers should perform electrical work.

- A Residual Current Device (RCD) should be used with portable electrical equipment.

- Circuits and fuses should not be overloaded by using too many appliances from the one power point, power boards with individual switches should be used instead of double adaptors.

Learning activity – Electricity

Complete the electricity mini-quiz by ticking the correct answers to the statements below.

1. A fatal shock is called an electrocution.

- True
- False

2. It is alright to work on electrical equipment if you are not a licensed electrician.

- True
- False

3. You can use metal ladders when doing electrical work.

- True
- False

4. Electrical equipment should be kept away from wet areas.

- True
- False

5. You should turn off a power point before pulling out the plug.

- True
- False

Biological hazards

A biological hazard is any agent that causes infection including bacteria, viruses, fungi and parasites. Some of the ways infections can spread are by:

- airborne droplets
- throat and nose fluids
- faucal-oral contact
- skin contact
- blood/body fluids.

The way a biological hazard spreads depends on what the agent is. Some agents may only be transmitted by blood/body fluids, while others are much more infective and can be transmitted by a lot of different ways. Not all workplaces will have the same risk from biological hazards. Most workplaces will have no greater risk than the general community. In these workplaces you should follow day-to-day hygiene controls such as:

- making sure that you wipe food benches with a clean cloth
- not sharing protective equipment such as earmuffs, gloves or masks
- using good personal hygiene practices such as hand washing.

If you are in a workplace where you are more likely to come in contact with a biological hazard, you should take extra precautions. Some of these precautions may include:

- using appropriate protective equipment including gloves, aprons, gowns,
- overalls, masks/face shields and eye protection
- handling and disposing of sharp instruments and syringes appropriately
- using cleaning procedures for areas that may be contaminated.

Some occupations at a greater risk from biological hazards include health workers, paramedical personnel, child care workers, cleaners and laundry workers.

Learning activity - Biological hazards

Complete the biological hazards mini-quiz by ticking the correct answers to the statements below. Your coach may ask you to explain how you decided on an answer.

1. A virus is a biological agent.

- True
- False

2. A good hygiene practice is to wash your hands.

- True
- False

3. You can share personal protective equipment like earmuffs gloves and masks.

- True
- False

4. Biological agents can spread in different ways, and they don't all spread in the same way.

- True
- False

5. It is alright to dispose of syringes without taking any special safety precaution.

- True
- False

Hazards in your workplace

In your own role as a volunteer the tasks you carry out and the equipment you use may create hazards in your workplace. Tasks and equipment you may need to be aware of in your workplace include:

- office equipment, including computers, chairs, desks, paper shredding
- machines, guillotines and staplers
- manual handling tasks where you are required to carry or lift something
- heavy or repetitive activities
- ladders, steps and stairs
- cleaning products and chemicals
- driving a vehicle (car, bus or tractor)
- using electric equipment such as stoves, urns, lamps or heaters
- slippery floors and busy work areas
- using tools such as hammers, drills, saws, hedge clippers and vacuum
- cleaners
- tasks which might expose you to infection
- games equipment such as darts, bowls and racquets.

Learning activity - Workplace hazards

Make a list of the tasks and equipment that could be hazards in your workplace. For each task/equipment describe the possible hazardous effects, and suggest control measures to minimize the risk. If you find any hazards that need to be fixed you should report them in the appropriate manner within your organization.

pment/task	Possible effects	Control measures
E.g., working at a computer	*Manual handling injuries including backache, eyestrain, shoulder pain*	*Set up the workstation to suit the user to minimize bending, twisting and reaching. Make sure regular breaks are taken.*

Workplace OHS procedures

Workplace OHS Procedures are step-by-step, or sets of instructions on how to deal with an activity in the workplace. Three common OHS procedures are:

- emergency procedures
- first aid procedures
- Accident/near miss and hazard reporting procedures.

Emergency procedures

Every workplace should have procedures to deal with emergencies. Emergencies may include:

- fire
- chemical spill
- explosion or gas leak
- bomb threat
- flooding
- Armed hold-up.

In most cases an emergency will mean the workplace has to be evacuated. Most Organizations will have some sort of evacuation plan, especially if the public Access the building. You are likely to find evacuation plans displayed somewhere Highly visible, such as a bulletin board, or as a sign on the wall.

Evacuation plans should describe:

- how you are alerted to an evacuation, eg alarm or announcement
- how to evacuate the building eg not using lifts, how to find your nearest exit
- where to evacuate to, and who to report to so they know you are out of the building.

Here is an example of an evacuation procedure which could be displayed in a

Workplace.

Example of an evacuation procedure notice

Many organizations will have a list of emergency contact phone numbers, such as

the fire service, ambulance and police. These may even be displayed on an

instruction card by telephones, or might be contained in or near the first aid kit.

In your own work area there may be special procedures to deal with emergencies

that require specific action. These might include:

- what to do if you answer a phone in your work area and it is a bomb threat
- how to deal with a member of the public who might be angry or abusive
- what to do in the case of armed robbery
- how to handle a chemical spill, and who you should notify.

Evacuation Procedure

On hearing the fire alarm or being advised by someone of authority that an emergency

exists, you are to:

1. Leave the building by the nearest exit

- **Do not delay** in collecting personal belongings.
- **Do not use lifts.**
- **Do not push** or overtake in the evacuation process

2. Proceed to the nominated assembly area and remain there, until advised to reenter

the building by someone in authority, or advised of other actions / measures to be taken.

The nearest exit to this area is:

Green stairwell next to the staff tearoom

Nominated assembly area is:

Car park on the corner of Phillips and Macquarie Street

Example of an evacuation procedure notice

Many organizations will have a list of emergency contact phone numbers, such as the fire service, ambulance and police. These may even be displayed on an instruction card by telephones, or might be contained in or near the first aid kit.

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- what to do in the case of armed robbery
- how to handle a chemical spill, and who you should noti

Review of Competency

Below is your self assessment rating for module Follow OSH policies and procedures in the food industry

Assessment performance Criteria	**Yes**	**No**
1.1 Housekeeping standards are maintained in the workplace following OSH requirements. 1.2 Personal hygiene is maintained and PPE worn as per OSH requirements. 1.3 Equipment is cleaned for production and hygiene requirements.	☐	☐
1 Workplace procedures for controlling risks are followed when carrying out work tasks	☐	☐

3.1 Immediate work area is routinely checked for safety hazards prior to starting and during work. 3.2 Hazards and unacceptable performance are identified. 3.3 Hazards and unacceptable performance are rectified or removed within the level of responsibility and in accordance with workplace procedures and OSH standards. 3.4 OSH hazards and incidents in the work area are reported to appropriate personnel according to workplace procedures.	☐	☐
4.1 Emergency situations are promptly identified. 4.2 Emergency situations are reported to appropriate personnel according to workplace reporting requirements. 4.3 Workplace procedures for dealing with accidents, fires and emergencies are followed whenever necessary within scope or responsibilities.	☐	☐

I now feel ready to undertake my formal competency assessment.

Signed:

Date:

Module- Working in the Food Industry

This module comprises elements1 to 4 from the Unit of Competency: FODSS1008A1

Work in the Food Industry

Version: 01.3- Pilot Program
Last Update: 12 May 2012

HOW TO USE THIS LEARNER'S GUIDE

Welcome to the module in **Working in the food industry**. This module contains information sheets, operation sheets and job sheets for you to complete.

The unit of competency "**Work in the Food Industry**" contains knowledge, skills and attitudes required for the Agro-Processing Sector.

You are required to go through a series of learning activities in order to complete each learning outcome of the module. In each learning outcome are **Information Sheets** (Reference Materials for further reading to help you better understand the required activities). Read these activities and answer the self-check at the end of each learning outcome. You may remove a blank answer sheet at the end of each module (or get one from your trainer) to write your answers for each self-check. If you have questions, do not hesitate to ask your trainer for assistance.

Recognition of Prior Learning (RPL)

You may have some or most of the knowledge and skills covered in this learner's guide because you have:

- been working for some time or
- already completed training in this area.

If you can demonstrate to your trainer that you are competent in a particular skill, you do not have to do the same training again.

If you feel you have some of the skills, talk to your trainer about having them formally recognized. If you have qualification or Certificate of Competency from previous training, show it to your trainer. If the skills you acquired are still current and relevant to the unit/s of competency, they may become part of the evidence you can present for RPL.

This module was prepared to help you achieve the required competency in Agro-food processing sector. This will be the source of information for you to acquire knowledge and skills in this particular trade, with minimum supervision or help from your trainer. With the aid of this material, you will acquire the competency independently and at your own pace.

- Talk to your trainer and agree on how you will both organize the training of this unit. Read the learning guide carefully. It has sections, which cover all the skills, and knowledge you need to complete this module.

- Work through all the information and complete the activities in each section. Read information sheets and complete the self-check. Suggested references are included to supplement the materials provided in this module.

- Most probably your trainer will also be your supervisor or manager. He/she is there to support you and show you the correct way to do things. Ask for help.

- Your trainer will tell you about the important things you need to consider in completing the activities and it is important that you listen and take notes.

- You will be given plenty of opportunities to ask questions and practice on the job. Make sure you practice your new skills during regular work shifts. This way, you will improve both your speed and memory and your confidence.

- Talk to more experienced workmates and ask for their guidance.

- Use the self-check questions at the end of each section to test your own progress.

- When you are ready, ask your trainer to watch you perform the activities outlined in the learning guide.

- As you go through the activities, ask for written feedback on your progress. Your trainer keeps feedback and pre-assessment reports for this reason. When you have successfully completed each element, ask your trainer to mark on the reports that you are ready for assessment.

SECTOR : **AGRO-FOOD PROCESSING SECTOR**
UNIT OF COMPETENCY : **Work in the Food Industry**
MODULE TITLE : **Working in the food industry**

INTRODUCTION

Work in the Food Industry is a Sector Specific Competency in all qualification under the Agro-processing sector of Bangladesh. It is important to be given to a trainee to ensure readiness in workplace scenario. Understanding working in the food industry will prepare the students for the transition of being a trainee to working as professionals. The etiquette and social norms in the workplace are much different from the hall of vocational/academic buildings. The atmosphere and setting is much more formal which will call for more professional speech, behavior and attitude as well.

The most important transition will be dealing with the work environment. The ability to collaborate with individuals from different cultures and backgrounds, to cooperate with diverse personalities, to be a team player and to work on projects with strict deadlines will be the first test for these workers. Staying organized and managing their time in the new environment can remain crucial as they step out from training and transfer their skills to the workplace.

This module covers the knowledge, skills and attitudes in promoting career growth and advancement, specifically to integrate personal objectives with organizational goals; set and meet work priorities and maintain professional growth and development in the food industry.

SUMMARY OF LEARNING OUTCOMES:

After completing this module, the trainee must be able to:

- Identify job roles and responsibilities in the food industry
- Identify and observe OSH in the food industry
- Plan work activities
- Work with others

ASSESSMENT CRITERIA:

The trainee will be assess by observing the following performance criteria:

1. Job roles and responsibilities in the food industry are identified.
2. Relationships within the food industry employees are identified.
3. OSH in the food industry is Identified and observed.
4. Safe work practices are followed when using equipment in the work environment.
5. Common goals, objectives and tasks are identified and clarified with appropriate persons.
6. Individual tasks are determined and agreed on according to workplace environment.

7. Effective interpersonal skills are applied to interact with others and to contribute to activities and objectives.
8. Assigned tasks are performed in accordance with job requirements, specifications and workplace environment.
9. Work requirements are confirmed with colleagues.

ASSESSMENT CRITERIA:

1. Job roles and responsibilities in the food industry are identified
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8. Assigned tasks are performed in accordance with job requirements, specifications and workplace environment.
9. Work requirements are confirmed with colleagues.

RESOURCES:

1. Lap top
2. LCD
3. White board marker
4. Workstation
5. Learning Material

LEARNING OUTCOME: Identify job roles and responsibilities in the food industry

Identify and observe OSH in the food industry

Plan work activities

Work with others

LEARNING ACTIVITIES	**RESOURCES/SPECIAL INSTRUCTIONS**
1. Identifying job roles and responsibilities in the food industry 2. Understanding the Good Manufacturing Practices	▪ Read **Information Sheet 1** Job roles and responsibilities in the food industry ▪ Answer **Self-Check 1** ▪ Read **Information Sheet 2** Good Manufacturing Practices ▪ Answer **Activity 1**. Case Analysis ▪ Answer **Self Check 2**
3. Planning work activities and working with others	▪ Read **Information Sheet 3, 4 and 5** ▪ Answer **Self Check 3**

JOB ROLES and RESPONSIBILITIES in the FOOD INDUSTRY

Provided below is a listing of some of the more common food processing industry occupations:

Production Workers

Production workers in the food processing industry can account for up to fifty percent of the workforce. Production workers can be divided into two categories: 1) skilled and precision workers and 2) less-skilled machine operators and labourers. Less-skilled labourers generally start as helpers to experienced workers and learn skills on the job. Many less skilled jobs can be learned in a few days or a week. Accordingly, there is a scarce supply of skilled workers in the food industry. This now will serve as an opportunity for trainees in the field of Food Processing and Quality Control.

Sanitation Workers

Sanitation workers perform hygienic roles within processing plants to ensure cleanliness standards are in place and enforced. Although an important job, it requires less skilled labourers who are not very difficult to find.

Machinists and Maintenance Workers

As the presence of technology increases in the food manufacturing industry, more and more workers are operating machinery. In the future, the food processing industry will require additional workers to maintain this new equipment to ensure it is in good working order. Electricians are one component of this category which are the most in demand by industry.

Butchers

Butchers and meat cutters who prepare standard cuts of meat and poultry for sale in retail or wholesale food establishments. They are employed in supermarkets, grocery stores, restaurants and butcher shops. There is currently a lack of qualified butchers in the food processing industry.

Bakers

Bakers mix and bake ingredients to produce end-user products according to recipes. In an effort to increase product shelf life, par and batch bakery has become increasingly popular. Par bakers increase the labour and technology necessary at the factory level, but reduce labour time at the food service, retail and consumer levels as all is needed is to place the par baked ingredients in the oven. Although baker positions are seen as less skilled, harsh working conditions (including extreme temperatures) make these positions difficult to source at times. Shipper/Receivers

Perishable food may spoil if it is not properly packaged and delivered before shelf life expiry, so packaging and transportation employees play a vital role in the industry. The level of skill required to complete shipping and receiving duties makes the position available to a wide variety of skill levels and is thus not difficult to source.

Packaging Technicians

Similar to shippers and receivers, packaging employees play a vital role in the industry as food may spoil if it is not properly packaged. In addition, ensuring the proper labelling regulations have been followed is a critical role of any food manufacturer. This requires an additional level of skill and expertise and thus qualified packaging technicians are in somewhat of a shortage in the industry.

Sales and Marketing Representatives

Sales representatives are responsible for securing sales outlets for food processors and include product sales and technical sales. Product sales consist of selling the product produced by the processor, while technical sales are more industrial focused and consist of selling the process and product costing. Technical sales require very detailed product knowledge. As sales opportunities become increasingly global, the sales force within the food processing industry will need to be more sophisticated and professional. Sales representatives who can speak more than one language will be an asset to manufacturers.

Administration Workers

The role of administration workers will become more important as food safety and traceability measures become imperative. Traceability programs deal with tracking and tracing, product recalls, crises management and identity preservation. Administrative workers will be responsible for tracking product through the supply chain and will thus require increasing levels of product knowledge.

Research & Product Development

Food scientists and technologists work in research laboratories or on production lines to develop new products, test current ones, and control food quality. Food scientists and researchers often need masters or doctoral degrees and are thus difficult to source. The role of researchers and product developers is becoming pivotal as food processors receive pressure to launch new and innovative products that respond to global competition. Similarly, new processes that allow for cost reduction in existing products are the jobs of researchers and product developers.

Quality Assurance (QA)/Quality Insurance (QI)

Quality assurance staff is becoming increasingly important to meet the requirements of customers and government regulations. Quality insurance staff inspects product quality and consistency, rather than food safety. The role of QI workers is to ensure the long term integrity of a company's brand.

Engineering and Management

Many of the management and engineering positions in the food processing industry are filled at the undergraduate and graduate level and represent an important link in the transfer of new technology to industry.

Self Check 1

Answer the following question and submit your answer to your facilitator:

1. Discuss the importance of knowing the job roles and responsibilities of workers in the Food Processing plant.
2. Enumerate (5) job roles in the food industry.

a. _____
b. _____
c. _____
d. _____
e. _____

3. What is the relationship of the research and development people to the quality assurance team?

Information Sheet 2

Good Manufacturing Practices (GMP)

Good Manufacturing Practices is vital in the operation of Food Processing Industries. It is necessary to be able to work well in a Food Industry setting. This regulation applies whether you are in the Food Processing zone, Food Packaging or Baking industry.

GMP Regulations

- Require that manufacturers, processors, and packagers of drugs, medical devices, some food and blood take proactive steps to ensure that their products are safe, pure and effective.
- Require a quality approach to manufacturing, enabling companies to minimize or eliminate instances of contamination, mix-ups, and errors.
- Protects the consumers from purchasing a product which is not effective or even dangerous.
- Address issues including recordkeeping, personnel qualifications, sanitation, cleanliness, equipment verification, process validation, and complaint handling.

GMP Categories

1. General Maintenance of Facilities

Buildings, fixtures, and other physical facilities of the plant shall be maintained in a sanitary condition to prevent food from becoming adulterated

2. Cleaning and Sanitizing

Cleaning and sanitizing of utensils and equipment shall be conducted in a manner that protects against contamination of food, food-contact surfaces, or food-packaging materials

3. Storage and handling of clean equipment and utensils

- ❖ All plant equipment and utensils shall be so designed and of such material and workmanship as to be adequately cleanable, and shall be properly maintained.
- ❖ The design, construction, and use of equipment and utensils shall preclude the adulteration of food with lubricants, fuel, metal fragments, contaminated water, or any other contaminants.
- ❖ All equipment should be so installed and maintained as to facilitate the cleaning of the equipment and of all adjacent spaces.

- ❖ Food-contact surfaces shall be corrosion-resistant when in contact with food. They shall be made of nontoxic materials and designed to withstand the environment of their intended use and the action of food, and, if applicable, cleaning compounds and sanitizing agents.
- ❖ Food-contact surfaces shall be maintained to protect food from being contaminated by any source, including unlawful indirect food additives.
- ❖ Seams on food-contact surfaces shall be smoothly bonded or maintained so as to minimize accumulation of food particles, dirt, and organic matter and thus minimize the opportunity for growth of microorganisms
- ❖ Equipment that is in the manufacturing or food-handling area and does not come into contact with food shall be so constructed that it can be kept in a clean condition.
- ❖ Holding, conveying, and manufacturing systems, including gravimetric, pneumatic, closed, and automated systems, shall be of a design and construction that enables them to be maintained in an appropriate sanitary condition.
- ❖ Each freezer and cold storage compartment used to store and hold food capable of supporting growth of microorganisms shall be fitted with an indicating thermometer, temperature-measuring device, or temperature-recording device.
- ❖ Instruments and controls used for measuring, regulating, or recording temperatures, pH, acidity, water activity, or other conditions that control or prevent the growth of undesirable microorganisms in food shall be accurate and adequately maintained, and adequate in number for their designated uses.
- ❖ Compressed air or other gases mechanically introduced into food or used to clean food-contact surfaces or equipment shall be treated in such a way that food is not contaminated with unlawful indirect food additives.
- ❖ Sanitation of food-contact surfaces. All food-contact surfaces, including utensils and food-contact surfaces of equipment, shall be cleaned as frequently as necessary to protect against contamination of food.
- ❖ Food-contact surfaces used for manufacturing or holding low-moisture food shall be in a dry, sanitary condition at the time of use.
- ❖ In wet processing, when cleaning is necessary to protect against the introduction of microorganisms into food, all food-contact surfaces shall be cleaned and sanitized before use and after any interruption during which the food-contact surfaces may have become contaminated.
- ❖ Non-food-contact surfaces of equipment used in the operation of food plants should be cleaned as frequently as necessary to protect against contamination of food.
- ❖ Single-service articles (such as utensils intended for one-time use, paper cups, and paper towels) should be stored in appropriate containers and shall be handled, dispensed, used, and disposed of in a manner that protects against contamination of food or food-contact surfaces.

- ❖ Sanitizing agents shall be adequate and safe under conditions of use. Any facility, procedure, or machine is acceptable for cleaning and sanitizing equipment and utensils if it is established that the facility, procedure, or machine will routinely render equipment and utensils clean and provide adequate cleaning and sanitizing treatment.
- ❖ Cleaned and sanitized portable equipment with food-contact surfaces and utensils should be stored in a location and manner that protects food-contact surfaces from contamination

4. Pest Control

- ❖ No pests should be allowed in any area of a food plant
- ❖ Guard or guide dogs may be allowed in some areas of the plant if the presence of the dog is unlikely to result in contamination of food, food-contact surfaces or food-packaging materials
- ❖ The use of pesticides or rodenticides is permitted only under precautions and restrictions that will protect against the contamination of food, food-contact surfaces, and food-packaging materials

I. Insect Control

- . Fumigation
  - ❖ Fumigation is the best use to kill insect and rodents. The purpose of fumigation is to destroy all stages of insect in the material to be treated. An atmosphere that is toxic to the insects will also kill rodents and other form of animal life.
  - ❖ In all cases, READ THE MANUFACTURER'S LABEL BEFORE USING FUMIGANTS. Due to the extreme toxicity of fumigants, the utmost caution must be taken during their handling and administration
  - ❖ To conduct an effective and safe fumigation, certain conditions must be met, including, but not limited to the following:
    - Appropriate temperature
    - Proper use of tarpaulins and sealing techniques
    - Proper dosage and time exposure
    - Monitoring the presence of fumigants
    - Safety precautions
    - Inspections and follow-up

- Insecticides (other than fumigants)
  - ❖ <u>Sprays.</u>
  - ❖ Insecticides sprays are applied to the surface and leave a residue that continues to kill insects that contact it. <u>Be careful not to spray products</u>.
  - ❖ <u>Fogs and Mists.</u>
  - ❖ Insecticides fogs and mists move through air and reach insects that may not be reaching by contact sprays. They are specially against flying insects and insect that cannot be reaching by contact sprays (for example, on surface of the bag containing a food).

II. Rodent Control

- ❖ The primary method of rodent control is cleaning to eliminate food in the ware house and in the storage area.
- ❖ Keep the inside of the warehouse clean of all food, especially containers of food unfits to human consumptions and awaiting disposal.
- ❖ Remove or repair torn or broken packages.
- ❖ Openings into storage building should be protected against rodent with screen having opening not larger than 6.33mm.
- ❖ Doors must fit tightly and they must be kept closed when not in use.

- Bait Stations

  To help control rodents, exterior baits station containing anti-coagulant poisons should be maintained around the periphery of the grounds, 100 feet apart around and exterior of the building, 50 feet apart.

  Bait stations must be checked frequently, (at least twice a monthly) so that the bait does not become wet, moldy, or infested with insects

- Tracking Powder

  Tracking powder can be used in limited area (not where it could contaminate food) where a mouse problem is suspected.

- Snap Traps

  Snap traps can be used; however, they must be given daily attention to be effective.

- Glue Board

  These are against mice. They can distribute to the stocks of foods where mice become entangled with the glue and cannot escape. Glue boards must be inspected frequently, to be certain that it is fresh and effective. To increase effectiveness, place under a box with opening at each end (to create a tunnel), to protect from dust and to offer a shelter to rodents

- Multiple-Catch Traps

  These traps are for interior use and can hold up to 30 mice. Some requires windings; all require weekly inspection

5. Proper use and storage of leaning compounds, sanitizers and pesticides
   - ❖ Cleaning compounds and sanitizing agents used in cleaning and sanitizing procedures shall be free from undesirable microorganisms and shall be safe and adequate under the conditions of use. Compliance with this requirement may be verified by any effective means including purchase of these substances under a supplier's guarantee or certification, or examination of these substances for contamination.
   - ❖ Toxic materials that may be used or stored in a plant where food is processed or exposed:
     - Those required to maintain clean and sanitary conditions
     - Those necessary for use in the laboratory testing procedure
     - Those necessary for plant and equipment maintenance and operation and;
     - Those necessary for use in the plant's operations

- ❖ Toxic cleaning compounds, sanitizing agents, and pesticide chemicals shall be identified, held, and stored in a manner that protects against contamination of food, food-contact surfaces, or food-packaging materials. All relevant regulations promulgated by other Federal, State, and local government agencies for the application, use, or holding of these products should be followed.

6. Employee Training

The plant management shall take all reasonable measures and precautions to ensure the following:

- ❖ ***Disease control***
  Any person who, by medical examination or supervisory observation, is shown to have, or appears to have, an illness, open lesion, including boils, sores, or infected wounds, or any other abnormal source of microbial contamination by which there is a reasonable possibility of food, food-contact surfaces, or food-packaging materials becoming contaminated, shall be excluded from any operations.

- ❖ ***Cleanliness***
  All persons working in direct contact with food, food-contact surfaces, and food-packaging materials shall conform to hygienic practices while on duty to the extent necessary to protect against contamination of food.

  - Wearing outer garments suitable to the operation in a manner that protects against the contamination of food, food-contact surfaces, or food-packaging materials.
  - Maintaining adequate personal cleanliness.
  - Washing hands thoroughly before starting work, after each absence from the work station, and at any other time when the hands may have become soiled or contaminated.
  - Removing all unsecured jewelry and other objects that might fall into food, equipment, or containers, and removing hand jewelry that cannot be adequately sanitized during periods in which food is manipulated by hand.
  - Maintaining gloves, if they are used in food handling, in an intact, clean, and sanitary condition. The gloves should be of an impermeable material.
  - Wearing, where appropriate, in an effective manner, hair nets, headbands, caps, beard covers, or other effective hair restraints.
  - Storing clothing or other personal belongings in areas other than where food is exposed or where equipment or utensils are washed.
  - Confining the following to areas other than where food may be exposed or where equipment or utensils are washed: eating food, chewing gum, drinking beverages, or using tobacco.
  - Taking any other necessary precautions to protect against contamination of food, food-contact surfaces, or food-packaging materials with microorganisms or foreign substances including, but not limited to, perspiration, hair, cosmetics, tobacco, chemicals, and medicines applied to the skin.

❖ ***Education and training***.

- Personnel responsible for identifying sanitation failures or food contamination should have a background of education or experience, or a combination thereof, to provide a level of competency necessary for production of clean and safe food.
- Food handlers and supervisors should receive appropriate training in proper food handling techniques and food-protection principles and should be informed of the danger of poor personal hygiene and insanitary practices.

❖ ***Supervision.***

Responsibility for assuring compliance by all personnel with all requirements of this part shall be clearly assigned to competent supervisory personnel.

7. Plant Design

❖ Grounds

The grounds about a food plant under the control of the operator shall be kept in a condition that will protect against the contamination of food.

❖ Plant construction and design.

Plant buildings and structures shall be suitable in size, construction, and design to facilitate maintenance and sanitary operations for food-manufacturing purposes.

❖ Grounds

The methods for adequate maintenance of grounds include, but are not limited to:

- Properly storing equipment, removing litter and waste, and cutting weeds or grass within the immediate vicinity of the plant buildings or structures that may constitute an attractant, breeding place, or harborage for pests.
- Maintaining roads, yards, and parking lots so that they do not constitute a source of contamination in areas where food is exposed.
- Adequately draining areas that may contribute contamination to food by seepage, foot-borne filth, or providing a breeding place for pests.
- Operating systems for waste treatment and disposal in an adequate manner so that they do not constitute a source of contamination in areas where food is exposed.

❖ Plant construction and design

The plant and facilities shall:

1. Provide sufficient space for such placement of equipment and storage of materials as is necessary for the maintenance of sanitary operations and the production of safe food.
2. Permit the taking of proper precautions to reduce the potential for contamination of food, food-contact surfaces, or food-packaging materials with microorganisms, chemicals, filth, or other extraneous material.
3. Permit the taking of proper precautions to protect food in outdoor bulk fermentation vessels by any effective means
4. Be constructed in such a manner that floors, walls, and ceilings may be adequately cleaned and kept clean and kept in good repair.

5. Provide adequate lighting in hand-washing areas, dressing and locker rooms, and toilet rooms and in all areas where food is examined, processed, or stored and where equipment or utensils are cleaned.
6. Provide adequate ventilation or control equipment to minimize odors and vapors (including steam and noxious fumes) in areas where they may contaminate food.
7. Provide, where necessary, adequate screening or other protection against pests.

8. Quality assurance assessment

a) Water supply. The water supply shall be sufficient for the operations intended and shall be derived from an adequate source.
b) Plumbing. Plumbing shall be of adequate size and design and adequately installed and maintained.
c) Sewage disposal. Sewage disposal shall be made into an adequate sewerage system or disposed of through other adequate means.
d) Toilet facilities. Each plant shall provide its employees with adequate, readily accessible toilet facilities
e) Hand-washing facilities. Hand-washing facilities shall be adequate and convenient and be furnished with running water at a suitable temperature.

f) Rubbish and offal disposal. Rubbish and any offal shall be so conveyed, stored, and disposed of as to minimize the development of odor, minimize the potential for the waste becoming an attractant and harborage or breeding place for pests, and protect against contamination of food, food-contact surfaces, water supplies, and ground surfaces.

Activity Sheet 1

Activity Title : Case Analysis

Purpose : To determine the understanding of the trainees about the good manufacturing practices.

Equipment, Tools & Materials : CBLM, workstation

Case :

Maria ordered for a chicken burger in one of the famous burger house in their place. The chicken burger was Maria's favorite. Immediately, Maria ate the food. After 5 hours, Maria felt discomfort in her stomach, she have vomited as well after 15 minutes. Maria has not eaten anything except for the chicken burger. Maria was brought to the hospital to avoid dehydration.

The doctor's findings showed that Maria have gotten food poisoning.

Investigation was made in the fast food, there was no problem with the facilities upon checking. The same batch of the chicken patty was analysed. Accordingly, laboratory analysis showed that there was pest contamination in the patty.

What possible GMP categories have been violated in this incidence?

Performance Criteria Checklist for

Activity Sheet 1

Case Analysis

Trainee's Name_____ Date _____

Performance Criteria	YES	NO
1. Identify the GMP categories violated by the restaurant		
2. Analyze and recommend on the possible solution to the problem that occurred		
3. Discuss clearly the reasons and results of the violation		

Comments/Suggestions:

Trainer: _____ Date: _____

Self check 2

Part I. TRUE OR FALSE. Provide yourself with a clean sheet of paper which will serve as your answer sheet. Write TRUE if the statement is correct, write FALSE if the statement is wrong.

_____1. The design, construction, and use of equipment and utensils shall preclude the adulteration of food with lubricants, fuel, metal fragments, contaminated water, or any other contaminants.

_____2. Seams on food-contact surfaces shall be smoothly bonded or maintained so as to minimize accumulation of food particles, dirt, and organic matter and thus minimize the opportunity for growth of microorganisms

_____3. No pests should be allowed in any area of a food plant

_____4. Use of pesticides and rodenticides is permitted at any time and place in the food industry

_____5. Removing all unsecured jewelry and other objects that might fall into food, equipment, or containers, and removing hand jewelry that cannot be adequately sanitized during periods in which food is manipulated by hand.

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HOW TO SET OBJECTIVES/GOALS EFFECTIVELY

Time management and goal setting are keys to a truly successful and fulfilling life. Each helps maintain a balance of every aspect of life, from business, personal, social and an everyday lifestyle.

Basic steps on setting your objectives more effectively:

I. Write down your goals and objectives

- Helps you determine what is top priority and what should be left out.

- Based on your personal values, your priorities in life, identify which goals, if achieved will make you a better person as you achieve them and as you accomplish them.
- Procrastinate on the lower value objectives and concentrate on the most important in clear concise manner – develop a plan of action on how to attain them.
- Write down a list of tasks in order to achieve the goal because without a map or plan, you will aimlessly try to achieve the goal**.**

Goals that are difficult to achieve and specific tend to increase performance more than goals that are not.

- A goal can become more specific through quantification or enumeration (should be measurable), such as by demanding "increasing productivity by 50%"; or by defining certain tasks that need completing.

Goal setting

- involves establishing *specific, measurable and time-targeted* objectives.
- features as a major component of personal development literature.
- Goals perceived as realistic are more effective in changing behavior.

On a personal level, setting goals is a process that allows people to specify them work towards their own objectives – most commonly with financial or career-based goals

"Goals provide a sense of direction and purpose"

- Focus on your distinctive skills. Your most stand-out talent is probably something you do without even thinking.

- Articulate to prospective employers, or to the boss who's considering your raise, your unique value proposition as an employee.

- Employers do not just want someone slightly better than everyone else; they are looking for someone with a truly distinctive skill set.

Setting goals affects outcomes in four ways:

1. *Choice:* goals narrow attention and direct efforts to goal-relevant activities, and away from perceived undesirable and goal-irrelevant actions.

2. *Effort:* goals can lead to more effort; for example, if one typically produces 4 widgets an hour, and has the goal of producing 6, one may work more intensely than one would otherwise in order to reach the goal.

3. *Persistence*: An individual becomes more prone to work through setbacks if pursuing a goal.

4. *Cognition:* goals can lead an individual to develop cognitive strategies to change their behavior.

Through an understanding of the effect of goal setting on individual performance organizations are able to use goal setting to benefit organizational performance.

Three moderators which indicate the success of goal setting:

1. Goal commitment

    - People will perform better when they are committed to achieve certain goals.

Goal commitment is dependent of:

a. The importance of the expected outcomes of goal attainment;
b. Self-efficacy – one's belief that they are able to achieve the goals;
c. Commitment to others – promises or engagements to others can strongly improve commitment

2. Orientation towards goals
- Every organization has its own purposes and objectives.
- Organization harmonies the individual goals of the employees with overall objectives of the firm.

Helps to achieve organizational goal

- Organization is employed to achieve the overall objectives of business firms.

- It focuses attention of individuals objectives towards overall objectives.

II. Keep them visible

- A reminder of your short term goals, daily tasks, etc. and or long term goals, financial freedom, better health, etc. needs to be visible on a daily basis.

- If you are not reminded of them on a consistent, and in this case, daily basis, you will soon forget about them.

There are many techniques on keeping them visible:

1. Have a list of goals next to your computer monitor so you see it everyday.
2. Have it stuck to your refrigerator.
3. Create vision or dream boards and look at it right before you go to sleep and right when you wake up.

- Remind yourself constantly of these high level – most important– objectives that you need to attain to maximize your life fulfillment!

III. Commit to do something everyday to achieve them

- If you have identified the most important goal and/or objective and you have a reminder of it everyday, it is time to commit to do something every single day to achieve it (or them).

- One task, two tasks or three – it does not matter, just as long as that one leads to the fulfillment of your goals and objectives.

Setting Goals for an organization

- When setting goals/objectives for an organization, there should be an informal aim to integrate learning within your organization.

- Members should be given opportunities to enhance their understanding and appreciation of diversity, opportunities that provide service to the broader community and opportunities that allow members to gain personal and professional skills in the area of leadership development.

- Each organization can encourage this development by establishing goals within a broader context.

Information Sheet 4

HOW TO PRIORITIZE TASKS AT WORK

- One of the hardest things to do at work is to prioritize your tasks at work.

- It can be hard to have to run around all day dealing with co-workers, employees, customers, bosses and still have to deal with your own personal task list.

- Having a good system or routine is key to setting your tasks into some sort of order. The best thing to do is to just deal with one thing, and see how it goes.

- The key is to do the most business important tasks first and then do the non-important stuff.

- Ask yourself if the task that you are performing is critical for your job to be done, or for the business to operate.

General rule : Doing the stuff that is the most important to do in your job and for the business to run.

- Always serve your customers first, then your own co-workers, then other filler stuff.

Ways to prioritize tasks at work

Plan, plan, plan

- Make sure you list everything that needs to be done and by when.

- Look through the plan carefully and decide if there is anything that can be postponed, or passed on to someone else, while highlighting the most important tasks.

Consult your boss and colleagues

- Unless you are working on your own, share your plan with your boss and colleagues.

  .

- They may have some input into it – possibly some ideas of things you may have forgotten, or they may be able to help you with certain tasks.

Set your own deadlines

Although you may have dates by which tasks need to be finished, it is always a good idea to set your own deadlines. This way you have a little bit of leeway in case of the unexpected

- If you are ahead of yourself, you can sit back and make the changes in a relaxed manner, knowing that you have some extra time.

Make a regular note of the stage you have reached

- Use your 'plan' as a working document.
- On a daily, or maybe weekly basis, make note of where you are with each particular task.
- There is nothing more satisfying than seeing your list gradually completed.

Take regular breaks

- Work late hours by all means, but make sure you have time to relax and unwind at home before you go to bed. Otherwise you may find it hard to sleep.

Planning ahead and having plenty of time to complete tasks can make a real difference to your workload and your general working environment.

In order to manage your priorities successfully

- Utilize your time wisely.
- Rank priorities from your most important to your least important.
- Highest priority should be focusing in what will benefit your organization the most
- Consider the most important tasks that need to be completed.
- Learn to delegate any tasks that will help you to spend more time focusing on your most important priorities.
- Identity any deficits in your skills or what additional learning you need to master.
- Aggressively seek ways to improve your skills by doing an accurate self exam of your own abilities.

- When you work on improving your skills, you become more effective and will be able to prioritize more successfully.
- If you are able to address putting a high priority on your own development needs, you career success will follow.
- You need a clearly defined period for each aspect of the priorities you have established for yourself.
- Re-evaluate your plan frequently and make adjustments where you can cut your time and where you need to build in some extra time to complete your tasks and meet your priorities.
- Keep in mind things never go completely as planned, anticipate there will be changes, develop contingent plans and become flexible when you need to be.

The ability to prioritize is a talent that successful individuals utilize every day in their career.

Successful individuals:

- understand the need to welcome changes and anticipate them
- understand the concept that prioritizing is essential for career growth
- are adaptable and are future focused with their thinking and keep themselves open to new and creative ideas.
- know how to prioritize their work according to what needs to be accomplished and utilize analytical thinking skills.
- successfully manage competing priorities, examine the expectations and then clearly define what amount of work they can successfully accomplish in a clearly defined time frame.

Prioritization is a skill that will give you direction and help find success in your career.

- Examine the priorities in your work and personal life.
- Make a list of where each of those priorities fit in your lifestyle.
- Closely monitor your use of time
- Look for areas where you are consistent in meeting your goals and priorities. Then look at areas where you are inconsistent and have barriers to meeting your goals and priorities.
- Keep a journal for two to four weeks and keep a detailed record of things occurring in your work and personal life.
- Closely examine where you are meeting your priorities and where you are falling short, put together an action plan for yourself.
- Focus on meeting your high priority goals and spend less time on low priority things at work and in your personal life.

EFFECTIVE TIME MANAGEMENT

- Time is gold and wasting time is wasting one of life's precious resources. It is irreplaceable and irreversible. Once it is gone, it is gone forever, so make use of every minute of the day and use them effectively.

- There is no such thing as lack of time. It is how one use them that counts.

- If like so many people, one does not get things done, he is not managing himself and his time very well.

Guide in managing time effectively

1. Planning

    - Making a list of the things that need to be accomplished and will also serve as reminder of the goal and tasks to finish as well as helping in checking the progress in the kind of occupation one has.

2. Organizing

    - Number the tasks on the list in the order of importance, then do the most important first.
    - Also have a place for everything so that there will not wasted time for looking for the things to be used in performing a task.

3. Implementing

    - Use dovetailing to save time and meet schedules.
    - While doing a thing, you should be thinking of the plan for related tasks to follow. This saves time and effort for the other responsibilities that need to be accomplished for the day.

4. Controlling

    - Evaluate whether time for doing a work is properly managed or not
    - Have an assessment by knowing what paved the way to its accomplishment or non-accomplishment so as to make modifications for next time that there will be tasks to accomplish again.

ENHANCING WORK EFFECTIVENESS AND EFFICIENCY

People with good work habits tend to be more successful in their jobs as well as in life than poorly organized individuals. The major reason for this is because the former have efficient and effective system of doing their various tasks.

- Working efficiently and effectively will allow one to have more time to spend on his personal life.

- A person who enjoys his personal life more, usually possesses a fresher, creative outlook on his job.

EFFICIENCY

- means that tasks are accomplished with minimum wasted time, materials and effort.

EFFECTIVENESS

- refers to producing the desired results from what one actually does.

Suggested ways to be efficient and effective in work

1. *Clarify tasks and objective*
   - in work, what has to be accomplished should be known
   - job description should be clear for the employee to have an idea what was expected of him

2. *Concentrate*
   - to be more effective in job, one must concentrate and free from distractions like personal problems.

3. *Establish priorities*
   - make a list of activities and allocate time for the accomplishment of these tasks. Important things should be the priority.

4. *Identify and plug "time leaks"*

   - time leaks refer to the non-job related and not too useful discussion held during working hours.

5. *Minimize interruptions*

   - develop the habit of tactfully declining requests from other people if it will interfere with work

6. *Learn to interact*

   - a worker who is a loner tend to be isolated and somewhat ineffective.
   - When the supervisor calls for a meeting to discuss work related issues, one should share what he knows.
   - One will gain the respect of his supervisor and co-workers if he is participative.

7. *Harness natural energy cycles*

   - One should determine his strong and weak energy cycles.
   - Most demanding tasks should be done during energy peaks so as to avoid inefficiency

8. *Schedule similar tasks together*

   - small tasks should be grouped together and be performed in one block of time.

PERSONAL DEVELOPMENT-SOCIAL ASPECTS:

INTRA AND INTERPERSONAL DEVELOPMENT

P e r s o n a l i t y

- derived from Latin words, per & sonare which means "*to sound through*". The word person came from these two words meaning "*an actor's mask*" through which the sound of the voice was projected.
- the embodiment of feelings & behavior which makes man the unique person that he is.
- the way an individual is interrelated through his ideas , actions & attitudes with the many nonhuman aspects of his environment & his biological heritage
- the overall pattern or integration of person's structure , modes of behavior, attitudes, aptitudes, interest, intellectual abilities and many other distinguishable personality traits.
- configuration of characteristics and ways of behaving which an individual's unique adjustment to the environment

Components of Personality

1. Habits
   - are routines of behavior that are repeated regularly and tend to occur subconsciously, without one being conscious about them; an acquired pattern of behavior that often occurs automatically
   - Habits, good or bad, make you who you are. The key is controlling them. If you know how to change your habits, then even a small effort can create big changes.
2. Attitudes
   - A mental position with regard to a fact or state.
   - reflect a tendency to classify objects and events and to react to them with some consistency.
   - not directly observable but rather are inferred from the objective, evaluative responses a person makes. Ex. had a positive attitude about work.

   Examples of attitudes
   - Fearless, curiosity, innocence, freedom, optimism, joy & sorrow, trust, inspiration, pride, and passion, loyalty, helpfulness, friendly, courteous, kindness, obedient, cheerfulness, thrift, courage, reverent, dramatic, pessimistic, guilt
3. Interests
   - a sense of concern with and curiosity about someone or something
     Ex. an interest in sports, music . . .
4. Values
   - Things that really matter to each of us ... the ideas and beliefs we hold as special. Ex. Caring for others, freedom to express our opinions.

- Most of us learned our values - or morals, - at home, church or synagogue, school; maybe from parents, teachers and religious leaders

- Young people today are most influenced by what they see and hear on television or on the street.

Checklist for Personal Values

- Achievement
- Friendships
- Physical challenge
- Advancement and promotion
- Public service
- Independence
- Adventure
- Having a family
- Power and authority

5. Principles

- a standard or rule of personal conduct, especially of good behavior
  Ex. a man of principle

- the collectivity of moral or ethical standards or judgments; adherence to such a moral code; morality
  Ex. *he'd stoop to anything he has no principles*

- a fixed or predetermined policy or mode of action Ex. *principle in life*

Aspects of Individual's Personality

- Mental Aspect
- Emotional Aspect
- Social Aspect
- Physical Aspect
- Moral Aspect
- Spiritual Aspect

Reasons for Developing Personality

- Social Acceptance
- Self Satisfaction
- Self-confidence
- To keep ourselves on the job

Personal development

- a process of individual self-development and the development of others;

- includes goals, plans or actions oriented towards one or more of the following aims:

1. improving self-awareness
2. improving self-knowledge
3. building or renewing identity
4. developing strengths or talents
5. identifying or improving potential

6. building employability or human capital
7. enhancing lifestyle or the quality of life
8. fulfilling aspirations
9. defining and executing personal development plans
10. improving social abilities

Seven vectors of personal development - for young adults during their undergraduate years:

1. developing competence
2. managing emotions
3. achieving autonomy and interdependence
4. developing mature interpersonal relationships
5. establishing identity
6. developing purpose
7. developing integrity

Developing oneself

At the level of self-improvement one can potentially elaborate personal development to include such areas as:

1. becoming the person one aspires to be
2. integrating social identity with self-identification
3. increasing awareness or defining of one's priorities
4. increasing awareness or defining of one's values
5. increasing awareness or defining of one's chosen lifestyle
6. increasing awareness or defining of one's ethics
7. strategizing and realizing dreams, aspirations, career and lifestyle priorities
8. developing professional potential
9. developing talents
10. developing individual competencies
11. learning on the job
12. improving the quality of lifestyle (in such areas as health, wealth, culture, family, friends and communities)
13. learning techniques or methods to expand awareness
14. learning techniques or methods to gain control of one's life
15. learning techniques or methods to achieve wisdom

Career

- an individual's "course or progress through life (or a distinct portion of life)". It is usually considered to pertain to remunerative work (and sometimes formal education).
- an occupation or profession followed as a life's work

Occupation

- a person's regular work as a means of livelihood

Profession

- occupation requiring extensive education or specialized training

Professional

- one skilled in a profession

Professionalism

- methods, manner or spirit of a profession, also its practitioners
- Is the conduct, aims or qualities that characterize or mark a profession or a professional person.
- covers more than ethics and appearance, addresses accountability, being responsible, having positive work ethic, pressing for excellence, developing skills and expertise.

DIMENSIONS OF PROFESSIONALISM

Specialized Knowledge

- a distinct area of knowledge or technology; a specialization, about which a high level or proficiency or familiarity is required.

Skills

- the application of knowledge or techniques to a particular situation or task.
- It is the way you put your specialized knowledge into practice.
- seen in the conscientiousness and in the degree of authoritativeness and confidence with which you tackle your work.

Standards

- is a measure or something established to serve as a ruler or basis of comparison in measuring or judging a capacity, quantity, quality, extent and/or value.
- also a criterion; also refers to any thing which measure the quality of your work.

Spirit

- the esprit d' corps which is shared by people who have something in common
- creates a good team in the organization.

Supportive Environment

- refers to the external factors that foster support for professionalism. Ex. Licensure examinations

Professional Dress

- Besides our abilities and actions we are judged on our outward appearance.
- Being dressed professionally eliminates any distraction that clothing can bring to a situation and allows you to be heard , and taken seriously!

Concepts of career

Traditional

- Concerned with progression up an ordered hierarchy within an organization or profession.
- It provides order for individuals, giving them a secure basis for their lives.
- It is meritocratic, allowing individuals to be promoted according to their abilities and achievements.
- It permits individual choice, particularly in choosing the particular ladder which the individual seeks to climb; therefore, requires careers advisers to help individuals in making these initial choices.

New concept

- The individual's lifelong progression in learning and in work.
- Learning embraces all forms of learning: not only formal education, but training, and informal learning too.
- Work embraces all forms of work: not only employment, but self- employment, and unpaid work within the home and community as well.

The challenge is the notion of "progression".

- Progression can take place laterally as well as vertically: it can incorporate elements of "careering about"; but it retains the sense of development, of moving forward.

Learning is the key to progression in work.

PROFESSIONAL VALUES AND ETHICS IMPACT ON CAREER SUCCESS

Professional values and ethics are tools that you carry throughout your career. They are no less important than your experience, education and competence.

- It is the professional values and ethics that play a greater role in determining the employee's performance.

- The true value of an employee can only be determined by demonstrating these qualities everyday in the workplace.

Professional values are more tangible and relate more directly to the performance of assigned work.

- *Punctuality:* Being consistently late is the most obvious thing for supervisors or co-workers to notice and the first thing that will tarnish your reputation.

- *Responsibility:* Responsible for delivering your assigned projects on time and completing them in a professional manner. It is also your responsibility to maintain good, courteous working relationship with all other co-workers.

A well-functioning unit depends on this professional value to ensure that the best idea or solution is put forward and adopted.

- *Organization:* Having what you need when you need it is the main reason for being organized. Keep good files and records and dispose of duplicates and out dated material. Being organized in your personal life also contributes to being efficient and productive at the workplace.

Professional Ethics

The key components to professional ethics are integrity and fairness.

- *Integrity*: Is a pact you make at work, and hopefully in your life as a whole, that you will tell the truth, meet your responsibilities and keep your promises. One should strive to make comments in a constructive light and avoid being hurtful and vindictive.

- *Meeting Responsibilities*: An employee is expected to be personally tidy and dressed appropriately, practicing the rules of common courtesy. Personal space and property should be respected at all times.

- *Keeping Promises:* Doing your job to the best of your abilities and delivering your work properly done and on time. This is also critical in the area of discipline and rewarding excellent performance. If a certain reward, such as promotion, raise or spot award is promised; all efforts should be made to follow through with the promised reward. If certain rules and regulations from the guidelines set forth in an Employee Handbook are broken, discipline should be applied even-handedly and consistently. There is no sense to having rules that are flouted and not enforced.

- *Fairness:* The idea of fairness in the workplace extends to the areas of sexism, discrimination and favoritism. Management should make every effort to create and maintain a workplace free of these repugnant and thankfully illegal actions. Everyone gets along better and is more productive when treated fairly. Persons in positions of authority should not abuse their power. Using personal power and authority to have subordinates do personal favors or jobs is also unethical and will cause disharmony at the workplace.

There should be no favoritism given for personal relationships, but only for outstanding performance. People will tend not to work hard if their efforts are passed over for someone in a more favored position with management.

Maintaining high standards of values and ethics will mark an employee for bigger things in the future. One will get the reputation of being dependable, productive and well respected.

Interpersonal relationship

- is an association between two or more people that may range from fleeting to enduring.
- may be based on limerence, love and liking, regular business interactions, or some other type of social commitment.
- formed in the context of social, cultural and other influences.
- people in a relationship tend to influence each other, share their thoughts and feelings, and engage in activities together (interdependence)

Interpersonal skill

- rely on how a person relates to another
- the measure of a person's ability to operate through social communication and interactions
- the skill of an individual to network and build relations in social situations

Intrapersonal skill

- the relationships of people with themselves. Having good intrapersonal skills is essential for the well being and growth of any individual.
- it is the cognitive ability to understand and identify self.
- People who possess strong intrapersonal intelligence are deeply connected with the subconscious wants and needs of their self.

Factors like introversion-extroversion, communication patterns, motivation, objectivity, teamwork etc. affect interactions and relationships.

Excellent inter and intrapersonal relationships would enable you to reduce conflict and increase participation in turn strengthening relationships.

Improve team-working abilities to grow from an individual contributor into a strong team.

Develop maturity and sensitivity to make relationships work.

Intrapersonal activity leads to improved interpersonal exchange. Taking accountability for understanding your motivations, interpretations and personal biases lends insight to how our perspectives and perceptions colour our interactions.

Building a strong relationship with the self benefits interpersonal engagement as an immediate effect.

Self check 3

Test I. Multiple choice. Encircle the letter of the correct answer.

1. It is an individual's course of progress through life (or a distinct portion of life).
   a) career b) values c) ethics d) profession

2. The concept of career has been concerned with progression up an ordered hierarchy within an organization or profession

   a) new b) traditional c) progression d) bureaucratic

3. The concept of career is the individual's lifelong progression in learning and in work
   a) education b) traditional c) new d) progression

4. Professional __ are more tangible and relate directly to the performance of assigned work.
   a) values b) ethics c) career d) learning

5. The key components to professional ___ are integrity and fairness.
   a) values b) ethics c) career d) learning

6. The conduct, aims or qualities that characterize or mark a profession or professional person.
   a) professional b) character c) professionalism d) values

7. One of the hardest things to do at work is to ____ your tasks at work.
   a) prioritize b) setting c) conduct d) follow

8. Having a good system or ___ is key to setting your tasks into some sort of order.
   a) prioritize b) routine c) planning d) conducting

9. It refers to skills and knowledge attained for both personal development and career advancement
   a) Professional b) professional development c) development
   d) career

10. It is a specialization, about which a high level or proficiency or familiarity is required
    b) professional b) specialized knowledge c) skills d) standards

Test II. True or False. Write T if the statement is correct and F if it is wrong.

_____ 1. Time management is not important in setting goals, priorities and planning.

_____ 2. Being successful doesn't make you manage your time well.

_____ 3. Failing to plan is planning to fail.

_____ 4. To do lists procedure is breaking things down into small steps.

_____ 5. Doing things at the last minute is much more expensive than just before the last minute.

_____ 6. Delegation is dumping and not granting authority with responsibility.

_____ 7. The ability to prioritize is a talent that successful individuals utilize every day in their career.

_____ 8. Time management is a skill that will give you direction and help find success in your career.

_____ 9. Utilize your time wisely in order to manage your priorities successfully.

_____ 10. Successful individuals understand the need to welcome changes and anticipate them.

#How to preserve Food Raw Material for longer shelf life?

May 24, 2018

Articles

Preservation involves a change to the nature of a product that reduces the microbial load or limits the growth of microorganisms. The exact method of preservation used is dependent on the product, its effect on product safety, and the process facility in terms of power, space, equipment and hygiene.

It is the responsibility of the procurement officer to ensure that all the quality parameters of the procured raw material comply with the set specifications. Even after raw material has been procured unwanted contaminants can enter accidently or if precautions have not been taken during storage or transportation. To ensure that raw material is safe, following measures should be adopted.

-
    - Transport and store consumable materials with covers. Separate and store consumable foods, raw materials and non food items.
    - It is important that everything- hands, clothes worn by employees, cold storage area, and storage containers – be kept clean.
    - Ensure that people handling food material wear mask, gloves, shoe covers and appropriate clean clothing all the time.
    - Use containers made of food grade material to store raw paste and sauces.

- Use racks/pallets which are made of non-absorbent material, provided on the floor for keeping raw material.

- For a few foods, optimum storage conditions for maintaining flavour or texture may differ from optimum conditions for maximum shelf life. However, some of themethods commonly used to preserve raw ingredients for a longer shelf life have been listed below:**Air tight packaging:** Dry staples such as grains, flour, milk powder, seasonings, baking powder, baking soda, cereals should be stored in metal, glass or plastic air tight containers or polyliner bagsor drums to prevent raw ingredients from absorbing moisture.**Aseptic Canning:** Acidic foods such as tomato products, fruits, and fish should be aseptically canned to prevent microbial growth. Tinplate or ECCS (electrolytic chromium coated low carbon steel) can be used as a packaging material for cans.**Dehydration:** Drying or dehydration to remove moisture is another way to preserve food material. Osmotic dehydration, drum drying, hot air drying and foam mat drying are some of the techniques involved.

Radiation: Food irradiation is a process in which food products are exposed to a controlled amount of radiant energy to increase the shelf life of the food. Radiation processing such as gamma rays, electron beams & x-rays can be used for:

- disinfestations of grains, pulses, fruits and vegetables;
- sprout inhibition of tubers, bulbs & rhizomes;
- delay in ripening and senescence in fruits & vegetables;
- destruction of microbes responsible for food spoilage

Refrigeration&Cold Storage: High risks food such as meat, dairy products, eggs, cut fruits and vegetables, cookie dough, margarine should be stored at low temperatures to extend their shelf life.

Non Thermal Technologies: High Pressure Processing (HPP), Ohmic heating and Pulsed Electric Field (PEF) processing are some of the non-thermal technologies that can be used to preserve organoleptic and nutritional qualities in the food.

Food Preservation Methods and Guidance

Liz Burton-Hughes

December 19, 2018

9 min read

We're spoiled for choice when it comes to food preservation. To extend the longevity of food used at home or in your food business, you can use refrigeration, freezing, canning, sugaring, salting, and even vacuum packing. Plus, food experts are constantly researching new preservation methods to expand our options.

Centuries of trial and error have taught us the safest methods of food preservation, which you must prioritise if you want to retain the quality and hygiene of stored food. The good news is that, with the right guidance and materials, you can easily do so in any setting.

The Importance of Food Preservation

Food preservation refers to the processes you use to prepare food for safe, long-term storage, whether you plan to use it at home, for prep in a commercial kitchen, or to sell directly to consumers. Preservation methods help inhibit bacterial growth and other types of spoilage, meaning the food is safe and satisfying to eat in the future.

There are three reasons why food preservation is important:

1. **To minimise pathogenic bacteria** – food in long-term storage is at serious risk of spoilage due to bacteria such as **E. coli, Salmonella, and other pathogens**. Bacteria only need warmth, moisture, and time to rapidly multiply in food, but food preservation inhibits one or more of these conditions and stops their growth. *For more information, check out our **Complete List of Food Borne Diseases.***

2. **To keep food at its best quality** – food deteriorates over time due to spoilage. In many cases, mild spoilage doesn't make food unsafe to eat, but it significantly affects its **taste, texture, and appearance**. Proper food preservation can help retain some of these qualities, as well as the **nutritional value** of certain foods.

3. **To save money** – waste is costly, both **at home** and in a **commercial setting**. Ideally, you should **avoid buying more than you can use**, but various preservation methods – if done safely – help you keep vegetables, fruits, meat, etc. well past their usual expiration so there's no need to bin them.

Certain food preservation methods can be tricky, but chances are you'll gain a real **sense of satisfaction and pride** when you successfully apply them. Also, as many preservation methods require precision and care to maintain food safety, you'll strengthen your **awareness** of food hygiene risks and good practices.

Need a Course?

Our **Food Hygiene Training** is designed to ensure a comprehensive knowledge of all food safety and hygiene procedures.

Common Methods of Food Preservation

Food preservation methods range from the simple process of chilling to more complex procedures such as canning. Many are creative options that help you mix things up at home or sell food in various forms of packaging. Others help you keep your inventory in a commercial kitchen for much longer, which means you reduce waste and increase profit.

The 6 sections below look at various food preservation methods you can use and the safest, most effective way to do them.

Chilling

Freezing

Sugaring

Salting

Canning

Vacuum Packing

What to Read Next:

- **What's the Best Way to Store Vegetables?**
- **How Long Does Food Last in the Freezer?**
- **Food Safety Awareness Quiz**
- **Do You Know Which Fridge Shelves You Should Store Your Food On?**

- **Level 3 Supervising Food Safety in Catering**

1.What is the cooked food preservation

Food preservation includes a bunch of methods of processing fresh produce which destroy food micro-organisms (molds, yeasts, bacterias) and enzymes, which would break down and decay food, and can cause foodborne illness. Correct techniques create conditions which allow for safe and nutritious storage of food, to be consumed at a later stage.

There are many food preserving methods, with the commonly used ones being:

- Storing (produce like pumpkins, squash, potatoes, carrots, garlic etc)
- Freezing
- Dehydrating, or drying
- Bottling AKA 'canning' (by **Boiling Water Bath processing**, **Fowlers Vacola bottling**, or Pressure Canning)
- **Lacto-fermenting**

2.How can we get started with preserving food?

Other methods to preserve food include salting, sugaring, using alcohol, making dairy products, smoking, charcuterie, and sott'olio, and more.

Whilst it can seem overwhelming to know where to start, here are 5 simple steps to consider:

1. Pick a method

This depends on your budget, the time you have, the space/ storage you have, and even what you grow, or what produce you have available. For the common methods consider what you can preserve, the difficulty level, time requirements, and equipment requirements.

A big factor is what type of preserved food you are most likely to eat (including if you need to cater for allergies/ intolerances). If you never eat dried apricots, but you love Apricot Chicken, then consider learning how to bottle your own jars of apricot chutney to use as a meal-base! If you want to start making your own breakfast cereal, trail mix and kids snacks, then having dried fruit might make sense.

Of course, there is no reason why you can't learn all the preserving methods, I just think it is a good idea to start and practice with *one method* to become more skilled and confident, before moving on to learn others!

2. Find, buy or borrow the equipment

What do you need for the method you have chosen (see next section)? Do you have a friend who you can borrow from? Are there local classifieds where you can source second hand items cheaply? Do you have suitable things in your house already?

3. Borrow or buy a book

Check out my favourite preserving books, and website recommendations below in References and Resources section. Maybe check out your local library, or ask a friend. Also refer to recipes in the instruction manual (download one or contact the company if your item came without one), which often have recipes too.

4. Pick a recipe

Choose a simple recipe from a reliable source of tested recipes, and make it a few times, before moving on to another recipe which uses the same method. See my References and Resources section below for recommendations on reliable sources.

5. ASK QUESTIONS & GET SUPPORT

Join the **Growing Home Community**, so you have likeminded, experienced people to ask your questions that you just can't find answers to in books or by Googling (AND so you can show off your successes too!)

Learning the various methods to preserve food, does take time, and commitment to gain new skills and knowledge. You can start with dehydrating or boiling water bathing of high acid produce, which are easier to learn and more 'fool-proof'. When you feel confident, or have time, move on to learning another preserving method. Once you practice and get more efficient at each method, it won't take as long each time you do a batch.

3.How can we understand PH in relation to food preserving?

An important aspect of food preserving science to understand, is the pH of food. Simply put, high acid foods are safer to preserve, as most food spoiling and foodborne illness microorganisms do not survive in high acid environments. Low acid foods, however, can harbor serious foodborne illness microorganisms, and that is why low acid foods require extra attention.

Foods naturally high in acid, or where a highly acidic environment has been created (pH lower than 4.6), can inhibit the survival and growth of food spoiling microorganisms and their spores (including C.Botulinum) when preserving food.

In regards to bottling (or 'canning') foods in glass jars, high acid foods can be processed safely in jars by the 'boiling water bath' process (following correct methods and recipes) as temperatures of 100'C will kill the varieties of microorganisms found in high-acid foods. They can also be processed in a Fowlers Vacola preserving unit, as well as dehydrating, freezing and fermenting.

Low acid foods being bottled, must be processed in a pressure canner.

The pH is based on all the ingredients in a jar or product, so whilst you have a zesty, acidic tomato salsa made from tomatoes, lime juice and spices, if you add low acid capsicum, chillies and corn, you may have altered the pH level to be 'low acid' and therefore not be acidic enough to safely process in a boiling water bath. The salsa would require pressure canning.

Unless you have pH testing equipment, and skills/ knowledge, to be able to precisely test your preserves, **the best advice is to use recipes that have been tested by food preserving experts, and stick to the ingredients, volumes and processing times listed.**

4.What is food preserving and storing?

Food preservation includes a bunch of methods of processing fresh produce which destroy food micro-organisms (molds, yeasts, bacterias) and enzymes, which would break down and decay food, and can cause foodborne illness. Correct techniques create conditions which allow for safe and nutritious storage of food, to be consumed at a later stage.

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5.What are the benefits and challenges to preserving and storing food?

The benefits to preserving your own food at home include:

- Make the most of your homegrown harvests, a great way to handle gluts, and extend the season, being able to enjoy your good food at a later date
- Make the most of in season produce, when it is at its peak, and often cheaper
- Know what it is in your food, and have more affordable chemical-free foods
- Cater to food allergies and dietary requirements
- Reduce waste by using up your garden abundance, as well as items that need using up, and in some cases, leftovers
- Save time by creating sauces, relishes, pesto and other items that can quickly added to meals as a flavour base, or to enhance them
- You can swap, share and barter with your preserves too!

The challenges you may face when preserving your own food can be:

- Initial cost and set up
- Time to learn the skills, troubleshoot, as well as the time to prep and process your food
- Using what you preserve
- Concerns about safety
- Finding somewhere to store it all



6.Why are the methods my(grandma/grandpa,moyther,uncle,neighbours)used,not considered safe?

Some methods which people use to preserve food at home, may not be considered safe by modern food safety authorities (such as **National Centre for Home Food Preservation, USA**) who have conducted research and testing in the last 20 to 30 years. Unsafe methods include the **'open kettle method'** and inversion techniques, using sealing wax or preserving cellophane seals, and bottling/ canning 'low acid' foods in a Fowlers Vacola or boiling water bath.

The 'open kettle' method is a technique, which involves putting hot contents into hot jars, and putting the lid on (or use wax/ cellophane as the sealant), without any further processing. Some people also turn their jars upside down at that point, called inversion method . Often a vacuum seal is obtained as the jars cool down, but the temperatures obtained in open kettle canning are not high enough to destroy all spoilage and food poisoning organisms that may be in the food. Also, microorganisms can enter the food when it is transferred from the pot/ kettle to the jar, and cause spoilage.

In terms of doing low acid items (vegetables, stock, meat, meals) in boiling water bathing, all food safety and preserving authorities state that is unsafe. You must do low acid preserving in a proper pressure canner (not a pressure cooker) because it reaches the higher temperatures required.

Home Food Preservation Methods for Saving the Flavor of Summer

When the garden is offering up a prolific harvest. When your CSA box is overflowing with abundance. And when the farmers market has your very favorite fruit or vegetable available in surplus. That's when you need to know how to preserve the flavor of summer. Home food preservation methods can vary depending upon what you wish to preserve; here's what you need to know.

See all of my **food preservation recipes here**.

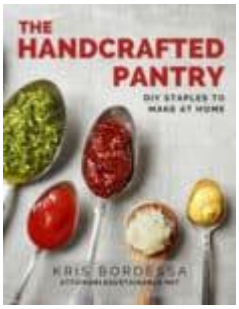
MY LATEST VIDEOS

JUMP TO:

-
    - **Preserving with Dehydration**
    - **Water Bath Canning**
    - **Pickling with Vinegar**
    - **Pressure Canning Low Acid Foods**
    - **Fermenting for Preservation (and Probiotics!)**
    - **Freezing the Harvest**

- [Root Cellaring for Old Fashioned Food Preservation]
- [Salting Foods for Long Term Storage]
- [Infusing Vinegar]
- [Freeze Drying]
- [Vacuum Sealing]

The Handcrafted Pantry



Ready to DIY your pantry with more wholesome ingredients? Check out my ebook, **The Handcrafted Pantry**! Filled with delicious recipes for some of your favorite condiments, snacks, and toppings, it's the guide you need to start **skipping packaged products** and embrace homemade.

1. Dehydration

Dehydrating foods eliminates water activity and the potential for bacterial or microbial growth, making it shelf stable. This method works with herbs, fruits, vegetables, and meat.

Those store-bought fruit rollups that are so popular in kids' lunch boxes are dehydrated, as is your favorite beef jerky. Dehydration is one of the easiest methods of preserving foods.

5 Easy Steps to Transform Your Pantry!

Ready to switch from store bought to homemade? Let me help you make some changes! Grab my FREE five-part guide to getting started.

Get the Guide!

As long as you make sure that the foods are sufficiently dried, they will last in airtight containers indefinitely. Some (like dried fruit) makes great snacks as is, but dried foods can be rehydrated, too. Dried apple slices can be turned into apple pie and dried veggies are great in homemade soup.

- **Special equipment:** Dehydrator (You can also use a conventional oven set to a low temperature, but a dehydrator is likely to use less energy.)

Recipes to try:

-
    -
        - Homemade dried bananas
        - How to dry basil
        - Dried apples
        - Dried strawberries
        - Dehydrated peppers

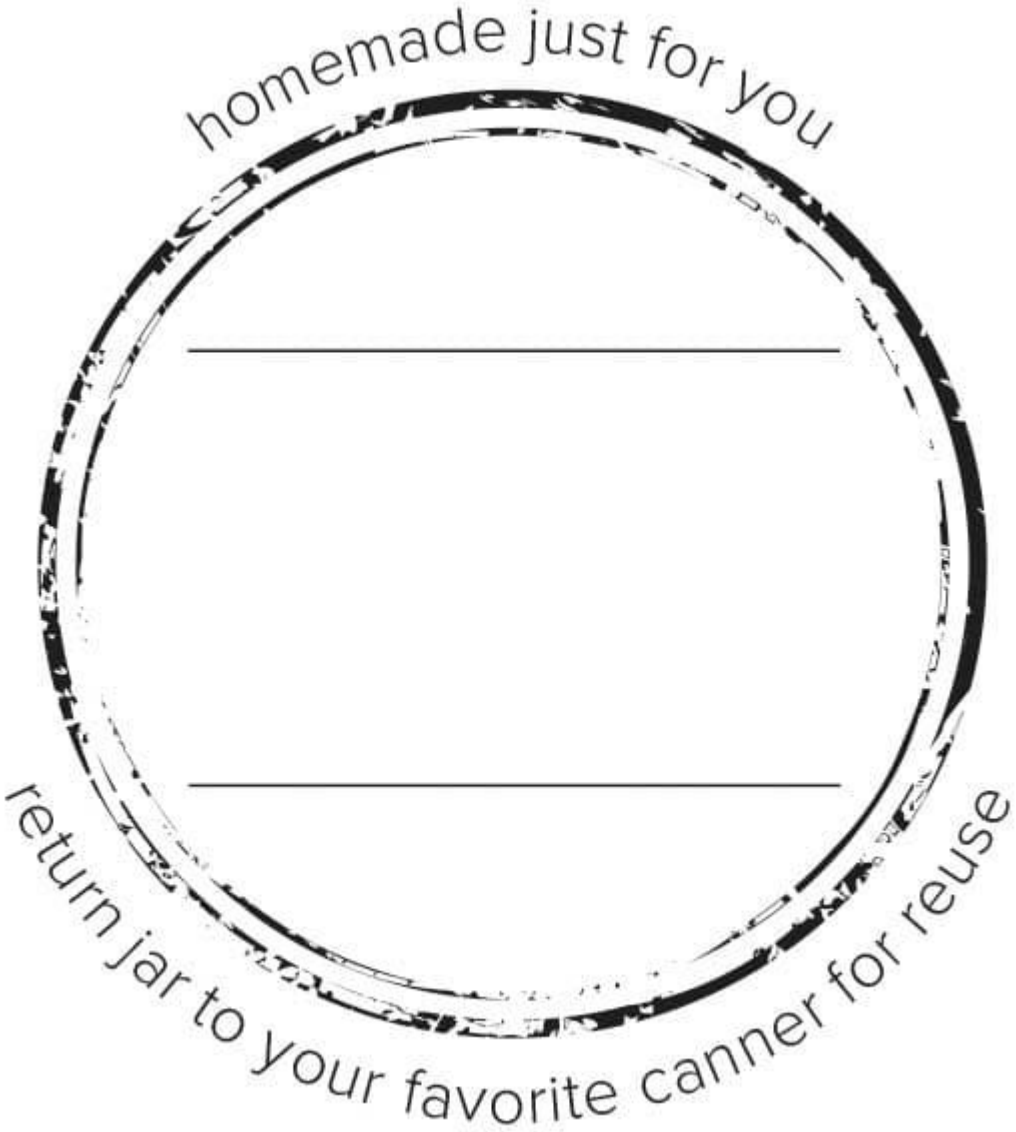
2. Water bath canning (my favorite food preservation method!)

Canning food in sealed jars makes them shelf stable, much like your favorite canned goods at the grocery store. There is an important food safety limitation with this method, though. It can only be used for **high acid foods**. This includes products pickled with vinegar, fruits, tomatoes, and jams and jellies.

- **Special equipment:** Canner (a large pot with a rack), jar lifter, canning jars, lids, and rings [**Read all about canning equipment here.**]

Recipes to try:

-
    -
        - **Passion fruit jelly**
        - **Applesauce**
        - **Watermelon rind relish**
        - **Ginger spiced nectarines**
        - **Chai spiced peaches**
        - **Pineapple jalapeno jam**
        - **Caramelized onion jam**
        - **Mango chutney**
        - **Zucchini relish**
        - **Tangerine jam with ginger and vanilla**
        - **Chow chow green tomato relish**
        - **Tomato chutney**
        - **Salsa for canning**
        - **Homemade raspberry jam**
        - **Black cherry preserves**
        - **Mango jam**
        - **Blueberry jam**



Planning on doing lots of canning this year? Grab a FREE download of these **cute printable canning labels** — complete with a gentle reminder to return the jar, in case you're giving some as gifts!

3. Pickling for food preservation

Pickled foods are those that are preserved in vinegar, such as dill pickles, sweet pickles, and pickled onions.

Pickled food products can be preserved using the **water bath canning method** or they can be **stored in the refrigerator** (thus the term refrigerator pickles).

Pickling is easy! Fill jars with vegetables and pour a brine over the top, then either process in the canner (using a safe recipe to preserve food) or pop them in the fridge.

- **Special equipment:** None for refrigerator pickles
- Read this to find out **more about the difference between pickling and fermenting**.

Recipes to try:

-
    -
        - **Dilly green beans**
        - **Pickled jalapeños**
        - **Refrigerator bread and butter pickles**
        - **Quick pickled cucumbers**
        - **Pickled red onions**
        - **Deli style garlic pickles**

4. Pressure canning

Foods that cannot be preserved using the water bath method can be processed under pressure. This includes low acid foods like non-pickled vegetables, meat and fish, broth, and prepared soups.

This home canning method **requires a special pressure canner** (an electric pressure cooker is NOT a safe method for pressure canning).

Jars must be processed at pressure for very specific amounts of time to **prevent bacterial growth inside the jars**. This isn't a difficult process, but you do need to be sure to **follow certain safety guidelines when pressure canning**.

- **Special equipment:** Pressure canner, jar lifter, canning jars, lids, and rings

Recipes to try:

-
    -
        - **Canning dried beans**
        - **Canning chicken stock**

5. Fermentation

Probably one of the oldest methods of food preservation, fermentation produces an acid that preserves food.

One common method of fermenting vegetables is using a salt brine or simply massaging vegetables with salt. This is how sauerkraut is made.

Once prepared, it's essential that the food is not exposed to oxygen. This is done by **keeping fresh produce submerged under liquid** to prevent food spoilage. There are a number of different fermenting systems available, but if you don't want to invest in those, you can get by without them.

- **Special equipment:** Weights (you can buy glass weights or just use clean, smooth stones)

Recipes to try:

-
    -
        - **Fermented honey with Meyer lemons**
        - **Fermented cauliflower**
        - **Preserved pumpkin spears**
        - **Homemade sauerkraut recipe**
        - **Fermented banana pepper hot sauce**
        - Squash and cucumber pickles
        - **Lacto-fermented radishes**
        - **Fermented sugar snap peas**

6. Freezing foods

One of the easiest preservation techniques, and if you've got a freezer, you're likely using this method already, even if just to preserve some dinner leftovers. It's an easy method for preserving excess fruits and vegetables from the garden, too.

Freeze chunks of fresh peaches and nectarines for your breakfast smoothies or **fill freezer-safe containers** with blanched green beans, corn, or fresh spinach.

Special equipment: Freezer containers [**go here for a list of freezer safe options that are not plastic**]

Methods to try:

-
    -
        - **Grape freezer jelly**
        - **Freezing avocado**
        - **Freezing carrots**

7. Root cellaring

Before refrigeration, the root cellar was a critical part of food storage for people. The cool, dark space under a home or built into the side of a hill was perfect for storing crops like pumpkins, potatoes, apples, and carrots. These "storage vegetables" will keep for months after harvest when stored right.

A root cellar is also an excellent place to hang smoked sausage and other charcuterie and to store your home canned goods. It can be kind of a perfect storm of storage for the various food preservation methods you use!

- **Special equipment:** None

Methods to try:

-
    - Check out my friend Teri's ebook, ***Building a Homestead Root Cellar***
    - **Turn a garbage can, an old ice chest, or refrigerator into a DIY root cellar**

8. Salting for food preservation

Salt acts as a preservative. Early sailors and pioneers preserved meat with salt, burying pieces of meat in barrels of salt.

While I haven't gone so far as to salt meat, this method works well to preserve citrus, too. Salted citrus can last for years and can be used to flavor dishes as you cook. (You wouldn't want to eat a whole salted orange, though!)

- **Special equipment:** None

Recipes to try:

-
    -
        - **Salted lemons and tangerines**

9. Infused vinegar

Infusing vinegar with the flavor of fruits and herbs is a way to save some of your favorite flavors to savor later.

Use infused vinegar in marinades or to make salad dressing. Infused vinegar will last indefinitely on a pantry shelf.

- **Special equipment:** None

Recipes to try:

-
    -
        - **DIY infused vinegar**

10. Herbed salts and sugars

Another way to preserve the flavor of herbs, herbed salts and sugars are not going to **sustain you in a crisis**, but they do allow you to enjoy some of your favorite flavors beyond their seasonality. Combining chopped herbs with salt dries out the herbs. Use herbed salt to season meats or stir into soups and casseroles. Herbed sugars (think: mint) are perfect for sprinkling on desserts or stirring into tea.

- **Special equipment:** None

Recipes to try:

-

-
    - **Basic herb salt recipe**
    - **Lemon sugar**
    - **Orange sugar**

11. Freeze drying at home

Freeze drying is for hard-core food preservers. While you can freeze dry food right in the freezer, it takes weeks and a lot of freezer space. Using dry ice is another method; it's faster, but requires access to dry ice. Both of these methods are inconvenient at best. New technology has recently been made available to consumers in the form of a freeze dryer machine, much like a small refrigerator. I'm told they work well, but they're not cheap. It could be a great investment for a food co-op or collective, but it's probably out of the price range of most DIYers.

- **Special equipment:** Freeze dryer

Methods to try:

-
    - **How to freeze-dry food with dry ice or in the freezer**
    - **Using the Harvest Right freeze dryer**

12. Vacuum sealing

By removing all of the oxygen from a container, we can extend the shelf life of various types of food. I debated adding vacuum sealing to this list of food preservation methods, as it's not really a stand-alone method of preserving foods.

Vacuum sealing must be used in conjunction with other food preservation methods. Vacuum sealing meat will allow you to keep it longer in the freezer. Vacuum sealing food that's been freeze dried will help retain the crispness of those foods. And bulk dry foods like rice and oats will last much longer when they've been vacuum sealed.

This method has the drawback of requiring plastic or Mylar bags. While I like the concept of vacuum packing food, the need for these plastic bags has put me off so far.

Additionally, there's a special vacuum sealing machine that heat-seals these bags. (It is possible, though, to **vacuum seal without a machine**.) There's also a special attachment that allows you to vacuum seal dry foods in *jars*. This could be useful for extending the life of nuts and dried fruits, especially here in my humid climate.

- **Special equipment:** Vacuum sealing system

Methods to try:

-
    - **Using a brake bleeder (!) to make a DIY jar sealer**
    - **Three keys to better vacuum sealing**

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Job 1

Pineapple Jam

Ingredients for Pineapple Jam with Pectin

- 3 cups Pineapple Puree
- 3 cups Sugar
- 50 grams Pectin
- 1 tbsp Lemon Juice

How to Make Pineapple Jam with Pectin

Mix powdered pectin with sugar and set aside. Take pineapple puree in a large pot. Bring it to a full boil. Once it starts to cook, boil them for 1 minute. Now add in the sugar pectin mixture and boil on high for 2 minutes. It should be on rolling boil. once 2 minutes is up, turn off the heat. Pour the jam into sterlized glass jars. Cover loosely with lids and let it cool for few hours. Now cover them tightly with lid and store.

Job 2

Orange Jelly

Ingredients for Orange Jelly

- Orange - 3 (yields 1.5 cup of orange juice)
- Gelatin - 1 tblspn
- Water - ¼ cup
- Sugar - 2 tblspn or to taste
- Orange Essence few drops
- Orange Food Colouring a pinch

How to Make Orange Gelatin

1. Take gelatin in a bowl and add in water. Mix well and set aside to soak.
2. Wash oranges well and cut them in half. Squeeze out the juice from them and remove the membrane using a spoon.
3. Now arrange the orange shells in a cupcake mould.
4. Take gelatin mix in a sauce pan, heat on low heat and mix till the gelatin is melted. Set aside.
5. Now strain the orange juice into a jug. Add in sugar, gelatin mix, orange essence, food colour. Mix well.
6. Fill the orange shells with this.
7. Chill it in fridge for 2 to 4 hours.
8. Remove it from fridge, and un mould from the case. Slice them in half.
9. Serve.

Types of Vegetables Cuts:

Some recipes ask for the ingredients to be cut into special shapes and sizes. These traditional cuts have French names. In general there are seven types of cut below:

Name	Dimension
1. Julienne	**Strips**2 mm x 2 mm x 40 mm (match stick) sizeSometimes a longer, thinner cut is asked fore.g. carrot, celery
2. Brunoise	Chops2 mm x 2 mm x 2 mm small dice e.g. onion
3. Jardinière	Batons (stick-shaped)4 mm x 4 mm x 20 mm baton e.g. carrot
4. Macedoine	Cubes10 mm x 10 mm x 10 mm dice e.g. fruit salad
5. Paysanne	Thin slices about 1 mm thick Match the shape of the vegetable Often used for garnishing soups
6. Mirepoix	Rough but even cute.g. carrot, onion, celery for flavouring stocks and soups
7. Chiffonnade	2 mm thin shrede.g. leaf vegetable

Job Sheet 3

Prepare Vegetable Stew

Methods of Preparation for vegetable stew:

• Wash, clean and sanitize tools, utensil, and equipment as per workplace requirement.

• Cut all vegetables into Macedoni (large dice)

• Take a boiling pen with salted water and bring to the boil

• Add potato, carrot, cauliflower and cabbage sequent and blanch.

• Drain out all vegetables in a colander

• Take a stew pan and melt the butter.

• Add onion to the pan and sauté for 10 seconds, then add blanched vegetables including Celery and parsley, stir nicely.

• Pour the stock and bring to a boil, simmer for 12-15 minutes.

Serve hot into a stew bowl putting chopped parsley on the top

Specification Sheet: 27

To complete the above task, you will need the following equipment and ingredients:

Ingredients	Quantity

Potatoes	40 gm
Cauliflower	40 gm
Carrot	40 gm
Onion	20 gm
Celery	20 gm
Cabbage	20 gm
Leek	20 gm
Butter	5 gm
Chopped parsley	1/4 teaspoon
Stock	300 ml
Water	.5 liter
Salt	To taste
White pepper	1/4 teaspoon

Job Sheet 4

Prepare Baked Jacket Potato

Method of Preparation for Baked Jacket potato:

▪ Select potatoes which are large; skin should be with no marks or blemishes.

▪ Scrub the potatoes well, rinse and dry in cloth.

▪ Place on a bed of salt in a roasting tray. Place tray in the oven at 230' C for appx. 1 hour.

▪ Turn the potatoes over after 30 minutes

▪ Test for tenderness/done – by holding them in a cloth and squeeze gently.

▪ If cooked and ready for service they should be soft.

▪ Cut with a knife a cross-shape in the top and squeeze.

▪ Serve very hot

▪ Serve folder up in a napkin to keep hot

▪ Garnish with parsley butter, melted butter.

Specification Sheet: 30

Raw materials	Quantity
Potato large	1 nos
White pepper ground	1/4 teaspoon
Sea salt	To taste
Parsley chopped	5 gm
Butter	1 teaspoon

Job Sheet 5

Prepare Russian Salad Method of preparation for Russian salad:

• Boil the carrot, potato, peas and French beans in a pan with enough water just about covering them.

• Boil an egg in another pot.

• When the veggies and egg is cooked, drain all the water and let the heat reduce a bit or become warm.

• Then peel the potato, egg, carrots and make them small diced with the rest of the veggies.

• Now take a mixing bowl, mix the diced veggies, celery with the mayonnaise, salt and black pepper.

• Garnish the salad with lettuce leaves, diced tomato, cucumber, or capsicum diced.

• Serve the Russian salad cold.

Specification Sheet: 40

To complete the above task, you will need the following ingredients and equipment's:

Raw materials	Quantity
Carrot small diced	100 gm
Potato small diced	100 gm
Frozen Green peas	60 gm
French beans	40 gm
Mayonnaise	4 tablespoon
Salt	To taste
Black pepper ground	¼ teaspoon
Lettuce	2 pieces
Boiled egg	1 piece
Tomato	40 gm
Cucumber	40 gm
capsicum	20 gm

Prepare Coleslaw Salad

Job Sheet 6

Method of preparation for Coleslaw salad:

• Wash, peel, cut julienne cabbage and carrot.

• Shred parsley to the cabbage and carrot and toss to mix.

• In a separate bowl, stir the mayonnaise, vinegar, mustard, salt, sugar and pepper together.

• Pour two-thirds of the dressing over the cabbage and carrot then mix well using two forks.

If the coleslaw seems dry, add a little more of the dressing.

Specification Sheet: 41

To complete the above task, you will need the following ingredients and equipment's:

Raw materials	**Quantity**
Carrot julienne	100 gm
Cabbage red	50 gm
Green cabbage	50 gm
Parsley coarsely chopped	10 gm
Mayonnaise	4 tablespoon
Salt	To taste
Black pepper ground	¼ teaspoon
Sugar	1 teaspoon
Dijon mustard	½ teaspoon
Apple cider vinegar	1 teaspoon
Cucumber	40 gm
capsicum	20 gm

Job Sheet 7

Club Sandwich Preparation

Method of preparation for club sandwich: For 2 pax

• Toast the bread slices and butter on one side each.

• Brush with mustard and a tablespoon of mayonnaise.

• Place lettuce or cabbage leaves over a toast and cover with a slice of cheese and shredded chicken.

• Cover with another toast and cover with tomato slices.

• Place a fried egg over the tomato.

• Cover with another toast, buttered side down and secure together with tooth-picks.

• Cut diagonally into half and serve with tomato sauce and mustard on the side.

• Make the other sandwich in the same way.

• Serve.

To complete the above task, you will need the following equipment and ingredients:

Raw materials	**Quantity**
White Bread Slices	4
Butter	1 tablespoon
boiled and shredded chicken	200 gm
Round sliced Tomato	2 pieces
Sliced cheddar Cheese	4 nos
Fried eggs	2 nos
Ice berg Lettuce	2 no
Dijon mustard	2 tsp
Mayonnaise	2 tbsp