HOME SCIENCE

SENIOR THREE

STUDENT'S BOOK

Kigali, January 2019

FOREWORD

Dear Student,

Rwanda Education Board is honoured to present to you this Home ScienceBook for Senior Three which serves as a guide to competence-based teaching and learning to ensure consistency and coherence in the learning of geography subject. The Rwandan educational philosophy is to ensure that you achieve full potential at every level of education which will prepare you to be well integrated in society and exploit employment opportunities.

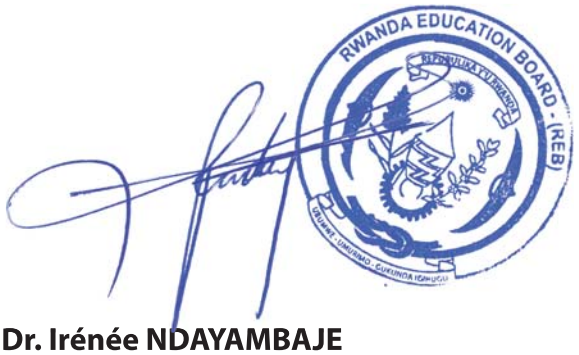
The government of Rwanda emphasizes the importance of aligning teaching and learning materials with the syllabus to facilitate your learning process. Many factors influence what you learn, how well you learn and the competences you acquire. Those factors include the instructional materials available among others. Special attention was paid special attention to the activities that facilitate the learning process in which you can develop your ideas and make new discoveries during concrete activities carried out individually or with peers.

In competence-based curriculum, learning is considered as a process of active building and developing knowledge and meanings by the learner where concepts are mainly introduced by an activity, a situation or a scenario that helps the learner to construct knowledge, develop skills and acquire positive attitudes and values. For effective use of this textbook, your role is to:

- Work on given activities which lead to the development of skills
- Share relevant information with other learners through presentations, discussions, group work and other active learning techniques such as role play, case studies, investigation and research in the library, from the internet or from your community;
- Participate and take responsibility for your own learning;
- Draw conclusions based on the findings from the learning activities.

I wish to sincerely extend my appreciation to the people who contributed towards the development of this book, particularly REB staff who organized the whole process from its inception. Special gratitude goes to the University of Rwanda which provided experts in design and layout services, illustrations and image anti-

plagiarism, lecturers and teachers who diligently worked to successful completion of this book. Any comment or contribution would be welcome for the improvement of this textbook for the next edition.



Dr. Irénée NDAYAMBAJE

Director General of Rwanda Education Board

ACKNOWLEDGEMENT

I wish to express my appreciation to all the people who played a major role in development of this Home Sciencetextbook for senior Three. It would not have been successful without active participation of different education stakeholders.

I owe gratitude to different Universities and schools in Rwanda that allowed their staff to work with REB in the in-house textbooks production project. I wish to extend my sincere gratitude to lecturers, teachers and all other individuals whose efforts in one way or the other contributed to the success of writing of this textbook.

Special acknowledgement goes to the University of Rwanda which provided experts in design and layout services, illustrations and image anti-plagiarism.

Finally, my word of gratitude goes to the Rwanda Education Board staff particularly those from the Curriculum, Teaching and Learning Resources Department (CTLR) who were involved from inception in the whole process of in-house textbook writing.

Joan MURUNGI,

Head of Curriculum, Teaching and Learning Resources Department

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HOME CLEANING AND HOME ARRANGEMENT

UNIT 1: HOME CLEANING AND HOME ARRANGEMENT

Key Unit Competence

Learners should be able to apply cleaning procedures and arrange a home.

Learning objectives

- Describe types of surfaces
- Understand cleaning procedures and techniques.
- Explain the techniques for organizing a home
- Apply cleaning procedures on different surfaces.
- Practice the techniques of organizing a home
- Care for different types of surfaces
- Comply with home cleaning procedures
- Conform to the techniques of organizing a home and appreciate the result.

Introductory activity

We are looking for wedding room photography. Observe the picture below:

1. Is it perfect to maintain the room for wedding event like this?
2. Why this home is kept like this?
3. Describe the situation and on your view, give some suggestions
4. What can you predict to learn in this unit?

1.1. Types of surfaces

Activity 1.1

1. Observe the picture below:

2. Identify the type of surfaces in the picture above and describe them.

sources: https: //www.amazon in /carpet/b?ie=utf8&mode=/380463031
https://www.en.wikipedia.org/wiki/wall
https://www.ecofail.com/catedral-celiaf-insulation

The surfaces are classified into two types. These include:
Soft surfaces is a material or surface that is pleasant to touch and not rough or stiff.

Examples*: A carpet, curtain, sofa, pillow, mattress, linens and clothes*

Hard surfaces is a material or surface that is hard or stiff to touch.

Examples: *Furniture, floor, wall and ceiling of house*

1.2. Home cleaning procedures

Activity 1.2: Applying cleaning procedures

1. Discuss the ongoing activities in the picture above.
2. Explain the impartance for applying the same activities in our society.
3. Outline the guidelines to success such activity.

A home is kept attractive when furniture and fittings plus the compound are cleaned, maintained and the facilities are properly used. The home should provide a safe and healthy environment for residents and visitors. The home cleaning involves the removal of dirt (loose and fixed) from various surfaces in a home. The cleaning procedures provide both aesthetics and hygienic values.

The cleaning procedures are the processes or the ways in which cleaning is performed, to enable the effective removal of contaminants without adding unwanted substances to the home environment. These procedures include:

- **Letting light in,**open the curtains and windows, shake off the dust.

- **Cleaning,** of bathroom, bed room, living room, kitchen, the home compound and surrounding

- **Emptying dustbin**

While home cleaning last of all you will take out the dustbin trash then wash the bag with a soap and water. Replace the bag with a new one
Apart for cleaning procedures above the cleaning steps of each place (bathroom, bed room, living room……) are provided in this part.

a. Cleaning the bathroom

The bathroom must be kept clean for the surfaces, walls, floor, shower and toilet sparkling clean. These are steps:

Part one: **Preparing to clean**

- Remove all the items that don't belong in your bathroom

- Pour some bleach or another disinfectant into the toilet bowl

- Dust

In general, when cleaning any room, start from the top down. Clean cobwebs in the corners of the bathroom, and brush other dust and dirt directly onto the floor to sweep up later.

- Apply any scrub powder to especially dirty areas

Part two: **Cleaning surfaces**

- Clean the walls, windows and/or ceiling.

- **Clean the shower**

Spray cleaning product on the shower walls, and the shower head and let it rest for a couple of minutes.

- **Clean the sink and counter area**

Scrub all the soap scum and toothpaste off with a small amount of cleaner, rinsing your sponge thoroughly as you go along

- **Clean the mirror**

Cleaning with water wipe with a towel after.

- **Clean the exterior of the toilet**

Wipe the outside, starting with the flush handle so as not to re-contaminate it, with a cloth soaked in disinfectant cleaner. Thoroughly wash and rinse all exterior surfaces of the toilet bowl, including the underside and flared base, the top and underside of the seat and lid, and the hinges and their mounting area with a cloth and detergent or similar cleaner.

- **Scrub the bowl with a toilet brush and flush**

- **Sweep and mop the floor**

Start with the farthest point from the door. Sweep up all the dust and debris you've cleaned so far and let fall on the floor, then mop using hot soapy bleach water

Part three: **Keeping the bathroom clean**

- **Run the fan**

Keeping your bathroom ventilated will discourage the growth of mildew, keeping your big cleaning sessions few and far between. Always run the fan after you get out of the shower, to dry out the bathroom and keep the moisture from clinging.

- **Wipe down the** shower after you use it

- Keep it tidy

- **Use the toilet brush**

Even if it doesn't look dirty, minerals in the water can stain the bowl, so it's a good idea to brush the toilet down with a sturdy toilet brush fairly regularly.

- **Wash toothpaste down**

Toothpaste stains and build up in the sink and even on the mirror can make a bathroom look dirtier than it needs to be.

b. Cleaning of living room

As one of the most used spaces in the house, the living room can easily become cluttered and dirty. Regularly covering the basics, such as the-cluttering and vacuuming, as well as deep-cleaning every once in a while, will keep this area tidy and inviting for you and your family. There are four parts to follow while cleaning:

Part one: **Airing room and drawing curtains**

Part two: **Cleaning**

- Pick up any trash
- De-clutter your space daily
- Straighten up the sofa
- Dust surfaces
- Straighten and stack any books or magazines on the coffee table
- Reposition any floor or throw rugs that may have shifted out of place
- Clean the ceiling fan and light fixture
- Vacuum the drapes and blinds
- Vacuum the floor last

Part three: **Deep-cleaning**

- Wash the windows
- Polish your furniture
- Shampoo your carpets and rugs

Part four: Organizing your space

- Consider new storage techniques
- Keep all of your remotes in place
- Invest in some "double-duty furniture

c.Cleaning the kitchen

Cleaning the kitchen may seem a daunting task. Break it up into manageable sections. Add some great music and you'll be coasting your way through the cleaning task. There are 7 parts to follow:

Part one: **cleaning the stove top**

- **Wipe the burners**

- **Wipe the stove surface**

Use a sponge and soap or invest in some Clorox wipes to really break down those stains.

- **Remove the control knobs and wash them**

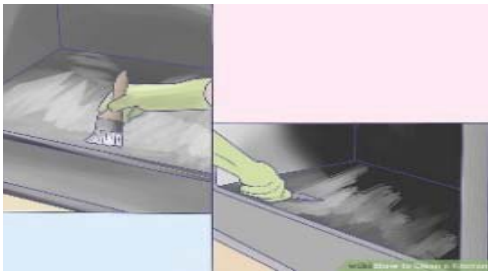
Wash them in the sink using warm water and mild dish soap. Avoid using a soap that has abrasives or ammonia in it, as these components will wash away the markings on the knobs.

- **Wipe the outside of the vent hood**

Use a soapy cloth to clean the vent hood. Wash away the suds with a damp cloth, and then dry with a dry cloth. Once a month, remove the vent filters and soak them in warm, soapy water. Gently scrub to clean, then let them dry thoroughly before putting them back.

- **Clean the grates of the oven**

- Remove the grates from the oven. Fill a tub or bucket with warm, soapy water and soak the grates for several hours. An effective oven cleaning mixture is ¼ cup salt, ¾ cup baking soda, and ¼ cup water. Spread the mixture all over the inside of the oven and let it remain overnight



- Use a plastic spatula to remove the mixture. Wipe the oven clean with a rag. Replace the racks when they are dry.

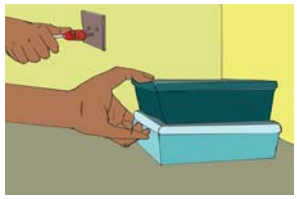
Part three: **Cleaning out the fridgerator**

- Remove all food from the fridge and throw out any items that have expired or gone bad.

- Combine two tablespoons baking soda and one-quart water. Dip a sponge in the solution, then wipe down the entire surfaces of the fridge, making sure to scrub out sticky stains. Wipe down every drawer and shelf, not just the main part of the fridge.

- Wipe the the solution way with a damp croth and a clean towel to dry each surface

Cleaning the Freezer



- **Clean out the freezer**

First, unplug the refrigerator, remove the frozen items, throw out expired items and put the rest in a cooler while you clean.

- **Leave a box baking soda in fridge**

if your frigde smells bad, open a box of baking soda and leave it in the fridge. Baking soda aborsobs odors and makes your fridge smell fresh

- **Prepare cleaning solution , spray and wipe down the freezer**

Combine 1 cup of water, 1 teaspoon dish soap, and 1 teaspoon white vinegar. Shake the solution well then spray the freezer with the mixture. Wipe down and dry freezer with paper towels. Plug the refrigerator back in and restore your frozen goods to their proper places.

Part four: Cleaning cabinets and counters

- **Clean out the cabinets**

Clean cabinets out, throw away expired items and wipe the cabinets with a wet, soapy rag to remove dust and crumbs.

- **Clean the front of your cabinets**

Grime and grease can build up on the fronts of cabinets. Wipe them down with a wet rag and dry them thoroughly to avoid any color distortion.

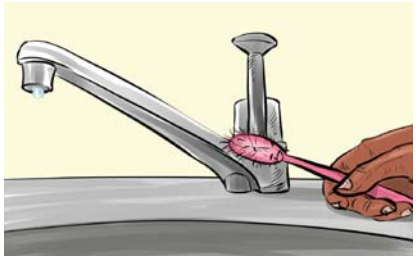
- **Wipe down the counters**

Use a sponge and soapy water to wipe counters down (every night after you are done cooking), wipe them and dry with a clean rag or paper towels.

Importance of arranging curtains includes controlling the light, creating privacy, softening windows, providing insulation and enhancing the décor of the room. The following are steps in cleaning and organizing curtains:

Part five: Cleaning the Sink

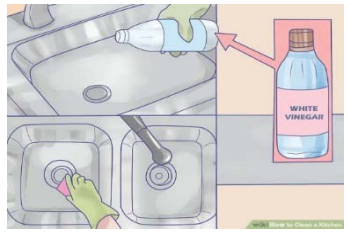
- Wash all yours dishes (make sure to do this before you start cleaning the sink). Either rinse dirty dishes and cups and put them in the dishwasher, or wash them in the sink.



- **Clean around the faucet**

To clean hard to reach crannies of the faucet, use a toothbrush dipped in warm, soapy water. Buff out any water spots left behind with a dry cloth.

- **Wipe the basin and fixtures of the sink**
- To avoid mold growth or water stains, wash the basin with warm, soapy water and a sponge. Rinse along the edge of the basin, as well. Remove water stains from the fixtures.



- **Keep your garbage disposal working properly**

If your sink is having a hard time draining, run the garbage disposal to get rid of anything that might be lurking down there. Make frozen cubes of vinegar in an ice tray, drop them down the disposal, and then pour boiling water into it as you run the disposal. This will also sharpen your garbage disposals blades.

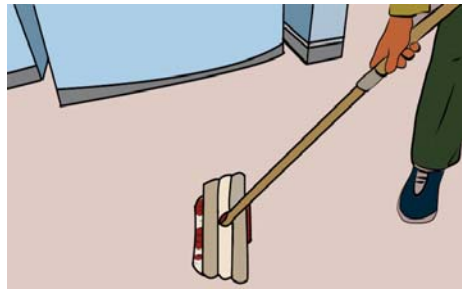
part six**: Cleaning smaller appliances**

- **Wipe down the microwave** Use warm, soapy water and a sponge to wipe any splatters inside your microwave. For really tough stains, use a mixture of 2 tablespoons of baking soda and 1 quart of water. Rinse with clean water, and then dry with a clean rag.

- **Keep all of the appliance parts together.**

Part seven: Finishing Up

- **Sweep the floor with broom and dustpan**



- **Mop the floor when necessary**

use a mop and bucket of soapy water to deep clean your floor

- **Put everything back in its proper place**

- **Take out the trash**

Last of all, take out the trash. You should do this last because while you are cleaning you will undoubtedly find things you will want to throw away. Wash the trash with soap and water. Replace the bag with a new one.

Cleaning home compound and surrounding

- Sweep the floor with broom and dustpan

Before you deep clean your floor, sweep any specks of dust, crumbs, and garbage that might be on the floor.

1.3. Cleaning and organizing soft surfaces

A. Curtains

Activity 1.3: Cleaning and organizing the curtains

Cleaning is one of the components of protecting the environment:

a. Pick the curtains and bed then clean and organize them.

b. Write down the cleaning and organizing steps of curtains.

Importance of arranging curtains includes controlling the light, creating privacy, softening windows, providing insulation and enhancing the décor of the room.

Step 1: Thoroughly clean the window, inside and outside. The glass is known to develop a film of dirt that reduces the amount of light permitted to enter the room and can also detract from the appearance of the curtains.

Step 2: Hang the curtains so that their level and the rod are secured. It is of the utmost importance that the rod be properly mounted, as this will ensure it can carry the weight of the drapes and avoid sagging or breaking.

Step 3: For windows in hard to reach places or in locations where privacy is not of concern, arrange the drapes in fixed position. They are often held in place using tiebacks, the rods aren't visible, and the pleats are even

Step 4: For window that you will open and close regularly, arrange the curtains so that the rod functions well. Test the cords to make sure that the overlapping portions do not touch and that the drapery pins repositioned nicely.

Step 5: If you need to adjust any surrounding furniture so that they aren't touching. The curtains should break just on the floor surface, which means that the hem should touch the ground, and the fabric should bend slightly.

Step 6: Once the curtains have been installed, you can place any scarf and swag treatments. Arrange the flow of the swag to complement and hide the top of the drapes; they will often use a Different color to add depth.

Notice: When it comes to arrange your curtains, make sure that you do so based on a list of your personal priorities for that particular window; this is because each window has different needs (a dining room will not need as much privacy as a bedroom, for example). Listing your priorities will be able to ensure that most of them are met with your arrangement.

Application Activity 1

Clean and organize the curtains of head teacher office appropriately and make up a report with the table below:

Cleaning Steps	Cleaning Techniques	Remark /notice

B. Making a bed

Activity 1.4

When you want to sleep peacefully, you should make your bed appropriately. Discuss and advise on bed making (What are different items that you have to put in place? Describe
the procedures that should be applied?).

There are many ways to make a bed, but some are better than others. Experienced accommodation specialists have simplified the process by designing a few steps so that bed making can be simple, efficient and well done.

Different items used to make bed

Bed base is a piece of furniture incorporating a mattress or other soft surface for sleeping or resting on.

Mattress is a fabric case filled with soft or springy material used for sleeping on.

Night frill is a strip of gathered or pleated material sewn by one side only on to a garment or piece of material as a decorative edging or ornament.

Mattress protector: It is a hard linen that protects mattress to avoid soil.

Bed sheets: It is sheet is a large rectangular piece of cotton or other fabric, used on a bed to cover the mattress or as a layer beneath blankets.

Blanket: It is a large piece of woolen material used as a covering for warmth, as a bed.

Duvet is a soft, thick quilt used instead of an upper sheet and blankets. ``

Bedcover: It is a bed cloth that covers or protects a read prepared bed attractively.

Pillows / pillow sleep is a rectangular cloth bag stuffed with feathers, wadding, or other soft materials, used to support the head when lying or sleeping

Pillow protector is a rectangular cloth bag that protects pillow.

Pillow cases is a cloth cover for a pillow which can easily be removed and washed. Also, it can be defined as container designed to hold or protect pillow. The outer protective covering of a natural pillow

Decorative cautions: A care taken to avoid danger or mistakes of pillow

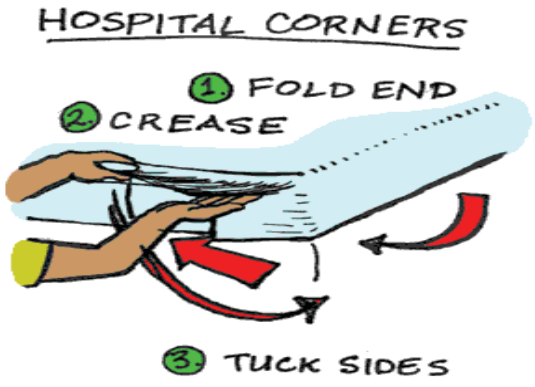
Bed throw

Under sheet: a bed sheet that lies underneath something else.

Bottom sheet: a bed sheet used to cover a mattress. E.g. sheet that one typically lies on.

These are the steps to make a bed:

Step 1: Pull the bed away from the wall or use the pedal to lift up the bed.
Step 2: Remove all bed coverings such as the bedspread, the pillows and the blanket or duvet and place them on a chair, desk or couch nearby.
Step 3: Remove all dirty pieces of linen such as sheets and pillow cases and put them in the laundry bag.
Step 4: Also remove all towels from the bathroom and place them in the laundry bag



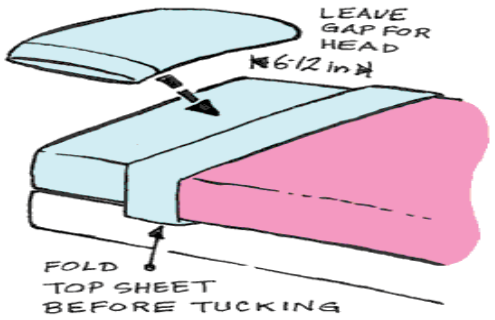
Step 5: Stand at the foot of the bed, spread a clean bottom sheet across the mattress and tuck-in the bottom edge and make hospital corners

Step 6: Place the top sheet face down on the bed and tuck-in the edges in the same way as the bottom sheet.

Step 7: Leave a length of about 30 cm or one foot of extra sheet and fold the extra material over the blanket.

Step 8: Tuck both sheet and blanket under the mattress and make hospital corners

Step 9: Put clean pillow cases on the pillows



Step 10: Put the bedspread back in place and place the pillows on the bed and put the bed back in its place

Note: Don't forget

- Make sure the under sheet is clean before you make the bed
- Make sure the sheets are clean before you make the bed
- Make sure the bedspread and blanket are clean before you make the bed

C. Sofa

Activity 1.5

1. Observe the following pictures:



2. In a house locate where are soft surfaces used on above pictures
3. Identify soft surfaces from the picture above and make a comment on their usage.

A sofa is a long, comfortable seat with a back and usually with arms, which one or more people can sit on. It is made in a variety of materials, from cotton fabric to leather. Many of these materials are difficult to clean with normal household cleansers, which often leave spots or marks behind.

Important is to locate the fabric tag on the sofa to determine what material it is made of. Most sofa manufacturers use letter codes to indicate how to clean the furniture:

- A "W" means that sofa can be cleaned with a water-based detergent,
- An "S" indicates that it needs to be dry cleaned or cleaned with a water-free detergent,
- "WS" means that it can be cleaned with a water-based cleaner or dry cleaned,
- "X" indicates that it should be cleaned only by vacuuming or hiring a professional to dry clean it,
- "O" indicates that it is organic material made from natural fibers and should be washed in cold water.

The following is image showing a kind of sofas:

Sofa cleaning procedures

There are 7steps to follow as indicated below:

Step 1: Pre-vacuum

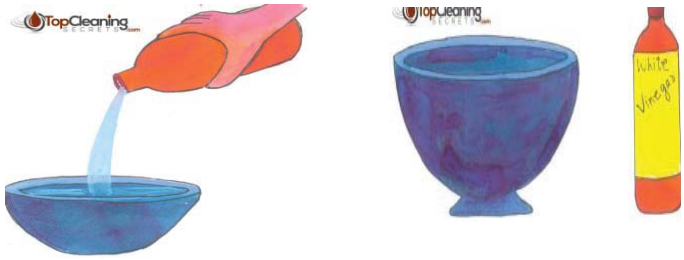
All sofa surfaces are vacuumed with a wet & dry vacuum cleaner using a crack tool and sofa nozzle as appropriate. Working deep into creases, crevices and folds all loose dirt dust and fluff are removed.

Step 2: Stain removal

All marks on the sofa are tested with spot cleaner to see if spillages are spots or Stains. Stains are pre-treated with a colloid stain removing agent; to minimize the amount of moisture available for absorption by the filling. For several minutes to work on loosening the stains prior to being absorbed with clean white cloths. The remaining Total Elim is vacuumed out to ensure complete stain removal. Room windows are opened to aid air movement, which speeds drying times.

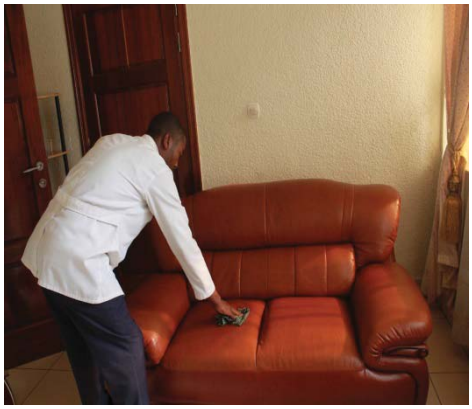
Step 3: Cleaning solution

A broad-based ionized cleaning solution is applied with a Tri-jet fogger. Fogging ensures that cleaning solutions are applied in correct concentrations to the fabric surface without wetting.
The padding or stuffing in the sofa. The container chair and the sofa bed are clouded separately. 2-5 minutes is allowed for the cleaning action to occur.



Step 4: Extractions cleaning

A sofa mitten is immersed for 2 minutes in an opposite polarity hot solution milked as dry as possible and then the fabric is wiped with a vigorous action to remove the dirt from the fibers. Magnetic attraction attracts the dirt onto the pad leaving the sofa clean. Appendages are rinsed, and the cleaning action repeated as necessary. A separate bucket of plain water is used when cleaning dirty or nicotine fabrics.



Step 5: *Secondary extractions*

All sofas are then vacuumed with the wet & dry vacuum cleaner, with as many passes as necessary to remove the moisture absorbed by the cover material and filling during cleaning.

Step 6: Cleaning
Appropriate fibers are prepared with the sofa cleaning tools.

Step 7: Deodorize and sanitize

A dual sanitizer and deodorizer are fogged for approx. 5 seconds across the cleaned sofa to kill any residual bacteria that might breed in the damp sofa. It also imparts a pleasant slow release smell.

A dual sanitizer and deodorizer are fogged for approx. 5 seconds across the cleaned sofa to kill any residual bacteria that might breed in the damp sofa. It also imparts a pleasant slow release smell.

Carpet cleaning

Activity 1.6

1. Observe the pictures below

2. Describe the surfaces shown in pictures above.
3. Are these surfaces made up of our local material?

A carpet is a textile floor covering typically consisting of an upper layer of pile attached to a backing. The pile was traditionally made from wool, but since the 20th century, synthetic fibers such as polypropylene, nylon or polyester were often used, as these fibers are less expensive than wool.

These are carpet cleaning steps:

Vacuuming Process

Step 1: Pre-Inspection

Visit the carpet to identify carpet history and construction, soiling conditions and potential permanent stains.

Step 2: Furniture Moving

Breakable items should be removed from all furniture before moving. Sofas, chairs and tables will be carefully moved. Furniture legs will be protected with disposable blocks and tabs. Larger pieces, such as beds and dressers are left in place. Heavy dressers can be moved if drawers are empty or removed.

Step 3: Pre-vacuum

Dry soil is removed by a thorough vacuuming. Removing dry soil is one of the most important steps in the cleaning process.

Step 4: Pre-spray

A preconditioning agent is applied to break down traffic area soil and other spots for a more thorough cleaning.

Step 5: Pre-Spot

Difficult spots are pre-treated with special cleaning solutions to increase the chance of removal.

Step 6: Pre-Groom
The carpet should be pre-groomed with a carpet groomer or rotary cleaning machine (depending on soil level) to further loosen traffic area soil.

Step 7: Extract and Rinse

once the soil has been loosened, the state-of-the-art truck-mounted hot water extraction cleaning process will thoroughly flush the carpet pile. Pressure and heat are regulated to prevent the carpet from being over-wet.

Step 8: Neutralizer

Every carpet that cleaned is pH balanced so that there is no sticky residue left behind. According to the carpet manufacturers, this is one of the most important steps to ensure that your carpet is left soft and fresh.
Step 9: Post Spot Treatment

If any spots are not removed during the cleaning process, specialty spotting techniques are employed.

Step 10: Post Groom

the carpet is groomed with a professional groomer so that the pile of a carpet is standing tall after living it. Post grooming helps the carpet pile dry faster and in the right position.

Step 11: Speed Dry

High velocity air movers are placed on the carpet immediately after cleaning to promote faster drying.

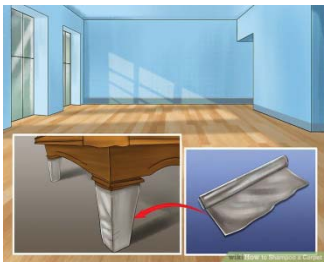
Step 12: Post Cleaning Inspection

finishing the task check the carpet to point out the cleaning results and make sure that you are completely thrilled with the job.

Shampooing process

There are four Parts to follow while shampooing a carpet.

Part 1. Cleaning the home



1. Move all the furniture

Anytime you shampoo your carpets, move all the furniture completely out of the room.

2. Vacuum the room thoroughly.

Vacuuming the room will remove larger dirt, hair, and dust balls, leaving the carpet ready for shampoo. Go in straight lines up and down the room and then do another set that crisscrosses the first set. Note: As you vacuum, look for stains that need pre-treatment before shampooing

3. Treat specific stains

With a basic carpet stain remover, spray any stains and let the cleaner work as directed.

Note: Some stains may require something besides stain remover.

Part 2: Filling the Shampooer

1. Make sure you know how the machine works

Read the instructions for machine use.

2. Fill the machine with the directed amount of water

Pay attention to the max fill line and do not add more water than it says.

3. Add the carpet soap.

Choose a soap that is designed to work with the shampooer that you have because not every soap will work with every machine. Pour only the amount of soap that is directed.

Part 3: Running the Shampooer

1. Start in a corner and make strips

Choose a corner of the room to start in, getting the shampooer as close to the
walls as possible.

2. Pull the machine slowly

Shampooers must shoot soapy water down into the carpet and immediately suck it back up. Be patient and pull the shampooer at a rate of one step per second, give or take. It may feel like you are going too slow and that it is taking too long, but the slower you go, the deeper the machine can clean your carpet.

3. Pay attention to the motor sound.

Most shampooers have a float valve in the dirty water tank to warn you once the tank is full. The motor will distinctly change sounds when the float valve engages. Stop immediately when the tank is full, or you could damage the machine. Empty the dirty water and refill the clean water multiple times before you are finished shampooing the room.

4. Empty dirty water into the toilet or outside

Part 4: Finishing the Job

1. Run the shampooer a second time with cold water and no soap

The emphasis is on cold water because hot water will activate the soap that remains which could cause it to suds up again.

2. Allow the carpet to dry completely before putting furniture back in the room

It can take six or more hours for the carpet to fully dry.

3. Rinse and empty both tanks of the machine after each use

Rinse the dirty water tank out thoroughly so that no grime remains in it. Emptying the tanks all the way keeps mildew from growing and keeps the machine in top working order.

Note: If the tank has a cap of any kind, leave it off for a day or two to allow the excess water to completely evaporate.

Application activity 2

At your school, there is a meeting about enhancement of environmental protection, the visitors are coming from Kenya and they know that Rwanda is a clean country, you are invited to prepare the living room where those visitors will stay, prepare that room in order to attract those visitors especially by cleaning and organizing sofa and carpet accordingly.

1.4. Cleaning hard surfaces

A. Ceiling

Activity 1.7

1. observing the picture below

2. Find out the activity that is being done and its importance.
3. List the types of ceiling that you have seen in different buildings? Come up in the table below

Name of surfaces	Cleaning procedures	Remarks /observations

The **ceiling** is an overhead interior surface that covers the upper limits of a room and the inside surface of room which you can see when you look above you.

- **Common types of ceiling**

1. Dropped ceiling

source:https://www google.com/search/q= dropped+ceiling&source=

2. Coffered ceiling

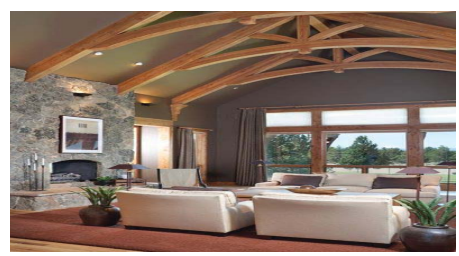
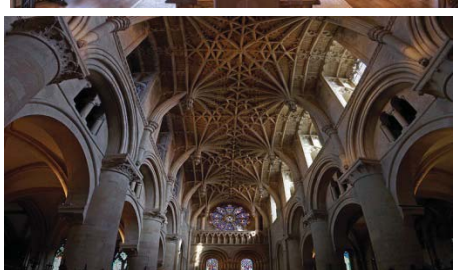
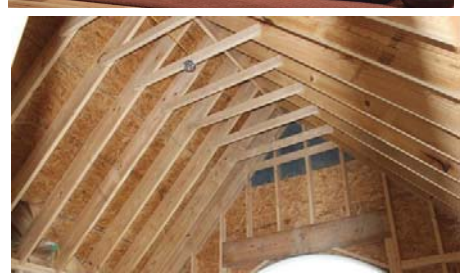
Is ceiling divided into a grid of recessed square or octagonal panels, also called "lacunar ceiling"




source:https//www.google.com/search?q=coffered+ceiling&source=

3. Cathedral ceiling

Cathedral ceiling is defined by symmetry with equal steeply sloping sides, meeting at ridge in the middle of a room and normally mirroring the pitch of the roof structure. It is any tall ceiling area like those in a church.

source:https//www.ecofoil.com/cathedral-ceiling-insulation

4. Cove ceiling

It is a ceiling that has the visual appearance of the point where the ceiling meets the wall improved by the addition of coving. It can also refer to an arched-dome ceiling, like in a mosque. A cove ceiling uses a curved plaster transition between wall and ceiling; it is named for cove molding, a molding with a concave curve.



source:https://www google.com/search/q= cover+ceiling&source

Role of ceiling

It is important that ceilings are resistant to heat since it is subject to frequent heat from long period of sunlight during the day. Ceilings that acts as a floor at the same time needs to be stable, tough and can hold heavy loads that can damage or cause accident at /in the house. In all types of the multi houses, ceiling/floors can be anti-fire or with sound isolation.

Cleaning procedures for ceiling

Ceilings are one of the parts of your home that you always see but rarely clean. The nature of ceilings makes them somewhat difficult to clean. Unfortunately, ceilings do get dirty and are rather unappealing when they are covered with dust or other stains.

There are three main steps to follow while cleaning a ceiling namely removing debris, wiping down your ceiling, and knowing how to clean your ceilings by cleaning specific stains.

- **Ceiling cleaning procedures by removing debris**

1. Vacuum the ceiling

Simply take the vacuum and gently run it along the surface of the ceiling.

4. Use a duster

Take your duster and dust back-and-forth across the entire surface of the ceiling. Make sure to get as much dust and debris off the ceiling as you can.

5. Wipe dirty areas with a dry microfiber cloth

When certain parts of the ceiling are exceptional dirty, use a dry microfiber cloth to wipe them. Take the cloth and gently pat or wipe the area.
Note: Avoid applying too much pressure so as not rub dirt or dust into the ceiling. Get a new cloth once the one you are using is dirty.

Ceiling cleaning procedures by wiping down the ceiling

1. Create a cleaning mixture

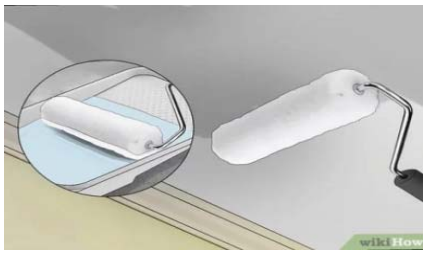
While a variety of cleaning solutions will help clean the ceiling, create a specific solution that won't damage paint, tiles, trim, and other surfaces:

source:https://www google.com/search/q= crete+ceiling+mixture&source

- Mix 1 cup of warm water, 1 teaspoon of non-abrasive dish liquid (like Dawn). And 2 tablespoons of white vinegar.
- Pour the mixture into a spray bottle and shake the spray bottle vigorously.

2. Spray the ceiling

Take the spray bottle and spritz down the ceiling. Note: Make sure to get somewhat complete coverage as you'll be able to notice splotch marks on the ceiling. Avoid soaking the surface of the ceiling; if the solution starts to drip down, you've probably sprayed too much.



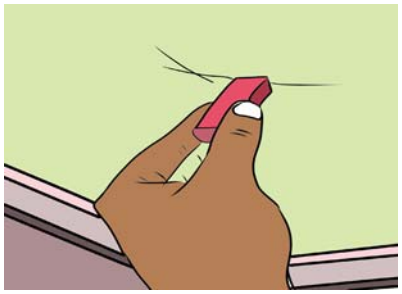
3. Use a paint roller to roll over your ceiling

Find a large paint roller, dampen it with water, and roll all over the ceiling. Do so in a systematic way so that you get complete coverage of the ceiling.

- For a textured ceiling, try a dabbing motion instead of a wiping motion.
- Make sure you remove all the vinegar and detergent solution that you sprayed on the ceiling.

4. Pat the ceiling dry

After use of roller on the ceiling, take a clean cloth and gently pat the ceiling dry.



5. Use an eraser to remove pencil marks

Note: Use a large eraser so you can more easily remove large stains.

6. Try soda to remove stains

Create a paste as follow: Combine 2 tablespoons of baking soda with 2 tablespoons of water and mix thoroughly. Spread it over stains on the ceiling, after few minutes wipe that paste in a circular motion.

3.To apply trisodium phosphate (TSP) to soot stains

source:https://www google.com/search/q=try+soda+toremove+stain&source

4. Purchase TSP at a home improvement store and mix some with a small amount of water. This should create a thick paste. Use a painting brush to apply the paste to the stained are.

A. Walls

Activity 1.8

1. Observe the different walls below:





2. Which methods or techniques and equipment do you use to clean each type of wall in pictures given above? Come up with the table below:

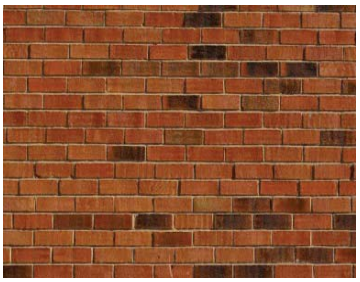
Type of the wall	Tool	Equipment	Cleaning agent	Techniques

A wall is a vertical structure often made of stone or brick that divides or surrounds something. This is a part of a house or divides an area of a house. It defines the shape and separates rooms in a house, support the floor, ceiling and roof of house.

Types of walls

In terms of their function, all walls are either load bearing or non-load bearing walls.

1. A load bearing wall


This wall holds the building up.

2. A non-load bearing wall

This wall is only a portion that divides the various rooms of a building.

source:https://www google.com/search/q=0+no+load+bearing+wall

Walls cleaning procedures

With a few simple tips in your village, you can tackle walls that are painted, unpainted, and wallpapered, and gets your house looking as good as new. The following are four methods used to clean walls.

1. Cleaning unpainted wall

Step 1: Cover any carpet or furniture in the immediate area

Using temporary coverings like newspaper, cover anything of value as this will prevent possible spills of water or cleaning solution from ruining the carpet or furniture

Step 2: Move everything that is against the wall

Step 3: Dust the wall

Run the broom, brush, or vacuum up and down the walls in a vertical motion. Use a ladder to get into high corners or enlist a tall friend to help.

For the broom or brush that has strong coats, tie an old t-shirt or other cleaning rag over it to prevent the sharpness of the bristles from scraping against the wall. Rinse out the shirt or scrap or grab a new one when it gets too dirty, since you don't want to spread the dirt from one wall to the next.

Step 4: Start at the top of the wall when washing

Then, move up gradually, drying as you go, so you don't leave behind any streaks or drip marks.

2. Cleaning painted walls

Step 1: Remove marks or stains first

Test your product on an inconspicuous area of the wall first before cleaning the stain off; to make sure that the stain remover won't lift the paintwork. Make sure to read the directions first and apply carefully.

Step 2: Wash the walls

For most painted walls, warm, soapy water will work just fine. If your walls need something a little stronger, try mixing a cup of distilled white vinegar in one bucket of warm water. Vinegar won't leave any residue, so don't worry about rinsing.

Step 3: Make your own spot cleanser

Simply add ½ cup of baking soda to a gallon-sized bucket of warm water. Spray this mixture onto a soft towel and wipe over the stains or sticky spots, then rinse the area with water and wipe it dry with a separate towel.

3. Cleaning wallpapered walls

Step1: Clean wallpaper with warm, soapy water

Step 2: Use a vinegar mixture for vinyl-coated wallpaper

Soak a cloth in white vinegar and warm water and dab the walls clean. Try to avoid applying the vinegar directly to the walls.

Step 3: Use vinegar and water to scrub stains and mold off walls

Note: For ink, crayon and marker stains left behind by unruly kids (or adults!), use a liquid solvent cleaner, such as WD-40 or dry-cleaning fluid. To remove grease stains, simply us warm, soapy water.

Step 4: Rinse clean

Use a cloth damped in warm water to gently and lightly rinse off the cleaning solution. Dry with a soft towel using the same process as cleaning painted walls.

4. Cleaning wooden walls

Step 1: Dust the wall

Use a broom, dustpan brush or a brush attachment on the end of a vacuum cleaner

Step 2: Use warm, soapy water to wash down the walls

Supplement a mild detergent solution and with warm water to make the perfect wooden wall-cleaning mixture.

Step 3: Create a vinegar mixture to remove any stains

Mix ½ cup of white vinegar and warm water in a bucket. Dip in a towel and rub the stains out until the walls are as good as new.

Step 4: Rinse walls with clean water

Use some plain water to rinse the walls and dry them well with a clean towel. Make sure that the walls are completely dry to prevent possible wood rot.

C. Floor

Activity 1.9

1. Observe different pictures of floor bellow:




2. Discover the part of the house the people on the pictures above are cleaning?
3. Explain why is it necessary to clean it?
4. How do you clean the floor of your class?

The floor is the flat surface of a room on which you walk.
The floor of a house takes the brunt of our everyday activities. It is on it we can sit on, we can dance on, we can sleep on. On floor we deposit our house materials, so the floor is very important place of our house. These are types of floor:

Tiled mud floor
(floor coverd by tiles.)
source;https;//www.google.com/search?q=tiled+floor

Stone floor
(floor covered by stones)
source;https;//www.google.com/search?q=stone=floor

Carpet floor
(floor coverd by carpet)

Cemented floor
(floor covered by the carpet)

Floor cleaning procedures

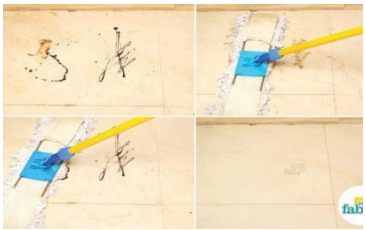
1. cleaning tiled mud floor

Easily clean tiles mud floor with some readily available household items and make your housekeeping practices more efficient and easier on expenses.

The following are methods of cleaning tiled dirty floor:

1. Using a vacuum cleaner

The cleaning of loose dirt and grime from the tiles, using a vacuum cleaner is the best choice. This is because it is fast, efficient and surefire method to lift up any kind of loose debris, whether it is spilled food crumbs, dust or pet hair.



2. Using damp mopping

For the wet mud or liquid spills on the tiles, mop the floor. A damp mop can easily pick up a variety of liquids or sticky grime like spilled juices, syrups, sauces, oil, wet paint and even your pet's urine.

Step 1: Wet the mop with warm water. Squeeze out the excess water to leave the mop only slightly damp.
Step 2: Wipe the tiled floor with the damp mop.
Step 3: If the stains are stubborn, let the damp mop remain on the soiled tile for about 5 minutes, then wipe the tile clean. Similarly, you can leave a soaked rag over the stubborn grime. This help water to clean the tile in few minutes later easily.

3. Using white vinegar

Materials: White vinegar, warm water, spray bottle, funnel and cotton cloth

Step1: Mix vinegar and water in a spray bottle

Pour some warm water into a spray bottle, add an equal amount of white vinegar to it through a funnel close the bottle and give it a shake to mix the contents. White vinegar is a natural cleaner, very good for spot cleaning and stain removal and a safe alternative to commercial products for everyday cleaning. It effectively removes stains and eliminates offensive odors

Step 2: Spray diluted vinegar on dirty tiles

Step 3: Wipe away the mess with a cotton cloth

Clear the mess and wipe the tiles clean using a cotton cloth. A discarded cotton rag can be used for this purpose.

source;https;//www.google.com/search?q=clearing+tiled+floor+using+white+vinagar
Fig: Clean tile floor

4. Using baking soda

Materials needed: baking soda, water, old toothbrush and cotton cloth.

Step 1: Make a paste of baking soda

- Put a little water in a small bowl.
- Add baking soda is a tough stain remover. You can also use it to clean the tile grouts.

Step 2. Smear the baking soda past on the stains

- For stubborn stains, leave the paste in place for about 5 minutes.
- Scrub the baking soda paste over the dirty tiles using an old toothbrush.

A toothbrush can help you scrub small areas of tiles without leaving any scratches or dullness behind.

Step 3: Clean the tile grouts

- Fill the dirty tile grouts with baking soda.
- Tile grouts are almost always dirty, so consider leaving the baking soda in place for a few minutes.
- Scrub the grouts using a toothbrush to dislodge the dirt and grime.

Step 4: wipe clean with a cotton cloth

Once you are done spot cleaning, use a cotton cloth to wipe away the dirty baking soda from the tiles.

Fig: Clean tile floor

source;https;//www.google.com/search?q=mix+water+and+rubbing+alcohol

5. Using rubbing alcohol

Materials needed: rubbing alcohol, water, spray bottle, old toothbrush and cotton cloth.

Step 1: Mix water and rubbing alcohol in a spray bottle

- Pour some water into a spray bottle.
- Pour in an equal amount of rubbing alcohol.
- Close the spray bottle and give it a shake to mix the liquids.

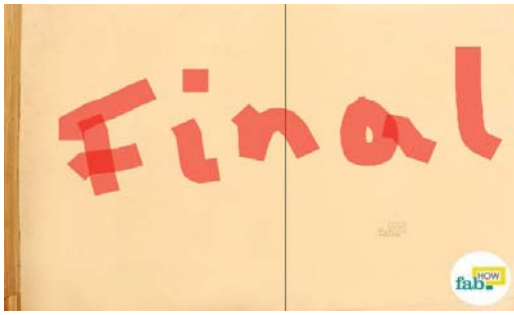
Rubbing alcohol is very important when it comes to stain removal. It can cut through any type of grime. Note: Rubbing alcohol should be used on the tiles as a last resort, as frequent use may rob the tiles of their luster.

Step 2: Cleaning of tiles with the diluted rubbing alcohol

- Spray the diluted rubbing alcohol on the stained tiles.
- Gently scrub the area with an old toothbrush to dislodge the stains and grime.

Step3: Wipe with cotton cloth

Note: Don't need to worry about any residual rubbing alcohol, as it will evaporate on its own.



source;https;//www.google.com/search?q=mix+water+and+rubbing+alcohol

Fig: Clean tile floor

In addition*:*

- To be more thorough with the vacuuming and avoid to leave out any corners, use a broom for a thorough sweeping and getting dirt out of the corners first. Vacuum all the dislodged dirt for a good finish
- Clean any spills as soon as possible to prevent them from sticking to the floor and staining the tile.
- To clean dusty and sticky tiles, start by dry vacuuming. Mop up the sticky residue and do spot cleaning for stubborn stain.
- You can also add white vinegar to your mopping water for more effective mopping job.

2. Cleaning cemented floor

Activity 1.10

2. Observe the pictures below:

3. What kind of floor is being cleaned?
4. Apply appropriate procedures to clean the floors on the pictures above.

The cemented floor is a kind of floor which is made by mixing together cement, sand, small stones, and water. To clean cemented floor vary depending on the type of cement, but proper maintenance will keep the floor clean and flesh, and help to increase its longevity in the home, garage, shop, or workplace.

step1: Preparing cemented surface

1.Gather the cleaning equipment

A basic cleaning of any cemented floor and to remove stains will need some basic cleaning supplies, including:

- A broom and duster (or a vacuum)
- A nylon-bristled brush for scrubbing stains
- Dish soap and water to remove stains

- Trisodium phosphate, laundry bleach, and detergent to remove mildew.
- Kitty litter or cornstarch to remove grease stains.
- Degreaser to remove tire marks
- Bleach, ammonia, or hydrogen peroxide for stubborn stains.

2. Clear the floor

Remove any furniture, decorations, rugs or mats, shoes, and anything else that is on the floor. Move everything out of the room so you are not cleaning around furniture or constantly having to move furniture around to clean.

3. Sweep and dust the floor

Get up all large dirt and debris with the broom, and then go over the surface again with a duster to remove fine particles and dust. Dusting should be done daily and sweeping or vacuum on a weekly basis.

4. Spot clean stains

For regular food and beverage stains, scrub the area with hot, soapy water. Use one to two tablespoons (15 to 30ml) of a mild dish soap or castile soap, diluted into a half-gallon (1.9 liters) of water.

For oil or oil-based stains, wet the area with water and cover the stain with dish soap. Dip a brush in warm water and scrub the area to work up lather. Blot the suds with a rag or towel and rinse it down with clean water.

To remove mildew, mix one ounce (28.3 grams) each of laundry detergent and trisodium phosphate with one quart (946.4ml) laundry bleach and three quarts (2.8liters) of water. Scrub the area with a soft, brush and rinse with clean water.

To remove tire marks (in a garage), spray the area with water and apply a degreaser. Let sit for three to four hours, scrub with a brush, and rinse.
To remove grease, spread kitty litter or cornstarch over the area and left it sit for about three days. After you have let it sit, vacuum or sweep up the kitty litter and dispose of it in accordance with the type of grease it was (such as in the garbage or through a proper recycling facility).

5. Use stronger cleaners for tough stains on plain cement

Use harsher cleaners like bleach, ammonia, and hydrogen peroxide to clean stubborn stains.
Dilute one-part cleaner in three parts water and spray on the affected area. Let it sit for about 20 minutes, and then scrub with a brush. Rinse the area with clean water.

Note: Always wear gloves and proper protective gear when using harsh cleaners, and make sure the room is well ventilated.

Step 2: Cleaning stamped or polished cement

1. Gather the supplies

You will need a mop and large bucket, warm water, and a mild, pH neutral cleaner such as mild dish soaps, castile soap, neutral stone cleaner, pH neutral floor
cleaners or detergents.

Note: Do not use ammonia, bleach, or any other highly acidic or alkaline cleaner, as it may damage the concrete finish.

2. Fill a large bucket with water

Use about one gallon (3.8 liters) of warm water. Stir in one-eighth to one-quarter cup (30 to 60 ml) of mild soap or pH neutral cleaner (or the amount recommended by the manufacturer).

3. Dunk a clean mop into the cleaning solution

Once it is saturated, wring it out thoroughly. The mop should be only slightly damp for cleaning the floor: you want the water to dry quickly, and don't want excess water sitting on cement

4. Mop the floor in small sections

make your way toward the door, cleaning small areas at a time. As you mop, frequently re-dip the mop in the water and wring it out thoroughly. Consider having an oscillating fan blow air into the room to help the floor **dry quicker.**

5. Remove excess soap or cleaner

When you have cleaned the entire floor, dump out the cleaning water, rinse the mop and bucket, and refill the bucket with clean, warm water, Mop the floor again in the same way with the clean water, dunking and thoroughly wring out the mop often. Start at the farthest corner and work toward the door again, working in small sections.

Step 3: Cleaning a garage floor or exterior cement

1. Gather the cleaning supplies

You will need a power washer, a push broom with stiff, nylon bristles, and a cleaning product, such as trisodium phosphate or other cement cleaner. Use a regular garden hose if you don't have a pressure washer.

- A pressure washer is recommended for this kind of cement cleaning as it will do a better job. Pressure washers can be rented from home and garden or building stores.

Use a regular scrubbing brush with nylon bristles if you don't have a push broom.

2. Remove any moisture that have grown on exterior cement

Pull them up with your hands and then sweep, hose down, or pressure wash the surface to remove dirt and debris

3. Spray the cement

Open your garage door if applicable. Start at the end closest to the house and work your way toward the garage door lawn. Use the pressure washer or hose and spray the floor in board, sweeping strokes to remove dirt and debris. Be sure to spray corners, cracks. And crevices as well.

- **4. Cover the floor with**

Place your broom at one end of the garage or patio and begin sprinkling cleaner on the floor starting at the other end, working your way toward the broom. Make sure the floor is still wet when you do this.

5. Scrub (brush) the floor

Use your broom or brush to work the cleaner into the entire floor surface and lift out any dirt, grime, and debris.

6. Rinse the cement with clean water

Starting at the inside and working your way toward the open door or lawn, power wash away any excess cleaner and debris. Leave the door open and allow the floor to dry.

Step 4: Protecting cement floors

1. Clean spills immediately

This will stop people from slipping on the floor and prevent staining. Wipe up spills with a clean rag or towel as soon as they occur.

2. Seal the floor

A high-quality sealant will last a few years, so you should reseal your floor every three to four years. Sealing your cement floor will protect it from scuffs and stains.

- oChoose a sealant that is right for your cement surface
- oUse water-based sealants for indoor flooring.

3. Polish or shine the floor

Apply floor polish in a thin layer and spread it out with rayon or microfiber mop. Re-apply every year or so.

D. Furniture

Activity 1. 11

1. Observe the following pictures below

2. Describ all items observed in the picture above
3. Clean one by one professionally.

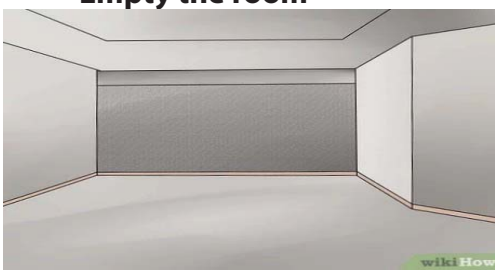
The furniture is defined as a moveable article that are used to make a room or building suitable for living or working in, such as tables, chairs or desks and cupboard that are used to make a house or building a comfortable place to live. It is used for sitting, keeping daily use articles, making house look attractive, they allow you to sit, take rest, study, keep useful articles or sleep, etc.

- **Cleaning and organizing procedures for furniture**

1. Procedures for organizing furniture

The most important part is to first toss away the junk, move the bed and make sure there is nothing underneath it, and get ready to arrange. Arranging the furniture is the first important consideration, it creates an appealing arrangement.

- **Empty the room**



Remove all the furniture using a furniture dolly or assistants. This will give a better idea of the room's shape without the existing arrangement influencing the judgment.

- **For most living rooms,select a few large elements and a few small elements**

Unless you consider the living room extra-small, extra-large, or an unusual shape, follow these guidelines:

A few large pieces of furniture should make up most of the furniture by volume. End tables, divans, and similar small items should complement these and provide food tools and drink stands, not obstruct passage through the room or turn a pleasing arrangement into a busy mess. For instance, a couch, an armchair, and bookcase can outline the usable space and set the color scheme. Two end tables and a small coffee table then serve useful functions and provide smaller objects for more visual interest without taking attention away from the larger pieces.

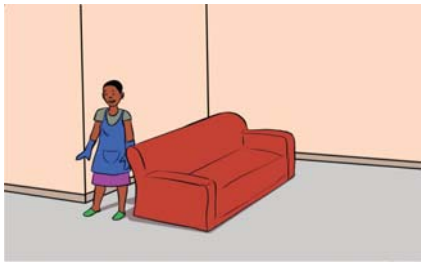
- **Select a center of attention**

Every room benefits from a center of attention, or main point, which can be any object or area that attracts the eye and give you, something to orient the other furniture around.

The common principal points are up against one wall, such as a television, fireplace, or set of large windows.

Note: If you don't have a focal point, or if you want to encourage more conversation, create a symmetrical arrangement of furniture, with seating on four sides.

- **Leave space between the walls and furniture**



The room can seem cold and unwelcoming when sofas are pushed back against the wall. Pull the hidden furniture at least two or three sides to create a more intimate area. Allow in wide spaces where people will be walking. If you have energetic kids or household members who require extra space, increase this to 1.2m. Follow the guidelines below:

- **Place the furniturefor convenient use**

These simple design "rules" are a good place to start furniture placement:

- Coffee tables are typically placed 35-45 cm from the seating.
- Designers place side chairs 120-250cm from the sofa as a default. Just make sure there is enough space to walk between them.

Television placement varies greatly with size of room, eyesight of viewers, and personal preference. As a rough guide, begin by placing the seating facing the television three times further from the TV as the height of the screen. For instance, a 40cm tall screen should be positioned 120cm from the sofa and then adjusted to suit taste.

- **Use symmetry to create restful designs**

The symmetrical arrangements feel orderly and calm, and are great for resting the mind or low key activities. To create a room with bilateral symmetry, imagine drawing a line across the exact center of the floor, the furnishings on one side should be the mirror image of the furnishings on the other.

- **Use symmetry to add excitement**

If one side of the room is different than the other, whether with completely different furniture or through smaller changes, the room seems exciting and has a sense of motion. This step is optional, but a minor asymmetry can add a nice touch even to a restful room.

- **Place furniture elements one by one**

Using furniture with strong assistants, bring your furniture into the room without dragging it. Start with the largest, major elements. This helps you get a feel for the room piece by piece, adjusting further element as you go.

2. Procedures for cleaning furniture

Activity 1.12

You are invited to clean the furniture in the office of head teacher

1. Observe the picture of furniture below

2. Write down materials and tools you have to use.
3. Explain why it is necessary to do it regularly.
4. Write the procedures to follow while cleaning that furniture.

The following are some steps in cleaning of the furniture using a green approach

that is safe for most furniture:

Step 1: Gather the cleaning supplies

source;https;//www.google.com/search?q=gather+cleaning+supplies

Get out the vacuum cleaner and a bucket that will hold at least a gallon of water. Find some soft cloth rags that are clean (e.g microfiber cloths). Retrieve the white vinegar from the cupboard.

Step 2: Prepare the area for some serious furniture cleaning

Remove everything from the piece to be cleaned such as pillows, cushions, lamps, and other objects.

Step 3: Vacuum the furniture and remove the dust

Use the vacuum and its brush attachment to gently remove dust from the surface and cracks.

Step 4: Cleaning furniture with vinegar and water

In the bucket, mix half a cup of white vinegar to half a gallon of warm water. Spray either the vinegar mixture on a soft rag or dip the rag into the bucket and then wring it out thoroughly.

Note: Excessive water on furniture can cause damage if it penetrates the finish. With the moistened cloth when it becomes visibly dirty or switch to a clean rag and continue until the entire piece has been cleaned.

Step 5: Perform a final buffing to remove moisture

Take a fresh, clean cloth and go over the furniture one more time. Buff in a circular motion to achieve a bright, shiny finish.

Step 6: Using vinegar and olive oil as a furniture polish

One or two times a year, to revive the furniture with a good polishing. The olive oil is better because it is less fattening. Mix a quarter cup of olive oil to a quarter cup of white vinegar.
Use a soft cloth, apply a small amount of the mixture to the furniture and buff the wood to a shine.

1.2. End unit assessment

As a student who is invited to help any school to promote girls to resolve their particular problem, assume that you are tasked to clean and organize girl's room

1. Correct all tools, materials, cleaning agents and machines you need
2. Outline the guidelines to perform this task
3. Apply all cleaning and organizing procedures and techniques needed to make this room very clean and organized.

UNIT2
DECORATION TECHNIQUES

UNIT. 2. DECORATION TECHNIQUES

Key unit competence

Learner should be able to demonstrate appropriate decoration techniques using a wider range of colors, fabrics and style

Learning objectives

- Categorize different decoration styles
- State different techniques of decorations and colour effects
- Compare and apply different decoration styles
- Contrast the colour effects and apply proportion of colour techniques
- Make simple decoration with different styles
- Appreciate different decoration styles
- Follow coloring and decoration techniques

Introductory activity

1. Observe the following pictures below.

2. From your observation, analyze the situation.
3. What do you like, and you don't like?
4. Justify your answer.
5. On your view, how should be the real decoration in the picture above look like?
6. What do you predict to learn from this unit?

2.1 Decoration of hand embroidery

2.1.1. Identification of color values and scale for hand embroidery

Activity 2. 1

1. Color has the power to convey and communicate meanings and messages without words, so examine the different photos below and answer the following questions:

2. What does A, B, C and E colors on garment above communicate to you in your life?
3. What is the role of considering coloring in your business or life situation?

A. Patchwork or "pieced work"

This is a form of needlework that involves sewing together pieces of fabric into a larger design. The larger design is usually based on repeating patterns built up with different fabric shapes (which can be different colors). These shapes are carefully measured and cut, basic geometric shapes making them easy to piece together.

B. Appliqué

An appliqué is ornamental needlework in which pieces of fabric in different shapes and patterns are sewn or stuck onto a larger piece to form a picture or pattern. This technique is very common in some kinds of textile but may be applied to many materials. In the context of ceramics, for example, an appliqué is a separate piece of clay added to the primary work, generally for decoration.

C. Quilting

Quilting is the process of sewing two or more layers of fabric with different color together, to make a thicker padded material, usually to create a quilt or quilted garment. Mainly, quilting is done with three layers:

- The top fabric or quilt top,
- Batting or insulating material,
- Backing material.

Note: Many different styles are adopted.
The process of quilting uses a needle and thread to join two or more layers of material to make a quilt.

Color values when you are embroidering clothes, you choose embroidery color that will catch the attention of people. This means that embroidery color can be part of the life and also impact on the way in which we all sense and also react. The meaning of embroidery color may differ based on lifestyle as well as situation.
The color has the power to convey and communicate meanings and messages without words in embroidery. What color symbolizes in the political, religion, romantics, etc.

When it comes to branding, the power of embroidery color is both emotional and practical. On an emotional level, it can affect how consumers feel when they look at a brand, while on a practical level it can help a brand to grow up.

Guideline and use of emroidery color

1. Red

Values: Red is the color for danger, passion, excitement and energy. Red has a number of various relative associations and in embroidery can deliver a highly visible look. It has the ability to reveal desire and not surprisingly when it is the color of fire, danger, and blood on one side, love and passion on the other. It is a courageous, energetic and lively color that can symbolize strength, confidence and power.

Tips for use: Because red has such powerful meanings, it is perhaps best used with good judgment.

2**. Orange**

Value: It is the color of fresh, youthful, creativity and adventurous. Blending the warmth of red and the brightness of yellow, orange color communicates activity and energy in embroidery. And of course, it's hard not to go past orange as the color of wellness, oranges and all their vitamin c, which immediately makes orange feel

fresh and healthy.

Tips for use: Because orange is associated with fun and vibrancy is well suited to youth, energetic brand names and in embroidery it is the best avoided for luxury, traditional or serious brands

3.Yellow

Value: Yellow is the color for optimism, cheerful, playful and happiness. Yellow is the color of light. It is the most visible color from a distance (that is why it's used for street signs) and communicates joyfulness, friendliness, joy and energy. It can also be associated with mental clarity and intellect. However, yellow is also a cautionary color used in life vests, police cordoning tape and hazardous areas.

Tips for use: Some shades of yellow can look cheap although this may suit your embroidery image. So yellow is a great example of when to research consumer reaction to color appropriateness and make sure it is the right color for your embroidered product. Make sure to use good embroidery design if you want to avoid any feeling of cheapness.

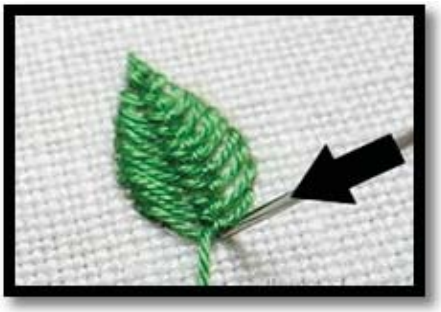
4. Gray color

Value: Gray color is a cool, color, neutral, moody and balanced color. The color gray is a timeless and practical color that is often associated with loss or depression. Dark, charcoal gray communicates some of the strength and mystery of black. The gray color affects the mind and body by causing unsettling feelings. Light grays are feminine in nature, while dark grays are masculine in nature.

Gray color is unemotional. It conveys gloom and depression. Very conservative, gray has stabilizing effect as it is very neutral but can also conjure up feelings of frustration and it is also linked with protection and maturity.
Gray is a perfect neutral that lives between the extremes of black and white

5.Green

Value: Green is the color means natural, vitality, prestige and wealth. Green has two very common meanings; one being nature and the environment, and the other being finance and wealth. When it comes to nature, green represents plant life and growth and is consequently used to convey being 'green' in the environmental, sustainable, organic, natural sense of the world.



Tips for use: Pick the embroidery of green carefully as brighter; lighter greens indicate growth, vitality and renewal; while darker, richer greens represent prestige, wealth and abundance.

2.1.2 Coloring and decoration of hand embroidery

Application activity 1: Leaf embroidery
In the ceremony of environment protection in Rwanda, the trainer ask his trainees to quilt leaf embroidery design on their shirts uniforms, so as a trainee you have to quilt yours too within 1 hour as follows:

Step 1: Draw stitch line for fish bone design (pattern)
Step 2: Work on a leaf pattern; name the lines as A, B&C.

	
Step 3: Trace a pattern of leaf and draw the middle vein as shown. I have marked the stitch lines as A, B, C. Now start working on the satin stitch between the stitch lines A and B.	**Step 4:** Start from the broader end to the tapering end. Make sure not to leave any spaces between two stitches, and to keep the edges as neat as possible.
	
Step 5: Once you finish one side, turn around and begin the next side. You will gradually see that the vein of the leaf shows up, giving it a realistic appearance.	**Step 6:** A finished leaf would look like this. You can try to make the leaf with different shades on either side to get a different effect.
Step 7: stitch the leaf on your shirt uniform by hands.	

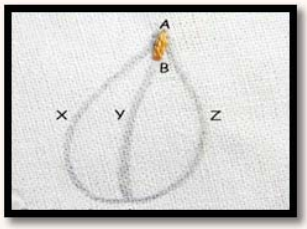
It is good to teach needlework to younger people. So that they can personalize something and help them to discover what they are talented in, even if you only know a few basic embroidery stitches.

In this session we will cover how to get your basic hand embroidery onto the fabric and some simple stitches to use and names can also be stitched on fabric to make name embroideries.

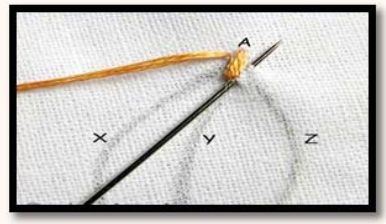
Fig. 2.1: Embroidery names

Application activity 2: Fish bone stitch embroidery

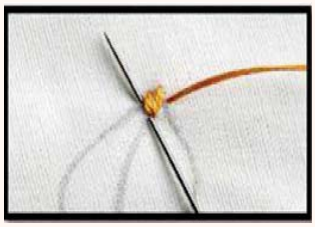
Step1. Work on a leaf pattern and divide in the center with a stitch line. To make the activity easier, name the lines as X, Y and Z.



Step 2: To begin with, bring the needle out through point A, which is the top tip of line Y. Put it in through B, to make a single straight stitch.



Step 3: Now, bring the needle out from a point very close to A on the line X. Put it in through a point very close to B on line Y. Again, pull out the needle through a point very close to A on line Z.



Step 4: This procedure of putting in the needle through X and Z alternatively will follow. Each time we will be connecting X-Y and Y-Z

Step 5: Make sure all the stitch points lie close to each other to avoid any visible spaces.

Step 6: Half way through, our leaf would look like this. You can see the rib being formed.

Step 7: Once finished, the leaf would look like this.

2.2 Decoration of machine embroidery

2.2.1. Identification of color values and scale for machine embroidery

Activity 2. 2:

Identifying the color value

1. Observe these colors and color shades

A.

B.

2. What did you observe from picture A?
3. Describe what you observe from picture B
4. Explain why it is important to consider colors values in machine embroidery.

Remember: When you're choosing colors for your various embroidery projects, you should know a few technical aspects of color which you may have already learned. It starts with the color wheel.

Color wheel

While we know these aren't all the colors, every color is represented and is a hue of one of these 12 colors. You'll use the color wheel to choose the colors in your embroidery to pick colors that work well together. There are a few different types of color combinations, so we'll outline them to help you see how to use the color wheel for deciding on a color scheme.

Before choosing embroidery thread colors, you can use multiple shades of one color to create a monochromatic color scheme. Each color in this scheme is a different shade, or hue, of pink

Color scheme monochromatic

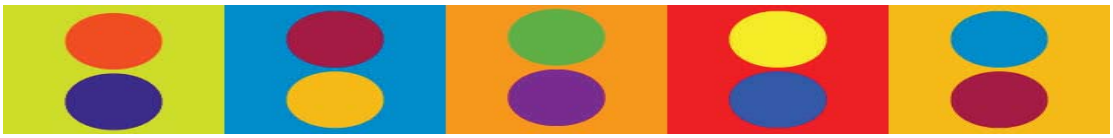
Now if you choose two colors which are directly across from each other on the color wheel, like red and green or purple and yellow, then you have a complementary color scheme. Because of the high contrast between the two colors, the result will be vibrant embroidery. This color scheme doesn't work well with text in most cases; it can be harsh on the eyes when you're trying to read

Complementary color scheme

While choosing three colors that are right next to each other on the color wheel, like orange, yellow, and green, that gives an analogous color scheme. These schemes are typically more appealing to the eye, and often match with the colors naturally found in nature. When using three colors in the color palette, one is the dominant color while the second color supports and the third is an accent

Color shades analogous

Finally, you can choose three different colors which are an equal distance, or evenly spaced, from one another on the color wheel. Like red, yellow, and blue. In the color wheel above, there are three color sections between red and yellow and blue. These color schemes tend to be vibrant, so varying the hues and shades of each color used can also create a different tone with the color palette.



Vibrant color shades Note:

While there are more color combinations out there, these are the basics which should help you choose to coordinate colors for your upcoming embroidery activity!

Note: While there are more color combinations out there, these are the basics which should help you choose to coordinate colors for your upcoming embroidery activity!

2.2.2. Coloring and decoration of machine embroidery

Application activity 3: Quilting appliqué embroidery

Observe the picture below:

Decorate dress for your sister with heart embroidery design for appliqué design by applying the following steps:

Step 1: Draw the heart embroidery pattern with a pen or pencil on fabric for appliqué design

Step 2: Stitch the through that heart embroidery pattern with hands.

Step 3: Start by hooping two pieces of heat-away stabilizer. It looks like a water-soluble topping but does not dissolve in water. When heat is applied, this stabilizer balls up into chunks that can be brushed away. With freestanding appliqué projects, though, it is perfect because it tears away cleanly with no stabilizer showing.
Because embroidery will show on the back, load the same color thread in your bobbin as that with which you are stitching. Choose an appliqué design and run the first color stop, the placement stitch. Clip wild threads.

Step 4: Remove the hoop from your machine but leave the stabilizer in the hoop. Spray the back of a fabric with temporary adhesive and lightly finger-press it in the hoop. So, the heart quilt will be just as beautiful on the back, add a fabric to the back of the hooped stabilizer the same way. Felt is a nice backing because it adds body to the freestanding appliqué.

Step 5: Put the hoop back on the machine and stitch the next color stop, the tack-down stitch. It secures the first appliqué fabric to the stabilizer (the larger scalloped heart outline, left). Normally, you would take the hoop off of the machine again and trim the fabric close to the tack-down stitching, but since the next appliqué will not hinder the first, you can run the placement stitch for the inside appliqué next (inner heart, left). Spray the back of your inner heart fabric with adhesive and lightly finger-press it over the placement stitches (right). Run the next color stop, the tack-down stitches.

Step 6: Now you can remove the hoop and trim both front appliqués close to their tack-down stitching.

Step 7: When the front is trimmed, be sure to also trim the felt close to the stitching on the back.

Step 8: Put the hoop back on the machine and finish the satin-stitched edges. When stitching is complete, remove everything from the hoop and tear the heat-away stabilizer from the satin-stitched edging.

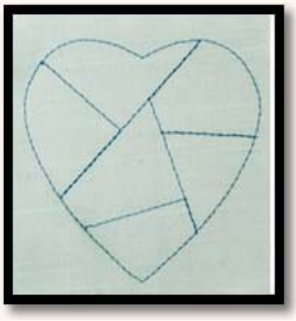
You now have a beautiful appliqué embroidery design that is just as beautiful. And transfer this heart embroidery design to the dress.

Patchwork embroidery is so much fun, a great way to use up scrap fabrics or explore a new quilt design. And, it's really easy to create! Although quilting looks difficult, modern embroidery machine designs make creating it nearly effortless. Ready to add try this fun patchwork design? Here's how to embroider a quilt heart. Embroider should have more designs in his mind? so you can create one too!

Application activity 4: Patchwork quilting

Assemble the thrown scrap fabrics you collected from home and start embroidering a heart quilt design to decorate your blanket.

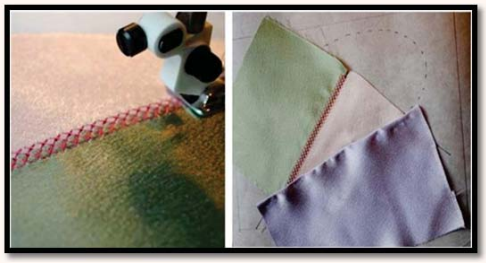
Step 1: Hoop your base fabric with a medium-weight cut-away stabilizer. Placement stitches are all created in the first stitch sequence. They show all of the areas where fabric patches will go.



Step 2: For fabrics, I chose a selection of beautiful watercolor batiks. Fabric scraps are ideal for quilting. While fabrics coordinated, you may prefer fabrics with more contrast. There are no rules, which is part of the fun!

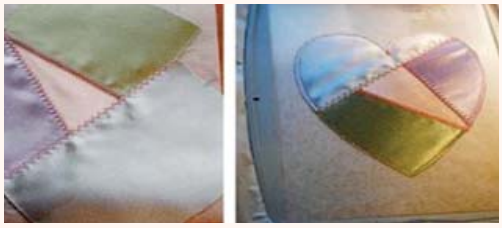
Step 3: Cut the first piece of fabric to fit the middle triangle. Spray the back with temporary adhesive and finger-press it in place on the stabilizer.

Step 4: With the second fabric, fold an edge one-quarter inch to the wrong side. Use a fabric glue stick to dab along the back of the flap edge and fold it over to the wrong side to hold it in place. This creates what would otherwise be a seam allowance without the seam.



Step 5: Use a decorative stitch with a coordinating color thread and stitch on the overlapped edge to secure it to the fabric and stabilizer. Most regular sewing machines also have preprogrammed decorative stitches or you can use a zigzag or blanket stitch.

Step 6: Prepare the finished folded edge of the next fabric, place it along the unfinished edge of the middle triangle, and secure it with decorative stitches.



Step 7: When all sides of the middle piece are attached to each other, mark horizontal and vertical center lines for hooping.
Hoop as it is, centering it in the hoop, or hoop another stabilizer and attach the stitched piece, centering it on top. Run the appliqué heart tack down stitch to secure the crazy patch fabric to the stabilizer.

Step 8: Remove the piece from the machine, and trim away excess fabric close to the tack down stitches. Reattach and run the finishing satin stitches.

Step 9: Trim it, place it on the item you wish to appliqué, and finish the edges with satin stitching, zigzag stitching or blanket stitching.

Then appliqué this finished heart on your table cloth.

2.3. Decoration of fabrics and dying

2.3.1. Identification of color values and scale for fabrics and dying

Activity 2.3

As you brought white cotton t-shirt on the request of the teacher, carry out dyeing practice on t-shit to make uniform dyeing result.

1. Observe the pictures above
2. What is the attention to be taken for rubber gloves and its advantages in the process?
3. Why do fabrics and dye solution should be mixed carefully and periodically.
4. What is attention to be considered while gathering supplies?

Fabrics decoration

Fabric has been an integral part of everyday life since prehistoric times. It serves a variety of purposes because it is such a flexible medium. Cloth can be wrapped tightly or draped loosely, woven to one shape or knitted to stretch and conform to changing shapes, or pieced together and combined with other materials to create items as different as rag dolls and tents. To this fabric values are highlighted bellow:

- Fabric serves practical functions
- Fabric communicates messages and ideas
- Fabric has value
- Fabric depends upon technology
- Which fabrics factors, and why?

Practical functions

It may be used for protecting, cleaning, decorating, holding things, or tying things together. During the day, we handle fabrics when toweling dry, putting on clothes, walking on rugs and carpets, and sitting on upholstered furniture.

Communicate messages and ideas

Special features, such as materials, colors, textures, shapes and inscriptions, can be used to express religious and political ideas, personal and group identity, as well as the identity of the maker and vendor.

Fabric has value

The harvesting and processing of raw materials and the production of cloth and finished cloth goods play important roles in economic systems, utilizing a diverse workforce and contributing to a complex web of commercial transactions.

Fabric depends upon technology

The machinery from which threads are made has developed from hand-held spindles to spinning wheels to the spinnerets used to make microfibers, and computers may assist in all phases of cloth production, from pattern design and to loom operation. Today's cloth makers have all of these tools at their disposal: they choose according to the speed of production, cost, and the special quality that a given device contributes to the finished product. Innovations in fabric technology may respond to utilitarian needs, artistic desires, and other motivations such as consumer demands for inexpensive options.

Selection factors of fabrics

Here's a range of factors influences the selection of which fabrics may be used for what purposes. For example, the selection of fabrics often takes into account the capabilities of particular fibers, dyes, threads and weaves to fulfill specific functions. These functions might be especially utilitarian: thus, a plain, sturdily constructed medium weight cloth is appropriate for durable work clothes. The structures of materials and fabrics, however, need not be the only factors determining selection

for a given use. Aesthetic criteria may play a role: some precious cloths, like fine silks, are chosen because by their color and luster, their expense and rarity, they enhance an environment or lend glamour to special situations or events.

2.3.2. Decoration of table using fabrics

We have chosen two ways of table skirting and napkin fold for dinner setup:

a) Table skirting

This is the way of draping table with table cloth to hide a plain or unpleasant surface and table look attractive. Table skirts come in many sizes to fit rectangular, square or round tables. Some table skirts are intended to cover only three sides of a square or rectangular table, while others are made to cover all four sides. The standard length is 29 inches. Table skirts made of paper, plastic, polyester or linen in a wide variety of colors.

Application activity 4

While skirting table you should follow the steps bellow for getting successful work:

1. Lay the top white cloth onto the table by stretching it and attach with pin. 	2. Pin the cloth to the center 3. Measure the cloth 3 inches; fold the cloth to the length of the measurement on the table side. 
4. Pin and repeat. 	5.Repeat to the other side 

6.Do the same at the edge but with no more space 	7.Push the upper part inside 

b. Decorate dinner table with fabric (rose napkin fold)

Application activity 5

You are tasked to set dining room for your trainers, and your home science trainer asks to fold a rose napkin fold to use on dinner table, start the task and accomplish it following the instructions below for quick dinner table setup:

Step1: Fold all four corners or the napkin to the center
Step 2: Repeat this step anf fold all corners to the center
Step : Turn napkin over
Step 4: Fold corners to center and hold them together
Step 5: While holding center pull out all four leafs
Step : Fold out last four small flaps from underneath and ready is the Rose

2.3.3. Decoration of fabric by dyeing

Once textiles have been woven, often require to be decorated to increase their artistic appeal. Decoration of fabrics brings about the subject of fabric design or fabric decoration. Fabric design or decoration can be done in many ways. One can apply decor using dyes, pastes, stitch work, patchwork and so on. The primary aim in all this is to increase aesthetic appeal.

Dyeing which is said in session is the process of adding color to textile products like fibers, yarns, and fabrics. Dyeing is normally done in a special solution containing dyes and other chemicals

African fabric decorative methods

Different names have been given to the different methods of decoration undertaken in Fabric design.
Tie-dye and embroidery batik are methods of decoration where dyes have been

used in the design production. They are different fabric decoration in the production of the designs, details of which should be discussed below:

- Embroidery is when decorative stitch work is used as a mode of decoration.
- Appliqué is when patches are stuck on a fabric so as to make it decorative.
- Quilting is a decorative means of stitching together two or three different layers of materials.
- Adinkira is a patterned fabric made by stamping designs on the surface of cloth. It is an Asanti (formerly Ashanti) craft and is used to make magnificent wraparound costumes which are worn like ~Roman togas.
- Indigo dye is a natural dye most common and popular source of color throughout West Africa.

Dyeing in ancient times

Primitive society discovered that certain roots, leaves, or bark could be manipulated, usually into a liquid form, and then used to dye textiles. They used these techniques to decorate clothing, utensils, and even the body. This was a religious, as well as functional practice.

Textile Dyes: Techniques and their Effects on the Environment with a recommendation for Dyers Concerning the Green Effect.
Color has long been an important part of society. Color can denote class, economic position, and style. It is no wonder then that every civilization, dating back even to ancient times, has developed different dye techniques and processes. These processes range from using dyestuffs found in nature, to the chemicals that are sometimes used today.

Textile dyes

Application activity 6

How to tie dye white shirt:
Step 1: The shirt, fit to be dyed

Step 1: The shirt, fit to be dyed

The shirts that work best are 100% cotton, but the use of 50% cotton/50% polyester is possible. The results will not be as vibrant. Once tried to dye a 100% polyester garment and when it was unwrapped, all the dye washed off. The dyes only bond well with natural fabrics, like cotton, silk and rayon, for this case, the cotton is used.

Step 2: Presenting the choice of dyes

Dye kits are fund in the craft stores, with everything needed. They include rubber gloves, rubber bands, soda ash, and urea and complete, easy to follow instructions. The dyes are already in the squeeze bottles; and additional of warm water can be done in all before using them.

Step 3: selecting Materials and tools
Dyeing supplies

- is better to place the bands, without disturbing the shirt.
- Do not pull the shirt up in the middle to avoid unachievable pie. This part of the process is the most important step of all to achieve a sloppy and messy "dye" and live to regret it.

While selecting materials and tools the followings are needed: Procion dye, rubber bands, rubber gloves, squeeze bottles for the dye, urea and soda ash, large ziplock bags, a tub for soaking the shirts, and a wooden dowel or something similar for creating the twist in the shirt. A funnel and a measuring curt are also useful for mixing the dye, paper towels and paper plates to hold the shirt while it's being dyed, and old rags to mop up the spills. Tie-dying does not have to be messy

Step 4: Soaking the Shirt

- Do not use water that is too hot or too cold and add a couple of tablespoons of common salt to the mix too.
- Make sure the mixture is thoroughly dissolved before adding the shirt.
- The temperature of the water should be about the same as a baby's bath.
- As the soda ash is slightly caustic you may want to wear rubber gloves at this point, especially if you have a cut on your finger.
- After soaking, wring the shirt out thoroughly. The more liquid squeezed out, the more dye will be able to get in.
- The new brand shirt should be washed first to remove the newness.

Step 5: Tying a Rainbow Swirl Pattern

After soaking and wringing out the shirt, place it on a flat surface right side down and get a sharper pattern on the front of the shirt.

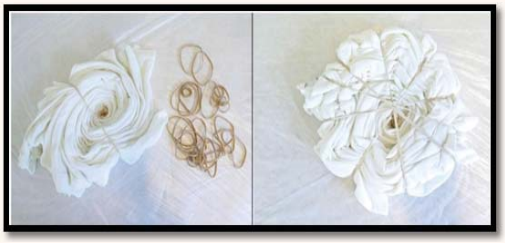
Note: Place the dowel rod or (finger, a wooden clothes pin) in the center of the shirt and start turning clockwise until getting a nice flat pie shape.

Step 6: Achieving pie

Do not allow the shirt to creep up the dowel rod, make it behave with the hand

Note:

- Don't turn the dowel rod, remove it carefully and put it on the rubber bands. It is better to place the bands, without disturbing the shirt.
- Do not pull the shirt up in the middle to avoid unachievable pie. This part of the process is the most important step of all to achieve a sloppy and messy "dye" and live to regret it.



Step 7: Join the band

With pie shape achieved , put it on the rubber bands. Slip several bands, then turn the chart over and put on some more. This keeps its shape. Keep the whole thing as flat and start to dye.

Step 8: To tie dye

When dyeing, cover the working surface with plastic table cloth, wear clothes, shoes, etc., because the dyes can stain your clothes, the floor, the walls, the ceiling, etc. and harm the skin.

Step 9: Using the dyes

Take the shirt out of the bag. Take the bands off first, unwrap and start running the shirt under a cold water tap, or just run under the tap for a while and then take the bands off.

Step 10: Turn the pie over
When finished to put the dye on the first side, turn the whole thing over and apply the dye on this second side in a similar manner.

Step 11: Waiting

After finishing to put the dye on the shirt, pop it into a zip lock bag and seal it up tight. Put the bag in a warm place and leave it for at least 24 hours. The dye needs this length of time to "prove" and allow the beautiful colors to really bond with the fabric.

Step 12: Unwrapping masterpiece and wear rubber/latex gloves

Take the shirt out of the bag. Take the bands off first, unwrap and start running the shirt under a cold water tap, or just run under the tap for a while and then take the bands off.

Step 13: Presentation of the task

Fig1: Finished Dyed t-shirt

source:https://www,google.com/search?tbm=isch&sa=1=to+tie+dye+white shirt

2.4. Decoration of pens and pencils

Activity 2.4

Observe the picture bellow and carry out the task assigned:
Head master wish to have traditional decoration of uduseke in the staffroom, and there is no need to buy them because you have learnt such decoration of beautiful Rwanda basket and your trainer asks you to draw it using pen and colored pencils on blank white paper A4 and trim carefully the basket design to be hanged in the staffroom.

1. Explain clearly the procedures applied to accomplish the task.
2. On which agaseke the value of color is used according to Rwandan culture?
3. Discuss these color shades from Agaseke in our culture in pair and then share the ideas with other pair group.
4. What are the benefits that you get from this task?

There are many types of paints pencils and plenty to choose from when tinting or drawing.

Watercolor paint is soft and beautiful. The color usually bleeds, so if you want a crisp line, create a stencil with freezer paper. The watercolor also makes a great background, rather than a fill, and can be used for landscapes, stars capes or more.

Acrylic and fabric paint have a more intense color. These paints dry fairly fast, but you can mix and blend the color if you work quickly. The paint stays mainly on the surface, so if you work with a small brush, you can paint crisp lines right up the edge of where your embroidery will go.

2.4.2. Application of coloring and decoration of pens and pencils

How to paint tint

Follow the basic crayon tinting instructions for transferring. If you are using acrylic or other opaque paints, they will cover any lines within

Place your fabric in a hoop as you would for embroidery. It acts as a stretched canvas would.

Paint in the design as desired.

If you are using acrylic or other opaque paints, they will most likely cover any detail lines within an area. You can both try to paint around the lines or go back and re-trace or freehand them later.

When the paint has dried, place a piece of scrap fabric over it and heat set with an iron.

Embroider around the painted design.

Some paints dry soft and flexible. Acrylic paint, however, dries hard. If you are stitching through the painted area, bring the needle through with caution, as making excess holes will show in the paint.

Other tinting methods (coloring)

Just about any medium you would use to color fabric can be used for tinting. Fabric markers, dyes, stamp pads and more are all options. Play with and test crayons, colored pencils and paints, and then start experimenting with other techniques too. The embroidery is about to get a lot more colorful.

2.5. End unit assessment

1. Read and answer carefully questions below:
   - What happens when you press the markers to the T-shirt?
   - What happens to the ink designs when you add drops of alcohol?
   - Do you think you will get a similar result if you place water on the ink designs? Why or why not?
2. As you brought white cotton t-shirt on the request of the teacher, read and carry out dyeing practice on t-shit to make uniform t-shirt.

These are main dyeing practice steps on t-shit:

Step 1: Using a permanent mark pen draws a cycle that has the same size as for cup.

Step 2: Using thread, stitch in the pattern line.

Step 3: Position one lay over the mouth of the cup.
Stretch the fabric over the opening and hold it in place with a rubber band.

Step 4: Use the permanent colored markers to add desired small dots, lines, or designs to the part of the T-shirt that is stretched over the cup.

Step 5: Use a dropper to place 5–10 drops of alcohol on the designs. Wait a few minutes for the alcohol to soak the colors.

Step 6: Repeat steps 1–3 several times on different areas of the T-shirt.

Why do you use permanent colored markers instead of washable markers?

UNIT3
LAUNDRY TECHNIQUES

UNIT. 3. LAUNDRY TECHNIQUES

Key unit competence

Learner should be able to apply laundering Techniques for different fabrics using the appropriate tools and equipment

Learning objectives

- Identify laundry materials, tools and equipment
- Explain laundry procedures
- Select materials, tools and equipment for laundering
- Perform laundry procedures
- Pay attention on using laundry materials, tools and equipment
- Conform laundry procedures

Introductory activity

1. Observe the following pictures bellow

2. Analyze the situation on the picture above and give the comment on hygiene of the clothes seen on the left and right side
3. Considering the picture above, what can you do in order to establish remedial situation in daily life?What can you predict to learn in this unit?

3.1. Washing

3.1.1. Washing by hands

a. Identification of manual laundry materials and tools

Activity 3.1:

Identifying laundry materials and tools

1. Observe the picture below:

2. Select which one can be hand washing tools/ materials/equipment?
3. Describe the common laundry tools/equipment one by one.

The most delicate fabrics need to be washed by hand instead of in a washing machine. Always read the wash care label to check how an item should be washed. It is recommended to use a specialized detergent for hand washing, which will be gentler on delicate fabrics than standard detergents. Washing linen is very important to make life safe. Manually there are different tools and materials to use:

1. Measuring jugs

The measuring jug is a container used for measuring liquids which has lines printed on the side of it showing how much it contains.

2. Weighing scale

The weighing scale is electronic scale with visual display and a set of numbers; amounts etc., and used to measure or compare the level of something, like weigh of linens. They may be battery or mains operated.

3. Sewing machine

The sewing machine is a machine which is used for joining together pieces of cloth, and which has a needle that is operated either by turning a handle, or by electricity.

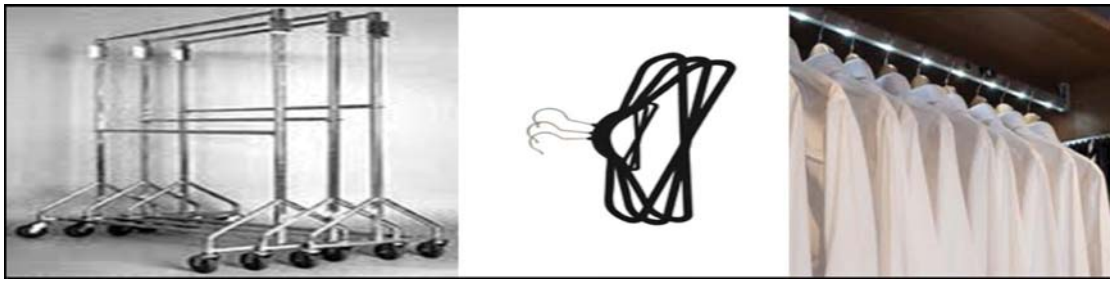
4. Safety pins

The safety pins are small thin pieces of metal with a point at one end, especially used for temporarily holding pieces of cloth together.

5. Brushes

The brushes are objects with short pieces of stiff hair, plastic or wire fixed into a usually wooden or plastic base or handle, which are used for cleaning.

6. Hanger and hanging rail



The hanger and hanging rail are curved pieces of wire, wood or plastics on which clothes are hung while they are being stored.

7. Laundry bags and basket

The laundry bags and basket are large containers or bags in which dirty clothes are kept until they are washed.

8. Bucket

The bucket is a container with an open top and a handle, often used for carrying liquids.

9. Basin

The basin is an open round container shaped like a bowl with sloping sides, used for holding liquid.

10. Peg

The peg is a small stick or hook which sticks out from a surface and from which objects, especially clothes, can hang.

11. Peg holder

The peg holder is a container which is used to curry or hold the pegs.

12. Shelf

The shelf is a long flat board fixed horizontally, usually against a wall or inside cupboard so that objects like cloths can be stored on it.

13. Spraying bottle

The spraying bottle is a container usually made in glass or plastic, with a narrow neck, used to spray liquids

14. Powder soap

The Powder soap is a substance used for washing the cloths which is usually powder ,often has a pleasant smell.

15. Liquid soap

Liquid soap is a substance used for washing the cloths which is usually liquid, often has a pleasant smell.

16. Softeners

The Softeners are chemicals used to make something soft especially hard cloths.

17. Starches

The starch is a white substance from potatoes and particular grains which is used to make cloth stiff.

18. Rust remover

The **rust remover i**s a chemical which is used to remove the rust on the cloth

19. Stain removers

Stain remover is a chemical which is used to remove the stain on the cloth.

a.Hand washing procedures and technique

Activity 3.2

1. Washing is one of the components of hygiene, correct dirty linen in your class.
2. Collect tools and materials to use while washing.
3. Wash dirty clothes respecting all washing procedures
4. Discus on the work done

- **Collection & Transportation**

Collection of linen may be done in the Linen Room, if the laundry is off-site but is usually in the laundry itself, if the laundry is on-premises. The linen is usually packaged in canvas bags lined with polyvinyl or elasticized net bags called 'skips' for transportation.

Trolleys and collapsible wire cart can be used to transport soiled as well as clean linen. If laundry planned at the construction stage, an in-built chute is used for transporting linen from the floor pantries.

- **Arrival**

On arrival, linen must be dealt with as quickly as possible to ensure fast turnaround time for linen. There must be a separate section for home laundry.

- **Sorting**

Sorting is carried out according to the type of fabric and item, color and type of soil. Sorting is done to separate those articles that need dry cleaning from those that will go through the normal wash process. Also, different articles take a different wash process in terms of temperature of water, type of laundering agent and length of wash cycle.

- **Weighing**

Weighing is carried out to know the weight of cloths and confirm it with the capacity of the washing machine in order to avoid overloading. Repeated overloading can cause the machine to breakdown.

Washing

Figure 1. Persons washing cloth with hands

This process is designed to perform three basic functions:

- Removal of soil / dirt
- Suspension of soil
- Discharge of the soil from the machine to the drain

In the washing process, the following factors must be considered:

Setting length of wash cycle

If the cycle is too short, the linen will not be cleaned properly and sufficiently. If the cycle is too long, there will be unnecessary wear and tear and the clothes may actually become dirtier as a result of redeposition of soil.

Temperature of water

For hot water washing, if the temperature of water is too high, it is likely to damage the linen. If the temperature is inadequate, the chemicals will not work effectively.

Water level

Incorrect 'dip' levels can alter the concentration of the laundry agents rendering them ineffective. In case of a gentle action, the water level is usually higher forming a protective envelope to the delicate linen.

Type and amount of detergent and the time of dispensing

This is also a crucial factor that affects the quality of wash deciding which laundry agent should be used, is dependent on the nature of the fabric being washed. Too little detergent will result in an incomplete cleaning process. And too much may remain as a residue on the cloth after the rinse cycle is complete. It is important that

the laundry agent is introduced into the wash cycle at the appropriate time for best results.

Mechanical agitation

This refers to the centrifugal action brought about by the movement of the drum that causes friction between the linen articles and is radically affected by overloading or under loading as it affects the speed of the drum. Modern machinery often operates on sensors, which are capable of gauging and maintaining optimum conditions for a specific load.

Rinsing

Once the wash cycle is completed, rinsing is carried out at least twice. The purpose of this stage is to:

- Remove residue of laundry agents,
- Remove suspended dirt,
- Lower the temperature of the wash load by the use of using cold water.

A running rinse with an open drain is more effective but a larger volume of water is utilized.

Hydro-extraction

It is the removal of excess moisture through centrifugal action and is equivalent to wringing in hand washing. Draining must precede hydro-extraction and hydro-extraction must precede tumble drying. Some articles cannot be hydro-extracted so there is a pumping action to draw out the water from the linen load. Too short and extraction time will increase the drying time and may hinder the proper operation of finishing equipment. The compact mass of hydro-extracted clothes is referred to as 'cheese'.

3.1.2Washing linens by laundry washing machine

A washing machine, or washer, is a machine designed to clean laundry, such as clothing, towels and sheets. The term is mostly applied only to machines that use water as the primary cleaning solution, as opposed to dry cleaning (which uses alternative cleaning fluids, and is generally performed by specialist businesses) or even ultrasonic cleaners

Identification of laundry washing machines

Activity 3.3: Identifying the type of machines

1. Observe the picture below.

2. Are the two machines the same?
3. Discuss the contrast of the machine on the picture
4. What about the importance /role of machine on the picture?

Washing is one way of cleaning and washing machine is machine designed to clean laundry, i.e. clothing and other house hold textile such as towels and sheets. There are different types of washing machines to use.

Examples:

Commercial washing machine

Is machine which works by using mechanical energy, thermal energy, and chemical action. Mechanical energy is imparted to the clothes load by the rotation of the agitator in top loaders, or by the tumbling action of the drum in front loaders. Thermal energy is supplied by the temperature of the wash bath.

Tunnel Washers

This is also called batch washer or continuous washer and is in effect a series of inter-connected washer. Each 'bath' is in a different cylinder and the load moves from one cylinder to the next. Computerized systems automatically adjust the time, temperature and chemicals to be used, so that each batch receives the required treatment. Machine may be top transfer or bottom transfer. Tunnel washer has a distinct advantage in timesaving and reducing staff requirement. It is also significant energy and water saving. Tunnel washer can also be hooked up to an extractor and subsequently with conveyors to the dryer.

b. Washing procedures and techniques

Application activity 1

Washing is one of the components of hygiene, and dirty clothes must be washed immediately in order to keep hygiene standard.

1. In your class collect the dirty linens
2. Look at your washing machine and read carefully all instructions.
3. Run the washing mashing and respect the use procudure until to get linens

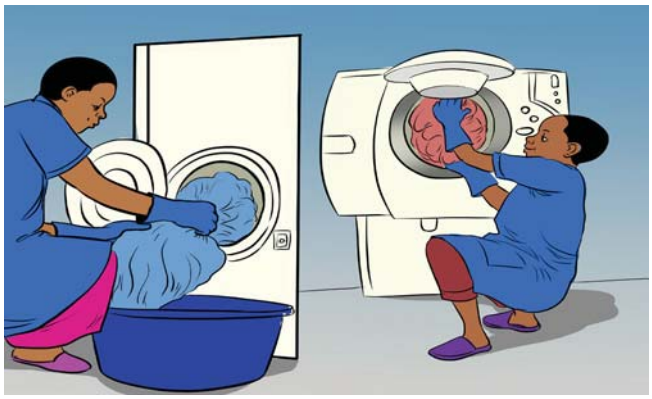


Figure 2 Persons using washing machine

A complete wash cycle is composed by various stages and the time taken is approx. 40 to 50 minutes. It has been proven that quick wash cycles using large volume of water broken down into the following sequence is most effective.

Flush › Suds › Bleach › Rinse › Sour & Soft › Extract

Wash cycles include the following steps:

Step1: Flush (1.5 - 3 min): dissolve and dilute water-soluble soil to reduce soil load

Step 2: Break (4 - 10 min, optional): a high-alkaline break product is added to loosen soil

Step 3: Suds (5 -8 min): actual wash cycle with detergent

Step 4: Carryover suds or intermediate rinse (2 - 5 min): removes soil and alkalinity to help bleach

Step 5: Bleach (5 - 8 min): kills bacteria, whitens fabric, removes stains

Step 6: Rinse (1.5 - 3 min): removes detergent and soil

Step7: Intermediate extract (1.5 - 2 min, optional): high-speed in removes detergent and soil, after the first rinse step. Should not be used after suds step because it could drive soils back into the fabric.

Step 8: Sour/softener or starch/sizing (3 - 5 min): starches are added to stiffen cotton fabrics; sizing is added for polyester blends. Starching/sizing replaces the sour / softener step.

Step 9: Extract (2 - 12 min): high speed spin removes moisture, length of it depends on fabric types, extractor capacity and extractor speed

3.2. Drying of linens

Once you have washed your laundry, spin dry to remove as much water as possible. Line drying will give you the freshest smelling results, but a tumble dryer or drying rack is often most convenient, especially in wet weather.

Activity 3.4

At school there are different washed clothes and linens.

1. identify different linen drying methods used after washing
2. Separate them according to the drying method which is applicable to each category
3. Make mise-en place which will help to perform your task
4. Apply all linen drying procedures needed to each category

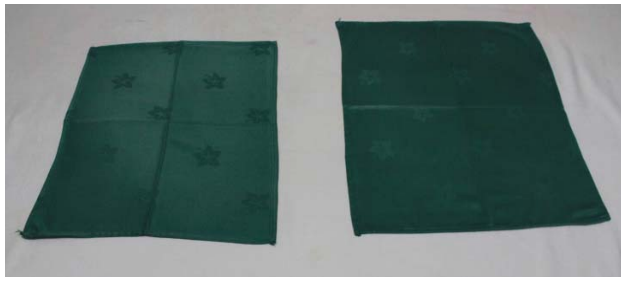
3.2.1 Identification of linen drying methods and technics

After washing the linens, you must dry them to remove the residual moisture from clothing or fabrics. Most dryers consist of a rotating drum through which high temperature air is circulated. The hot air removes the moisture from the fabric through evaporation. The drum is rotated relatively slowly to create a tumbling effect.

The application of cloth drying method and technics should be done carefully according to the type of fabric that cloth has been made of. There are generally three drying methods and technics: **air drying, sunrays drying and drying with machine**

Air drying / dry flat

- **Drying method to use**



This cloth drying method normally is known as drying flat. It is the cloth drying method where you put washed cloth on flat area away from sunlight and lay the items flat on a clean, well pressed cotton white sheet whish can absorb water easily.

- **Drying techniques**

- Many knits and woolens have labels indicating that the item needs to dry flat. In this case, make sure you do, so otherwise you risk stretching or mis-shaping the fabric
- Find a flat area away from sunlight and lay the items flat on a clean, well pressed cotton white sheet whish can absorb water easily. Make sure the area is well ventilated and away from pests and children.
- Items dried flat often need to be air-dried for 5minutes in the tumble dryer to prevent stiffness. Check the wash care symbol on the garment before putting it in the tumble dryer
- Sunrays drying

- Drying method

There are 2 methods: drip drying or line drying

a. Drip drying

This is the cloth drying method where the washed cloth is dried by the sunrays.

You put washed cloth on the hanger that fit their shape and allow them to drape properly.

The collapsible drying racks or hanging racks can be used for lingerie, hosiery and other items. That do not need hangers.

b. Line drying

This is cloth drying method where the washed cloth is dried by the sunrays. You put washed cloth on the laundry line and attached by pegs.

- **drying technics**

There are **two** types of drying cloth techniques by sunrays: drip drying or line drying

a. Drip drying

Light cottons, polyesters, silk and items that do not stretch can be hung to dry. Otherwise, dry flat.

- Hang jackets, blouses, sweaters, and dresses (unless marked dry flat) on hangers that fit their shape and allow them to drape properly. Make sure the shoulders of the hangers are nicely rounded.
- Make sure you close buttons or zips correctly. Smooth collars, seams, trim and pockets

- Use collapsible drying racks or hanging racks for lingerie, hosiery and other items that do not need hangers.

b.Line drying

- Peg bras by the hooked end.
- Peg dresses by the shoulder
- Peg full skirts by the hem.
- Peg pillowcases one side only, leaving the order side to hang open.
- Fold sheets hem to hem over the line and peg by the corners.
- Hang shirts by the tail and always unbuttoned
- Peg socks by the toe.
- Peg straight skirts and trousers/pants by the waistband.
- Peg towels at the corner after shaking.
- Peg t-shirts by the hem
- Fold underwear over the line and peg.

Drying by machine

Method to be used

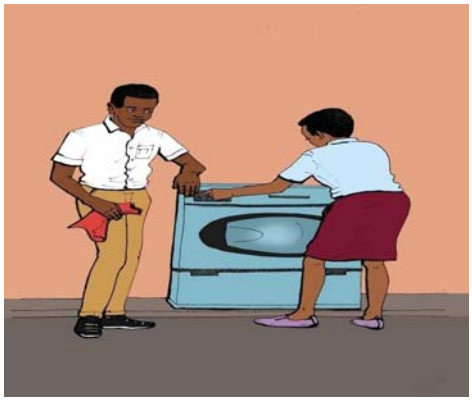
Fig 3:Tumble drying machine

In this method the washed clothes are dried by tumble drying machine. Clothes dryer or tumble dryer is a major household that is used to remove the residual moisture from clothing or fabrics, generally shortly after being cleaned in a washing or washing/drying machine.

This process is capable of rendering the linen completely dry by blowing hot air ranging between 40° C and 60° C onto the articles.

Technics to be used

Before you choose a tumble dryer, you need to consider where you will put it. A condenser model can be sited anywhere as it doesn't have a hose. A vented model has a hose that channels the steam outside via a hole in a wall or through a window.



Dryers are machines that dry laundry by tumbling it slowly in a perforated drum exposed to hot air ranging from 40°C to 60°C in low capacity dryers and going right up to 85°C in an industrial dryer.

Figure 4; Person drying cloth with tumble dryer

There are programmes for delicate articles with low or no heat. Dryers may operate on gas, electricity or steam. For speedy drying and less wrinkling the volume of the dryer should be 25% more than the washer-extractor. Most dryers have a microprocessor computer control system.

Although suitable drying times are usually recommended for specific fabrics, some dryers have sensors hooked onto their microprocessors so that they can gauge the moisture in the load and cut the dryer off automatically the moment the laundry is dry.

A screen traps the lint particles and must be cleaned regularly. The length of the drying cycle is dependent on the absorbency of the fabric and the residual moisture.

Modern dryers are equipped with high tech features such as signal lights, self-cleaning lint screens, reverse cylinder drums as well as energy-saving devices like extra insulation and heat reclaimers.

3.3. Linen pressing and ironing

What more pleasing sight is there than a neatly folded pile of freshly –ironed laundry? With pristine clothes in your wardrobe /closet, clean sheets on the bed and fresh bathroom and dish towels on hand, you will feel revived and your home will look luxurious.

Description of pressing and ironing linens

Activity 3.5

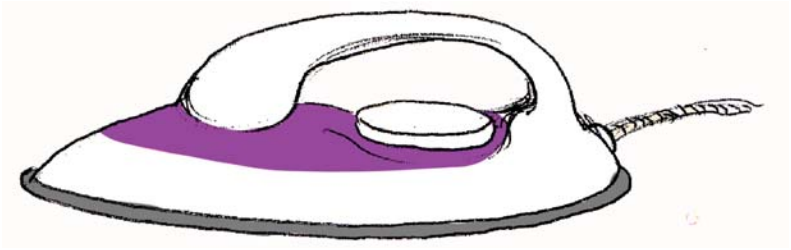
Pressing and ironing the linens

1. Identify pressing and ironing linens procedures
2. Which tools, materials and machines need in this activity?
3. Is it important to iron and press your clothes and linens?

After drying the linens, to make them smooth you can iron them with ironing box on ironing table or press them with pressing machine.

Ironing is the action of making linens smooth by using ironing box on the ironing table.

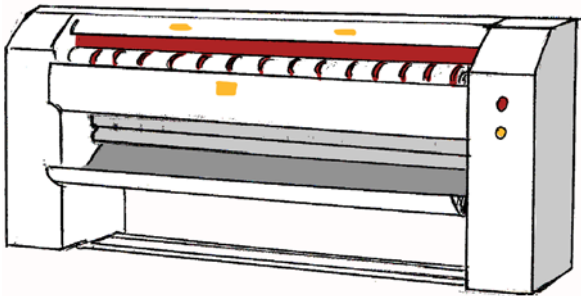
Iron box is a piece of equipment for marking clothes flat and smooth, especially after they have been washed ,which has a handle and a flat base and is usually heated with electricity.



Ironing board is a narrow table, usually covered with cloth and having folding legs, on which clothes can be put flat to iron them.

Pressing is the action of pressing linens and makes them smooth by using different pressing machines. For those articles that require a pressed finish there are many finishing equipment? Some of the more frequently used equipment are listed below:

Calendar machine is flatwork Ironer / Rolling Ironer which is used to press flatwork i.e. items like sheets, pillowcases, tablecloths, serviettes, aprons, sarees, etc. The items are passed through heated rollers for ironing



Pressing machines are machines used for fine pressing of flat linen like table covers,

pillow covers, napkins, kitchen linen, and staff uniforms. They are special presses to perform specific functions and operation can be on electricity or steam.

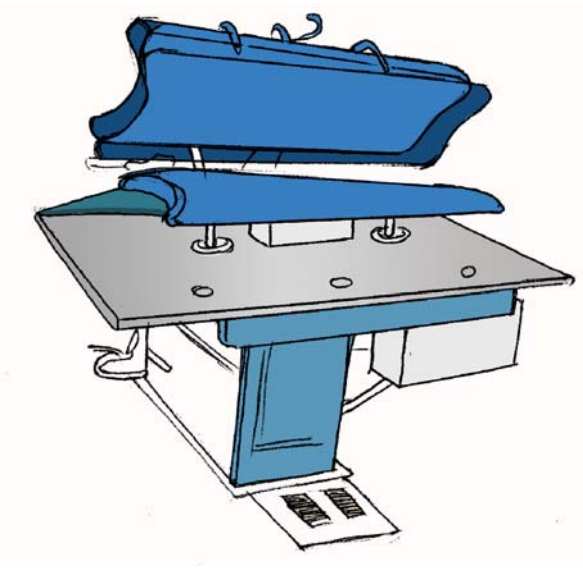


Figure 5: *Steam pressing machine on electricity*

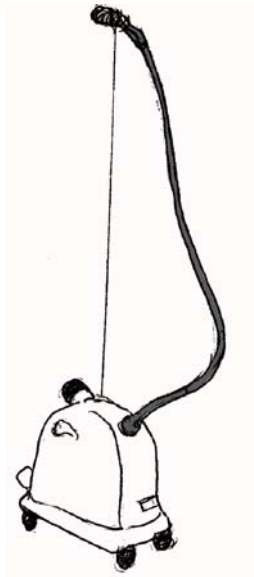


Figure6: *Steam pressing machine*

b. Procedures of ironing and pressing linens

Activity 3.6

1. After identifying all ironing and pressing tools, materials and machines what is the function for each?
2. With those ironing and pressing tools, materials and machines apply all ironing and pressing procedures of linens
3. Discuss on the work done.

Linen ironing procedures

There are certain items of clothing and household linen that need to be ironed while others do not; you can't wear a shirt or finely embroidered blouse that isn't ironed, but you can live without linens or sheets being ironed although that can be one of life's little luxuries.

Figure 6. Ironed linens with ironing box

Preparing to iron jacket

Step1: Check your jacket for stains

Pull out the jacket that you want to iron and check for any spots, sweat stains, or dirt.

Heat will set in stains and make them much harder to remove, so treat any stains or spots before you iron.

Step 2: Set up the ironing board

If you don't have one, use a bath towel folded in half and lay it on a flat surface that will not be damaged by heat, like hardwood or a granite countertop.

Your ironing board should be level and be close enough to an electrical outlet if your iron is not cordless.

A regular ironing board works fine, though you can also use a thinner sleeve board

Step 3: Check the suit label

Look on the inside lining of your suit jacket for the care instructions and to see what material your jacket is made of.

You will need to adjust the heat setting on your iron depending on the suit material. Here are some of the most common jacket materials and their heat settings:

- Linen or cotton: hot.
- Synthetic fabric like acrylic, nylon, or silk polyester: cool.
- Polyester blend, wool: cool-rm.

Step 4: Make sure the iron is clean

The base of your iron can become dirty over time and leave residue on fabrics. If the base does need to be cleaned, use a damp cloth or a baking soda paste to remove tough stains.

Note: To make the paste, mix 1 tablespoon of water with 2 tablespoons of baking

soda. Apply the paste and then wipe the iron clean after one minute.

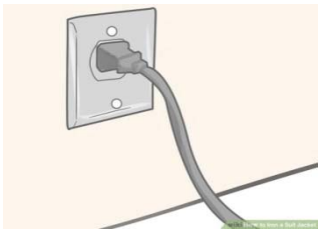
Step 5: Fill a spray bottle

While you are ironing, you will need to spritz small amounts of water onto the fabric to prevent it from burning. The water also acts as a steam release to help smooth wrinkles. If your iron has a steam function, you will not need a spray bottle.

Note:

- Make sure to fill your iron with distilled water so the water is heated before you begin.
- Be sure to use distilled water since tap water can contain high amounts of calcium or minerals that will damage your iron over time.

Step 6: Plug in your iron



Set the heat setting to reflect your jacket's materials. Allow the iron to heat up. This may take several minute depending on your iron.

Note:

- Most new irons will have an indicator light that will light up when the iron is hot.
- Do not begin until you are sure that the iron is at the correct temperature.

Step 7: Place a cloth between the iron and your jacket

This will help to protect your suit as you iron it and helps to ensure that you won't create any shiny spots on your jacket. A cotton rag or towel will work fine, but a muslin or drill cloth is best.

You will want to have a cloth between your iron and each part of the jacket that you are pressing. If you do not have a cloth, flip the jacket inside out and press the fabric through the lining. The lining of your jacket will likely be a different material than the rest of the suit fabric.

Note:

- Be sure to check the care instructions to see what material the lining is and adjust your iron's heat settings accordingly.

Step 8: Take the jacket and lay it flat on the board

You'll want to lay the jacket with the back facing up so you can iron the back first. Test the iron heat first on an inside area of the fabric, close to the hem, so if for some reason the iron leaks or marks it, it is not in a visible place. Adjust the settings if necessary and continue carefully.

Note:

- Smooth out any large wrinkles before you begin pressing the jacket.
- If the jacket has any embroidery, turn the jacket inside out and press it through the lining rather than over the embroidery. You will need to use a cooler heat setting if you press through the lining.

Step 9: Press the back section

Lay the jacket flat on the ironing board with the back of the suit on top and facing you.

Do not pull or stretch the arm seams while you are pressing the back of the suit since these should stay slightly shrunken.

Note:

- Spray a small amount of water onto the fabric you want to press. Press down on sections of the back rather than gliding the iron over the fabric. You want to

press the wrinkles out rather than smoothing them.

- If the jacket has vents, put a piece of stiff paper between the vent and the rest of the back. This helps to prevent marks being made on the layer underneath the vent. Iron the top piece of the vent, and then lift it up while you press the piece that is underneath the vent.

Step10: Flip the jacket to the front

Now that the back has been pressed, you can begin to work on the front and sides of the jacket. Lay one half of the jacket on the ironing board so the other half of the front is off the board. If the jacket has darts, the dart should be lined up with the outer edge of the board to avoid creasing.

Smooth any large wrinkles out of the fabric and lining before you start to press and spritz the fabric with water.

Step11: Press the front of the jacket

Press the front part of the jacket in small sections using a moderate amount of pres-

sure. The front of the jacket will most likely have pocket flaps and lapels that you will need to pay special attention to.

Note:

- Jacket lapels should not be creased unless you want a hard military look. Run the iron over lapels very gently. Similarly, if the jacket has shoulder pads do not press directly on the pads or their outline will be pressed into the jacket.
- Pull out pockets before you press over that area so you do not press in the outline of pocket wrinkles. If there are pocket flaps, use the stiff piece of paper you used on the vents to separate the layers as you press them.

Step12: Prepare the sleeves

Sleeves are the trickiest part of the jacket to iron because of their shape and the fact that you have two layers of fabric and lining to deal with.

Note:

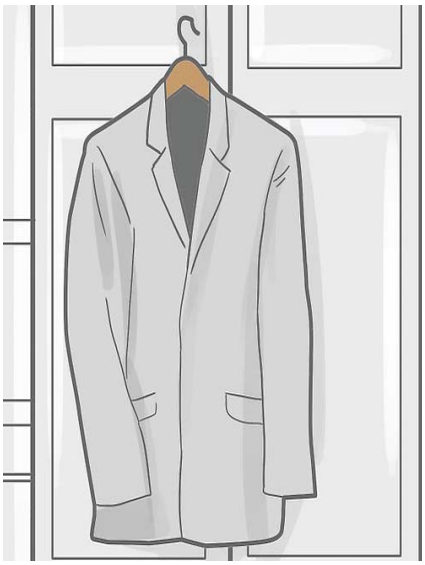
- Lay the sleeve down on the board and smooth out any large wrinkles in the fabric and the lining by hand. If you are using a sleeve board, insert the board into the sleeve so you can rotate the sleeve around the board.
- Lay a damp cloth over the sleeve. This will help to protect the suit fabric and make pressing easier

Step13: Iron the sleeves

Start by ironing the center of the sleeve first. Use the arm seam to guide the iron so you do not crease the fabric. Using a sleeve board is the easiest way to iron a sleeve since you can rotate the material around the board as you press without creating a crease.

If you do not have a sleeve board you can substitute a cylindrical container to keep the sleeve's shape while you iron. You can use a rolled up thick magazine or a cylindrical cardboard tube and insert it into the sleeve. Be sure to cover the magazine or tube with a cotton towel before you insert it.

Step14. Hang up your jacket



As soon as you are finished, hang your neatly pressed and steamed jacket on a well-shaped hanger. Use a hanger with shoulders and padding if possible, though a wire one will work in a pinch.

Note:

- Allow the jacket to hang while is cool.
- Unplug your iron and put away your ironing board. Wait until the iron is cool to the touch before putting it away.

Linens pressing procedures

Delicate fabrics should be pressed rather than ironed to prevent them getting crushed, stretched, damaged or becoming shiny. Tailored suits as well as garments made from wool, silk, rayon, netting and pile fabrics should all be pressed rather than ironed.

There are 2 types of linen pressing:

Pressing with Calendar: Flatwork Ironer / Roller Iron

The calendar machine has three rollers and the drying plate inside that is heated by the steam. The pressure from **compressor** helps the rollers to move up and down, and electricity is used to turn them. Thus, it requires three suppliers: **electricity, compressor and steam.**

The calendar is used to press only flat articles/linens like bed sheets, napkins, pillow cases, table cloths, etc). The machine provides pressure and heat, but does not provide moisture.

Therefore, only dump articles do give satisfactory service in this machine. Article should pass through the machine with the wrong side up with the right side going against the hot metal plates so as to smoothen and polish.

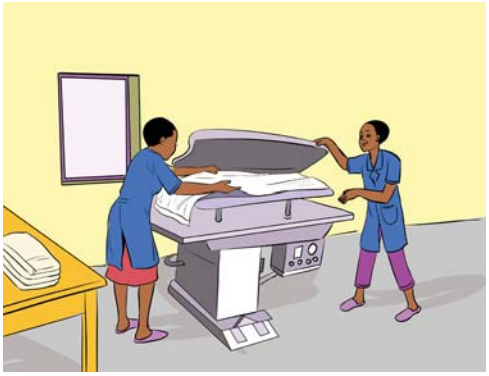
Note:

There is no immediate temperature control on calendar. Therefore, type of fabric ironed here withstands high temperature or direct heat.

For better care and maintenance of the calendar, the cleaner has to avoid feeding cold calendar. The calendar was heated before starting to work in the morning and the whole length of the calendar was used to avoid overheating on one of its ends.

The metal place was daily cleaned to avoid any accumulation of starch and dirt. At the end of the day's work, the machine was run non-loaded for some minutes (around ten) so as to dry the roller

- **Pressing linen with steam pressing machine**



The following are steps to go through while pressing a shirt:

Step 1: Iron the underside of the collar and avoid small creases near the seams.

Step 2: Iron the cuffs the same way as collar

Step 3: Press the underside of yoke and then top

Step 4: Press the wrong side of front side and then right side

Step 5: Press the sleeves

Step 6: Press the body by moving the ironed part way from you

3.4. Folding linen procedures

In order to keep your house well organized, after ironing and pressing the cloves and linens, you have to fold and keep them in appropriate store

Activity 3.8: Organizing linen/clothes store

Observe the picture above and come-up with a table of the linen/clothes store organization:

Type of linen	No of linens	Type of store
Towels		
Shirt		
Trouser		
Bed sheets		
Lingerie		
Hosiery		
Jacket		
Blouse		
Sweaters		
Dresses		
Dresses		

A little time taken to care for clothes and linens is time well spent. Once they have been washed and ironed, it's worth folding them correctly so they fit in your drawers, dressers and cupboards easily, without getting crumpled.

Folding a linen

It can be done by machine but in most cases is carried out completely manually. Employees in this area are the ones who 'reject' stained or damaged linen. Correct folding is important to the appearance of the article and makes it convenient to store and use.

Steps for folding a shirt

Step 1: Button the front

Step 2: Turn the front down

Step 3: Place back the shirt board centrally level with shoulder

Step 4: Fold the side of the body to centre over board

Step 5: Fold sleeves respectively

Step6: Fold the tail over cuff if possible

Step 7: Fold body in half, bring the button edge levels with shoulder

Step 8: Turn the shirt front side up

Step 9: Insert collar stiffener

Step 10: Place in the plastic bag, collar facing the end.

After folding the linen the next steps must be followed: airing and storage (clothing)

- **Airing:** This is essential prior to storage, especially if the articles are to be stored in closed shelves. It ensures that any moisture that is likely to cause mildew will be got rid of.
- **Storage**



Should be properly done in a well-designed storage space. Linen should be allowed a rest period to recover before it is used again. As a general rule, at any given time, approximately 50% of the total linen inventory should be on the shelves, 25% in use and 25% in processing. The storage area must be isolated from the soiled linen and kept clean. Then you have to indicate on linen store sheet what you have in your store.

Type of linen	Type of store
Towels	Linen shelves
Shirt	Hanger
Trouser	Hanger
Bed sheets	Linen shelves
Lingerie	Linen racks
Hosiery	Linen line with peg
Jacket	Wardrobe /closet
Blouse	Hanger
Sweaters	Drawers
Dresses	Dressers

3.5. End unit assessment

According to the Rwandan environment policy each person should keep clean his/ her working area in order to protect his environment. As young generation you have to implement the government policies which will help you to live safely and participate in your country development. As home science student you have the following tasks:

1. At your school collect all dirty linens and clothes
2. Set all tools, materials and machines needed for laundry
3. Apply laundering techniques for different fabrics using the appropriate tools and equipment

UNIT4
SEWING MACHINE

UNIT 4: SEWING MACHINE

Key Unit Competence

Learner should be able to understand how a sewing machine works and be able to maintain it appropriately

Learning objectives

- Identify parts of a sewing machine.
- Explain garment making process.
- Explain maintenance procedures of sewing machine
- Describe parts of sewing machine.
- Make simple garments.
- Maintain sewing machine according to maintenance procedures.
- Adjust different sewing machine parts accordingly.
- Ability to make simple garment and appreciate the end product.
- Habit to maintain sewing machine after using it.

Introductory activity

1. Observe the pictures below:

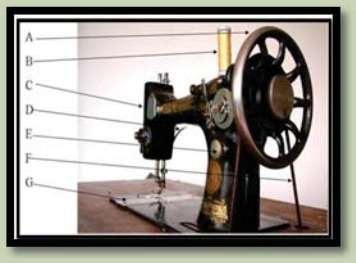
2. Analyze the situation
3. Highlight the comment on main external parts of sewing machines mentioned in the picture above
4. Comment on the ability of both machines in the above to generate enough incomes
5. What do you predict to learn in this unit?

As everybody has now his/her own laptop donated by Rwanda government for ICT development program, you must keep your laptop safely in their suitable bag. Home science trainer asks you to observe the lap bag picture frame and start the laptop sewing practical activity applying steps described in 4 sessions bellow:

4.1. Parts of sewing machine

Activity 4. 1: Identifying the parts of sewing machine

1. Observe the picture below:



2. Name the letters corresponding parts of sewing machine.
3. Explain the sewing techniques of the sewing machine

A sewing machine: is a machine which is mechanically driven needle used to stitch materials together with thread. It is designed to join pieces of fabric or leather by means of either a lockstitch or a chain stitch.

Sewing machine makes a basic running stitch in the same way with two sources of thread. The top needle takes the thread down into the fabric. It is caught and loops via the bobbin apparatus and then pulled back up. ''The feed dog" moves it along and the next stitch begins. Every operation is continued. There are 2 major parts of the sewing machine:

- **Upper part** (head, arm and bed which contain various parts)
- **Lower parts** (band wheel, band wheel crank, pitman rod, belt guide, belt shifter, dress guard, treadle, and legs).

4.1.1. Upper parts of sewing machine

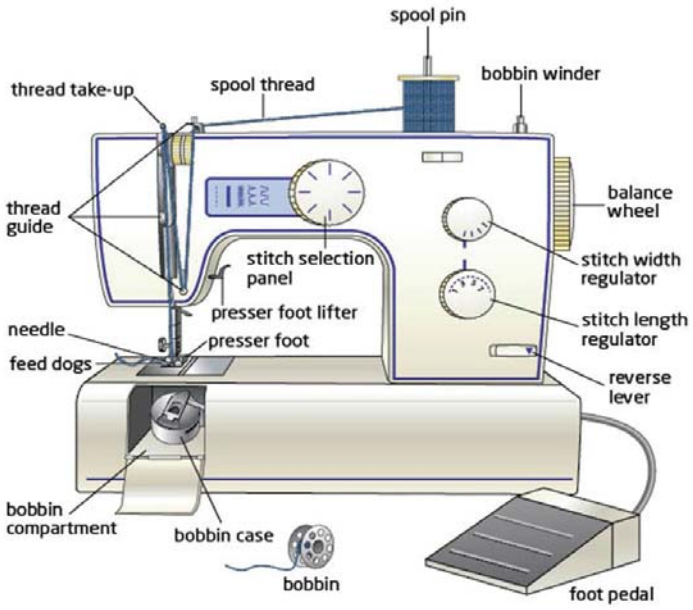


Figure: 4.2 Various parts of sewing machine (upper

1.Arm
2. Balance Wheel/Hand Wheel
3. Bed
4. Bobbin
5. Bobbin Case
6. Bobbin Cover
7. Bobbin Winder
8. Face Plate
9. Feed Dogs
10. Head
11. Needle
12. Needle bar
13.Needle Clamp
14. Pattern/Stitch selector
15. Presser Foot
16. Presser Foot Lever
17. Reverse Lever
18. Spool Pin
20. Spool pin for bobbin winding
21. Stitch regulator
22. Take up Lever
23. Tension Disc
24. Thread Cutter
25. Thread Guide
26 .Throat Plate or Needle Plate

4.1.2. Lower parts of sewing machine

Lower parts of sewing machine are point out below with alphabetically:

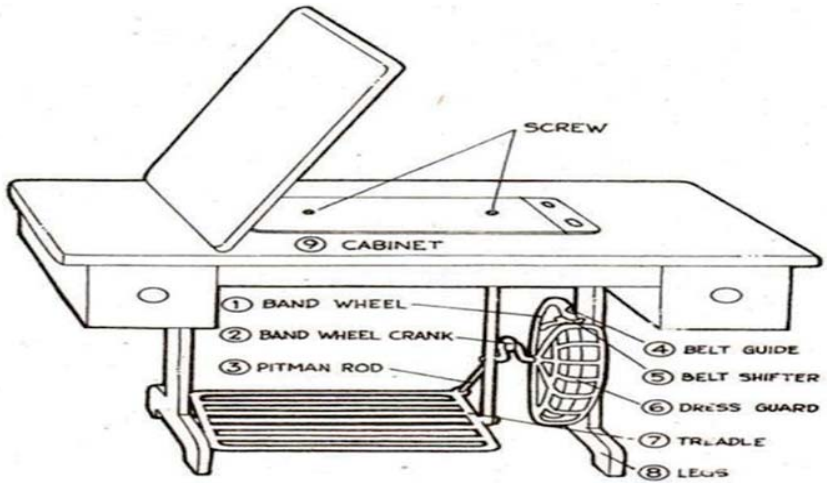


Fig2: Lower parts of sewing machine

1. Band Wheel
2. Band Wheel Crank
3. Pitman Rod
4. Belt Guide
5. Belt Shifter
6. Dress Guard
7. Treadle or Foot Pedal
8. Legs

4.2 Functions of sewing machine

4.2.1. Functions of the upper parts of sewing machine

Arm is the curve part of the head containing mechanism for operating the needle. **Balance wheel/hand wheel** sets the mechanism in motion. It is used to manually raise and lower the needle. This wheel is driven by the motor, but may be turned by hand to adjust sewing needle height. The wheel located on the right side of the sewing machine.

Bed is the flat portion of the machine and beneath is the feed dog where it is mounted, and the shuttle and lower thread are placed. The role of this part is to stabilize the machine to rest in a permanent place. Bobbin case is where the bobbin lives. It is a device which holds the bobbin and provides tension to the lower thread. As the needle thread is pulled around bobbin case, it wraps around the bobbin thread, and pulls it up through the needle plate.

Fig4: Bobbin case

Fig5: Bobbin winder

Fig6: Bobbin

Bobbin is a low spool that provides the lower thread. A stitch is formed by looping the bobbin thread and the needle thread together

Face plate is a cover which on removal gives access to the oiling points on the needle bar, presser bar and take-up lever.

Fig7: Feed dogs

Feed Dogs are little pieces of textured metal that move the fabric during sewing.

Head: The complete sewing machine without cabinet or carry case.

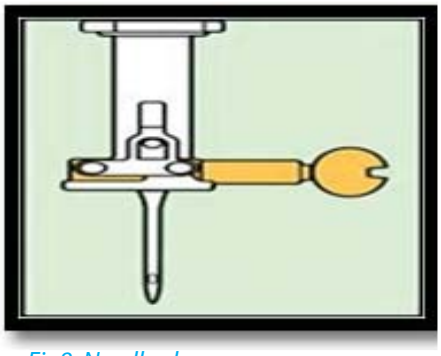


Fig8: Needle clamp

Needle bar is a steel rod to keep the needle at one end with the help of a clamp. Its main function is to give motion to the needle.

Needle Clamp holds and tightens the needle. It holds the needle in its actual place.

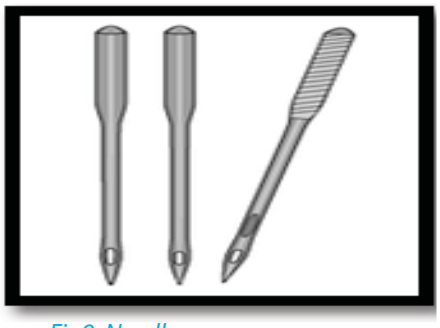


Fig9: Needle

Needle is a very fine slender piece of metal with a point at one end and a hole or eye for thread at the other. Needle is used to form a stitch in the garments.

Stitch selector determines the stitch type such as straight stitches or an embroidery stitch or zigzag.

Fig10: Presser Foot

Presser foot holds the fabric in place while sewing. Presser foot attach to the machine shank, which is either "High", "Low", or "Slant". Attach the appropriate presser foot for the selected stitching.

Pressure foot Lever/Lifter

The primary function of this part is to raise or lower the presser foot. Lowering the foot engages the tension discs around the thread. You can control how much

pressure the presser foot exerts by using the machine's pressure adjustment.

Reverse lever

The liver works to depress the lever which enables the mechanism to move backward or in reverse.

Slide Plate is a movable rectangle plate that covers the bobbin case. Which facilitates the removal of the bobbin case without lifting the machine.

Spool pin for bobbin winding: Spool of thread is placed on this at the time of bobbin winding.

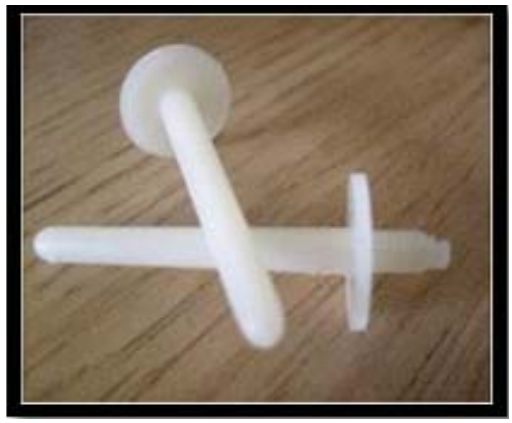


Fig11: Spool pin

Stitch regulator controls the length and width of the stitches on the fabric. This determines how wide or narrow you want your stitch. And how length of stitch you want. Take up Lever is an important part of threading the sewing machine and knowing the upward position of your sewing machine needle. This lever moves up and down with the needle and keeps the tension correct.

Fig12: Take up Lever

Tension disc

The two concave discs put together with the convex sides facing each other. The thread passes between the two. Tension disc controls the looseness and tightness of stitches.

Thread cutter

Many modern machines have a tiny blade attached to the left side of the machine to conveniently cut thread tails instead of looking for scissors after every seam. It is kept built-in the machine. It's usually located behind the needle.

Thread guide keeps the thread in position and guide the thread from the spool to the needle.

Throat plate or needle plate is a semi-circular disc plate. This metal plate covers the feed dogs and bobbin casing. It typically has markings that can be used to guide the fabric through at a specific seam allowance. The etching help keep seams straight.

4.2.2. Functions of the lower parts of sewing machine

1. Band wheel leads the balance wheel through the belt connection.
2. Band wheel crank moves the band wheel.
3. Pitman rod holds the treadle to band wheel crank.
4. Belt guide holds the belt to its place.
5. Belt shifter removes the belt from the wheel.
6. Dress guard protects the dress from the wheel.
7. Treadle or foot pedal is where the feet are stationed to drive the band wheel through the pitman rod. It regulates the starting, running, and stopping of the machine
8. Legs support the cabinet of the machine.

4.3. Designing and cutting of laptop pieces

Application activity 1

Designing lap bag frame

Step 1: Select materials you are going to use

Step 2: launder and iron the fabrics to be used

step 3: Measure your lap-top to be carried

You might use cardboard of the same size as for laptop to guide you. If it is difficult for you, simply measure all the way around the laptop from the hinge side to the opening and then back to the hinge (as opposed to just the top): this that is the length of the fabric. And measure the width of the laptop plus each side; this is the width of the fabric.

Step 4: cut two layers of cloth; one should be large enough to cover the laptop all the way around plus 1 inch (2.5cm) in every direction. This is inside layer of the tote.

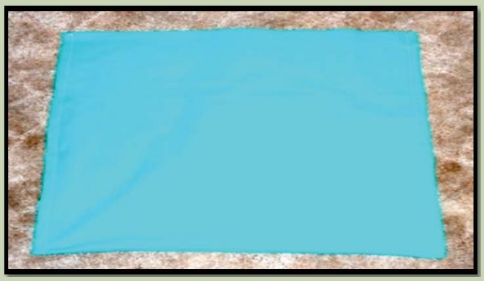
The other should be ½ inch (1cm) larger than the first all around: this will be the outside of the bag they can be the same colors or different coordinating colors (if the outside layer is a durable water -resistant kind of fabric it is better)

Step 5: cut two thickness of quilt batting the size of your smaller (inner) piece of material.

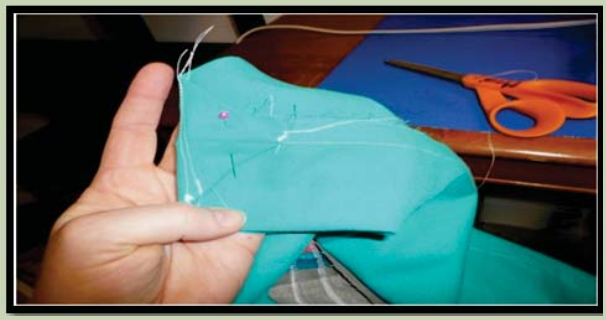
Step 6: cut a layer of interfacing material the size of smaller (inner) piece of material.

Now you have laptop case frame to be sewed to get a final laptop bag.

Application activity 2: Making the exterior of the bag



Step 1: Sew the sides of the outer layer of material together, leaving the top open



Step 2: Miter the corner.

Flatten one corner of the bag so that the seam visually "splits" the triangle in half. Then sew across the corner keeping the new seam perpendicular to the existing seam (as seen below). Repeat this process on the other corner. When you flip the bag right-side out the corners will be blunted.

Step 3: Fold and sew the tips of the miters to the seam line

Step 4: Turn right side out and test-fit, making adjustment if necessary.

Application activity 3: Making the interior of the laptop bag

Step 1: layer the interfacing, batting, and inner materials. Be sure to align them carefully.

Step 2: Quilt the three layers together by hand r by machine

Step 3: Flold the quilted layer in half and sew the sides together leaving the top open.

Step 4: Clip the batting and interfacing close to the seam.

Step 5: Miter the corner as above sewing the mitered tips to the seam line

Step.6: Test-fit by sliding your laptop into the inner layer, Make any necessary adjustments for proper fit.

Application activity 4: Assembling the laptop bag

Step 1: Insert the bag interior into the bag exterior

Step 2: clip the inner layer so that it is 2 inches (5cm) higher than the edge of your laptop (or box, in this case).

Step 3: Clip the outer layer 2 inches (5cm) longer than the inner layer

Step 4: Fold the outer layer twice-once in and over itself and once again over the inner layer – and pin for sewing. This forms a roll of cloth, hiding the raw edges of both layers.

Step 5: Sew the layers together along the inside, lower edge of the rolled/folded outer edge.

Note: laptop carrying bag require some careful cutting and thought out sewing procedures, it is a fairly easy project that a beginner could have success with. The instructions above are mostly applicable

Application activity 5: Making the laptop bag handles

Step1: Cut 4- to 5-inch (10- to 13-cm) wide strips for your handles.

Make them whatever length is pleasing and comfortable for you (12 inches or 30 cm for a short handle, 24+ inches or 70+ cm for a shoulder strap).

Fold and iron the handle strips

Step 2: Fold the bottom edge up to the center of the strip

Step 3: Fold the top edge down to the center of the strip

Step 4: Fold the entire strip in half lengthwise and iron for a smooth finish

Step 5: Top-stitch the strips to hold their shape

Measure the top of your bag and divide by 3. Mark the thirds with pins.

Step 6: Place your handle ends just inside the pins

Be sure to leave plenty of excess handle hanging below the hemline on either side, as you will be rolling and sewing this in the upcoming steps.

Step 7: Pin the handles in place, fold the raw ends under themselves, and pin the folds into place.

Step 8: Top-stitch the handle ends in place. In this example, the handles are zigzagged across the top edge and single-stitched along the sides and bottom. Choose whatever appeals to you. Step 9: Trim all threads. You now have a custom carrying case for your laptop.

Step 9: Trim all threads. You now have a custom carrying case for your laptop.

4.4 Pencil pocket bag

Making your own pencil bag is a great way to use up scrap fabric that you love but that isn't large enough for bigger craft projects. It's also an eco-friendly option for toting pencils around, and a reflection of your own style.

Activity 4. 2: Most students lose their pens, and other related student class tools due to different reasons including poor carrying facilities, as home science trainee who is being trained in sewing, make a pencil bag. Application activity 6: Designing and cutting the pencil pocket bag pieces (frame)

Application activity 6: Designing and cutting the pencil pocket bag pieces (frame)

Step 1: Decide the fabric type before

Use a sturdy fabric (cottons work well, as would corduroy, denim or heavier weight fabrics). The stronger the fabric, the longer it'll last and endure being toted about and having sharp items poked into it if you cannot find stronger fabric just double it.

Step 2: Decide up on the side and shape

These will depend upon the amount, length and width of the items you'll be placing inside the case.

The shape of a square or rectangle works best for a pencil bag. Use a ruler or measuring tape to work out the size of the bag; measure the contents and allow for a little extra room around the edges (for ease of movement) to calculate the total size.

Step 3: Decide on which side you will place a zipper.

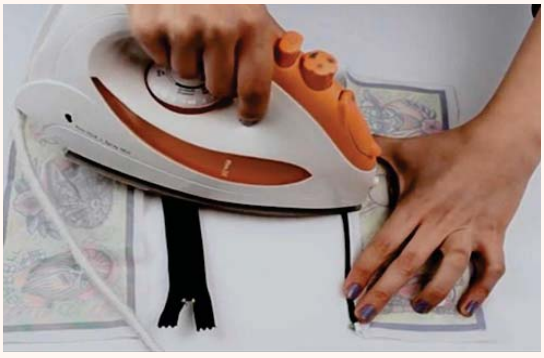
A zipper can be placed either at the short side or long side of a rectangle, depending upon your preference.

Cut the fabric into two equally sized square or rectangle shapes. Allow for a half-inch/1 centimeter (0.4 in) seam allowance on all sides.

- Another alternative is to fold one large piece of fabric in half and use the fold as the base of the pencil bag. You'll need to press the fold line before stitching the bag together if you do this instead of using two pieces of fabric.

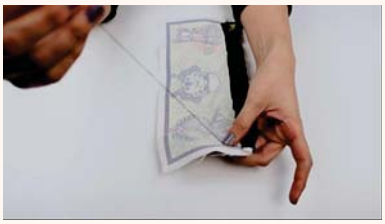
Application activity 7: Assembling and sewing of pencil pocket pieces' bag

Step 1: Hold the two pieces of fabric in place with sewing pins



Step 2: Attach the zipper to both pieces of the fabric, at the side you've chosen to have it.

Fold over a half-inch/1 centimeter (0.4 in) of fabric on one side of the square or rectangle and iron it flat. Place the edge of the zipper beneath the fold. Stitch the zipper in place with a tight, sturdy stitch



Step 3: With right sides together, stitch with hands or machine the remaining three sides of the case together. Double stitch the seams to ensure strength.

Step 4: Unzip the zipper. Turn the case right side out and make sure you cannot see the part that you sewed.

Step 5: The pen and pencil bag is done you can fill it with related items.

4.5 Maintenance of sewing machine

Activity 4.3

You have finished your sewing project but the machine you have used need to be cared and maintained for running future sewing activity smoothly. Clean and oil properly your machine.

4.5.1. Basic maintenance of sewing machine

Basic maintenance of sewing machine is more important; you should take your time and be careful. And remember, you will need to clean your machine after every lesson.

Once your machine is cleaned and running smoothly again, using appropriate and good quality thread, fabric, and needles will also enhance your sewing experience.

Tools for basic maintenance

- Sewing machine manual

- Any brush
- A tweezers
- A large upholstery needle or any sharp metal thingy
- A cleaning cloth or two
- Small pieces of paper (to reach thin spaces)
- Screwdriver (small and big)
- pipe cleaner or thin piece of fabric strip 10 inches long and 1/2 inch wide

Optional tools: A torch light; magnifying glass; small vacuum cleaner (particularly the hand-held kind used to clean computers keyboard)

Note: Make sure to clean your machine after every large project or about 8 hours of sewing.

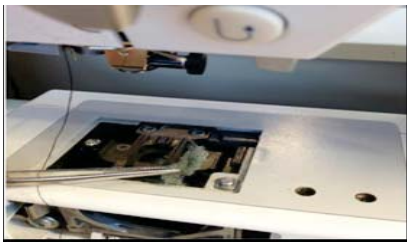
If you have a needle that has sewn through multiple projects, a machine that has not been cleaned or oiled, or perhaps you haven't had your machine in for a servicing in some time, then it's time for some routine machine maintenance and cleaning.

4.5.2. Cleaning sewing machine

Once you have gathered your supplies, you are ready to start cleaning. So, if you find you're a bit nervous that you may forget how it goes back together again, try to take photos as you go. Then simply refer to the photos if you ever have a question while reassembling. The following steps will require you to disassemble your machine:

Step 1: Unplug your machine.

Step 2: Remove the presser foot and needle.



Step 3: Remove the throat/needle plate and clean with your brush. Some of them screw off and some remove with a pressure point. You may also find that a tweezers is helpful if you have a lint rug around your feed dogs.

Step 4:

- Remove the bobbin casing and clean with your brush. If there seems to be a bit more lint or is difficult to reach, grab your vacuum kit that I sent you to the hardware store to buy. Some people like to use Screwdriver (small and big)
- pipe cleaner or thin piece of fabric strip 10 inches long and 1/2-inch wide

Optional tools: A torch light; magnifying glass; small vacuum cleaner (particularly the hand held kind used to clean computers keyboard)

Note: Make sure to clean your machine after every large project or about 8 hours of sewing.

Remove the bobbin casing and clean with your brush. If there seems to be a bit more lint or is difficult to reach, grab your vacuum kit that I sent you to the hardware store to buy. Some people like to use canned air here, but my service person instructed me never to use it because the air can blow the lint toward the back of your machine, rather than out of it. All that lint will build up like concrete and eventually lock up the components in your machine.

Step 5: Clean any tough spots with alcohol. This is a great time to use some cotton balls or cotton tips and rubbing alcohol to remove any gooey substances that may have accumulated on your machine, like old machine oil.

Step 6: Clean the tension with alcohol. Dip your pearl cotton in alcohol and run it through the tension of the machine. It should run through easily; we are just trying to pick up any left-behind lint.

Another way to do this is to use a small fat quarter of fabric (muslin works best) and gently slide it along your tension guide to remove any lint.

- **Maintaining sewing machine by oiling**

Step 1: Read sewing machine manual for oiling
Now look at the user manual for instructions on where to oil your machine. Every machine is different and the specific manual will tell you exactly what parts should be lubricated.

You should only use sewing machine oil, which can be purchased at any fabric shop. Always make sure your oil is clear.

Note: *If your oil is yellowed or discolored at all, it will cause your machine more harm because it gets gummy and acts more like an adhesive than a lubricant.*

Some newer machines do not need oiling. These machines use a synthetic lubricant and are oiled by certified service persons only. Oiling may void your warranty in this case.

Step 2: Replace your light bulb (if applicable). Some machines may need to be serviced to do this. Your manual should let you know either way.

Step 3: Reassemble your machine. Once you are all cleaned up and oiled, it's time to reassemble your machine. I tend to work backward from the last to the first section that I cleaned. Refer to your manual (or photos if you took some) for help with reassembling.

Note: *This is also a good time to replace your needle! Once you've changed it out, try a couple runs on a scrap of fabric to make sure everything is running smoothly.*

End unit assessment

As a student who finished learning on how to sew deferments fabrics you have a task to make a good smart phone bags which will help to achieve the financial goals.

After finishing your sewing project, care and maintain your machine by cleaning and oiling to make sewing machine running smoothly.

Explain the importance of the following parts of sewing machine you have used (sewing needle, bobbin, balance wheel, Treadle or foot pedal).
Describe the importance of oiling sewing machine after use.

What is the advantage of this sewing session in your future, what does it solve?

UNIT5
FOOD PRESERVATION AND STORAGE

UNIT.5: FOOD PRESERVATION AND STORAGE

Key unit competence

Learner should be able to understand and comply with food preservation and storage procedures

Learning objectives

- Differentiate receiving criteria of food items
- Distinguish storage areas
- Explain storage procedures
- Organize different food items according to receiving criteria
- Apply storage procedures on various food items
- Appreciate the arrangement of proper receiving of food items
- Comply with the food items storing procedures

Introductory activity

1. Observe the picture below

2. Perfect are the conditions of food storage in the picture above?
3. Predict what you can learn from this unit

5.1 Receiving food items

Activity 5.1

Classify deliveries food items to be made on receipting and storing
Determine how should be received according to the receiving stock by:
Checking of food items delivery
Describing the vehicle of food items delivery
Fix the temperature of food items delivery
Describe the packaging and labeling of food items delivery

1. Describe the stock rotation systems which is preferred
2. Determine storing stock needed to consider the store areas of different categories of food items delivered
3. Determine stocktaking basing on stock inventory

5.1.1. Receiving stock of food

- **Food deliveries**

All deliveries should be checked against the delivery note and moved to the appropriate storage area as soon as possible and chilled /frozen food within 15 minutes of delivery.
Use a probe to check the temperature of food deliveries: chilled food should be below 50C;
Frozen foods should be at or below -180C.
Many supplies will now provide a print-out of temperatures at which food was delivered.
Dry goods should be in undamaged packaging, well within best before dates, be completely dry and in perfect condition on delivery.

Three temperature ranges of food item delivery
Ambient: room temperature for fresh dried or tinned food items.
Chilled: refrigerator temperature for high-risk fresh or processed foods.
Frozen: freezer temperature for high-risk food items that are in longer term storage.

Checking a food delivery

While to receive a food delivery at your place you need to check the following range

A) **The vehicle** delivering the food items

- Is it suitable?
- Is it clean inside?
- Is it refrigerated for the delivery of chilled food items?

B) **The temperature of** delivery food items

- Are chilled food items below 50C
- Is frozen produce kept below -100C?
- Use a temperature probe to check if necessary.

Note: If the temperature is too high reject the food items.

C) The packaging

- Is it clean and undamaged?
- Is there any sign of mould or other spoilage?
- Are any containers dented, distended or leaking?
- Is the food labeled appropriately?
- D) The Labeling

Use a small piece of paper, fabric, etc….attached to an object and giving main information about it.

Components information of label

- The name of the company
- Description of the food
- Weight
- Product code
- Food list
- Use by date

Note: If you have to reject a delivery make sure that:

- The delivery person has agreed to return the food to the supplier.
- The food being returned is recorded on either the delivery note or a separate return do if request slip.
- The delivery person signs the delivery note or return slip, as you may do if requested.
- You give your copy of the delivery note or return slip to your supervisor as soon as possible. You need to make sure that your employer does not pay for goods that have been rejected and returned.

5.1.2. Stock rotation

It is very important to use food items in the same order that they have been delivered. This is because:

- Food loses quality the longer it is kept
- Food will have to be wasted if it is not used by the best before date
- Food thrown away is money wasted for the business.

The storage systems must ensure that stock is used in the correct rotation .When putting food away it is very important that

- Older stock of the same item is moved to the front so that it is used first
- New stock is never mixed up with old stock on shelves or in containers.

One way of remembering stock rotation is to think on FIFO (First in FIRST Out). The food that is put into storage first should be used first as policy to use older stock first and observe storage dates (Best before) on packaged food.

The best before dates are provided for other items not needing refrigerated storage. Use –by dates are given for perishable foods that need refrigeration. The LIFO (Last in First Out) food that is put into storage last should be used first. Packaged items should have storage instructions included on the label. These should be followed exactly.

Types of storage

All the methods of storing food are intended to keep the food safe from contamination and to reduce the speed at which spoilage occurs. When storing food, it must be kept covered, cool and dry. There are three main areas where food is stored:

a. Dry store

b. Refrigerator

https://www.google.com/search?q=dry+store+foof

c. Freezer

General food storage rules

- Always protect food from contamination by keeping it in suitable containers.
- Store all food items off the floor on shelves or pallets.
- Do not overload shelves.
- Leave space between items for air to circulate.
- Keep storage areas clean, dry and free from debris at all times.
- Rotate stock correctly.

Note: Report any signs of pest infestation. There are some examples such as:

- **Insects:** flies are one of the most common insect pests and they are usually found in places which have not been cleaned thoroughly and where rubbish is allowed to gather ,
- **Cockroaches** are one of the oldest types of insects, said to date from prehistoric times and they do not usually fly and only come out when it is dark ,
- **Weevils** are very tiny insects that live in dry goods example flour cereals and nuts and they can only be seen with the naked eye if they are moving ,
- **Ants** are attracted by sweet items which have not been stored securely they usually nest outdoors and follow set paths to food sources ;
- **Rodents:** Rats commonly get into buildings through drains or holes but they also burrow under walls , rats are a particular hazard as they can transmit Weil's disease, and a worm-type parasite as well as food poisoning bacteria
- **House mice** are the main problem in buildings and they can climb very well and cause considerable damage by gnawing to keep their teeth short ;
- **Birds: pigeons, starlings and seagulls** can be a problem in outside waste areas where bins are allowed to overflow and are not kept covered ;
- **Pets:** domestic pets as cats and dogs should not be allowed to enter catering premises.

5.1.3. Storing different food items

- **Storing stock**

A delivery must be put into the appropriate storage as soon as possible after arrival.

A) Frozen and chilled items: must be put away first. Prompt storage is necessary because:

- Frozen items must not be left in warm conditions where they could start defrosting
- Chilled items must not be allowed to warm to an unsafe temperature at which bacteria could grow. This is especially important with ready-to-eat items, e. g salads.

B) Fresh food items: must be put into cool storage to preserve their quality ready for preparation.

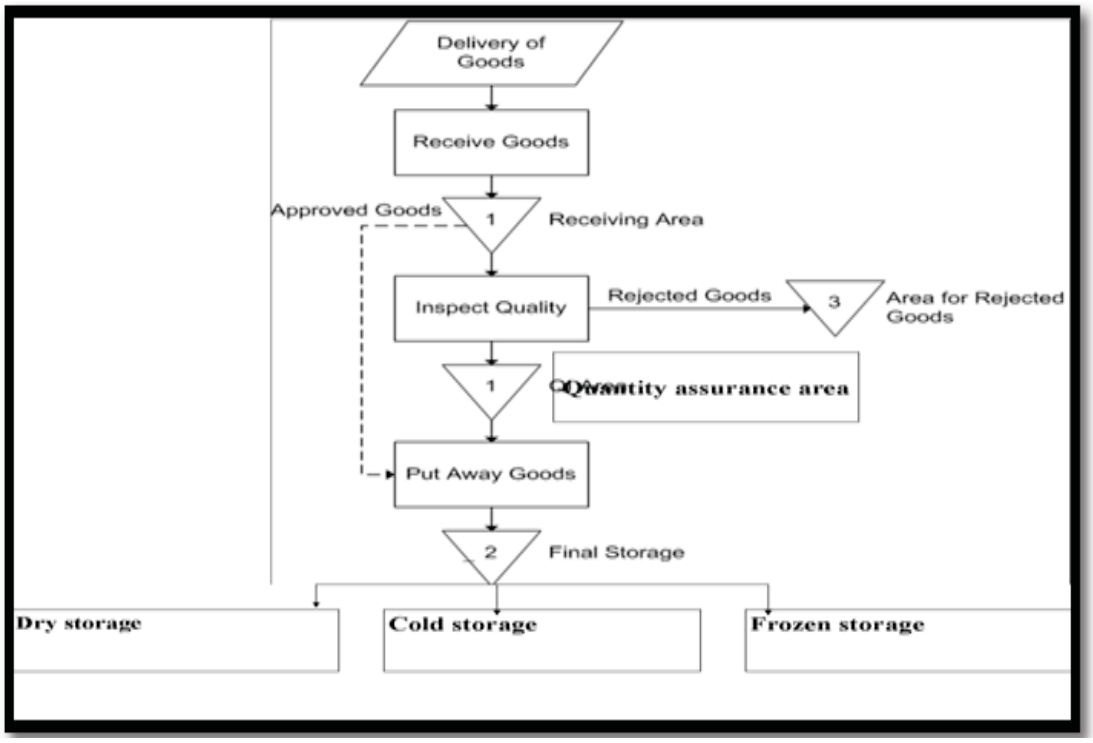
C) Dry: goods should be taken to the stores area where they should be entered on to the stock record to prevent theft.

- **System for date coding all items delivered**
    - A date sticker may have to be attached to the items as they are put away.
    - As you put new stock away, move the old stocks to a position where it will be used first (stock rotation).
    - Handle all items carefully.
    - Do not attempt to lift heavy items on your own to avoid any risk of hazard. Some items may need to be removed from the original external packaging before storage, e .g if cardboard box is breaking or there is not enough space to store an item in its full packaging.
    - Care must be taken to transfer any important information, e .g use by dates, onto the replacement container. Your workplace should have a system for this.

Stocktaking of food items

- Stock-taking or "**inventory checking**" is the physical verification of the quantities and condition of items held in an inventory or warehouse. This may be done to provide an audit of existing stock. It is also the source of stock discrepancy information.
- Stock-taking may be performed weekly, monthly or annual, procedures may be done continuously by means of a cycle count.
- It is recommended that you do not enter any new stock transactions during this process. If this is unavoidable, make sure that the counted quantities in take the new stock transactions into account.

Receiving flow diagram



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This flow diagram is used when the three activities as receiving goods, inspection of quality and final storage. These are performed as separate steps after one another and can involve different people and roles within the organization.

5.2 Preservation and storage of dry goods

Activity 5.2

1. Identify the types of storage for the following food items: Dry beans, rice, flour, potatoes and salsa
2. Describe the correct way for keeping the food items
3. Describe the most essential points to be observed in the care and control of the store
4. Fix or approve the considered food temperature which is required
5. Elaborate general recommendations for storage procedures/guidelines and monitoring rate what are required.

Introduction of food preservation and storage

- **Preservation**

Food is preserved to prevent natural and microbial decay, by modifying the conditions that favor enzyme activity and the growth of micro-organisms.
In the past, food was preserved to provide a store of food during winter, when there was no other source of food. Today, food is preserved for the following reasons:

- To add variety to the diet, by making foods available out of season.
- To make use of food when it is cheap and plentiful and to store it for later use.
- To vary the diet by preserving food in ways that make a new product out of the food (e.g pickling, jam making).

The aims of preservation

While preventing deterioration, preservation also aims to retain as many of the qualities of the fresh food as possible, e.g: flavor, texture, color, appearance, and nutritional value.
Preservation also aims to prevent micro-organisms from contaminating the food once it is preserved, by sealing it from the outside air.
A food service operation needs to have clearly defined storage areas and procedures for several reasons.

- By providing storage facilities it is possible to purchase supplies in enough large quantities to get price breaks.
- The ability to store supplies on the premises reduces the cost and time needed to order supplies and handle them upon delivery.
- Menu planning is easier when you are aware of the quality, quantity, and types of food that are on hand.

5.2.1. Identification of dry foods

Dry foods are sugar, coffee, rice and other solid foods. They are dry and could be transported, stored without immediate danger of spoiling.

http://ww.google.com/search?q=dry+store=food

The storeroom for dry foods should be located near the receiving area and close to the kitchen.
Unfortunately, the storeroom for dry foods is often considered in food service facility designs, and the area designated for storage is sometimes in an inconvenient location.

5 2.2. Guidelines of dry food storage and monitoring rate

- When food is taken out of the cases, label in permanent black marker everyone can/containers with the pack period (date/month/year) that appears on the case or label with the receipt period if no pack date is available.
- A first in, first out (FIFO) procedure is used for all dry food storage.
- All food is stored on clean shelving that is at least 15cm (6 inches) off the floor.
- The temperature(s) of the dry storeroom(s) is between 500F and 700F.The store room must be clean, dry, and well-ventilated.
- Food is stored in durable, food-grade containers that are not stored in direct sunlight.
- Cleaning supplies and other chemicals are completely separated from all food, dishes, utensils, linens, and single-use items.
- Non-food supplies and chemicals are in their original containers. If not in the original container, the item is clearly labeled on the side of the holding container with the name of the contents. Do not label the lid because lids are interchangeable. Some chemical suppliers provide labels.

5.2.3. Storage of dry foods

The most essential points to be observed in the care and control of the dry storeroom are:

- The area should be dry and cool to prevent spoilage and the consumable of canned goods. The ideal temperature range is 10°C to 15°C (50°F to 70°F).
- The storeroom should be easy to keep clean and free from rodents and vermin. This means all wall, ceiling, and floor openings should be sealed and protected to prevent access.

- It should be designed so it is easy to arrange and rearrange dry goods to facilitate stock rotation.

The best arrangement is to have shelves situated in the middle of the room, so they can be stocked from both sides. This allows you to rotate stock by simply pushing out old stock by sliding new stock in from the other side of the shelf.
This guarantees that first items received will be the first items used, or the "first in, first out" (FIFO) concept in stock rotation.

- The area should be well lit.
- Shelving must be at least 15 cm above the floor.
- Do not store items right on the floor.
- Passage ways should be wide enough to allow room for carts or playthings, which should be used to prevent possible injuries from lifting.
- Food and supply storage areas should be kept under locked. Food storage control is an important step in the overall control of food costs. Also, you must consider the small items of little value)

All storerooms should be like bank safes where the assets of the operation are being stored. This may mean that more valuable commodities such as liquor and wine should be stored and locked inside a larger storage area, such as the dry food storage area.

Identification of canned foods /preserves or cans

The following are identifications and guidelines of storage for canned food / preserves or cans:
Shelf-stable foods include foods such as canned goods, cereal, baking mixes, pasta, dry beans, condiments, sugar, and flour.

- Unopened shelf-stable foods should be safe unless the can or packaging has been damaged. After opening, store these products in tightly closed containers.
- Some foods, such as tuna or chili, must be refrigerated after opening.
- Unless the package states "Keep refrigerated after opening," shelf-stable foods can be kept safely at room temperature.
- To keep these foods at their best quality, store in clean, dry and cool (below 70°F) cabinets away from the stove or the refrigerator.
- Extremely hot (over 100°F) and cold temperatures (32°F or colder) are harmful to canned goods.
- Low-acid canned goods can be kept for 2 to 5 years (canned meat and poultry, stews, non-tomato soups, pasta products, potatoes, corn, carrots, spinach, beans, beets, peas, and pumpkin).
- High-acid canned goods can be stored for 12 to 18 months (tomato products, fruits, sauerkraut, and foods in vinegar-based sauces or dressings).
- Some canned hams are shelf stable. However, no food labeled "Keep refrigerated" should be stored in the pantry. Such foods must be stored in the refrigerator.

5.2.4. General recommendations for dry storage - "Do's" and "Don'ts"

- Provide a building for storage which is secure and can be adequately locked. Ensure that its roof will protect the feed from rain and that surface water cannot enter the store.
- Provide it with ventilation points (windows are not necessary or recommended).
- Ventilation entry points should be low on the side facing the prevailing wind and high on the opposite side. Orient the building so that one of the long sides faces the prevailing wind.
- Ensure that all entry points are meshed to prevent entry by birds, rats etc. The drier and cooler you can keep this store the better your feed quality will be.
- Do not accept deliveries of raw materials which are visibly damp or moldy or which are obviously infested with insects.
- Plan to purchase your ingredients carefully so that you do not need to keep the great quantity in stock.
- Obviously, you will want to store greater quantities of seasonally cheap or scarce materials but do not be tempted to buy a year's supply just because they are cheap now. It may prove very expensive indeed if half of them must be thrown away.

Generally, don't keep longer than the following guidelines:

Items	Tropical Zone	Temperate Zone
Ground ingredients e .g nuts flour	1-2 months	3 months
Whole grain and oilcakes e .g sunflower oil	3-4 months	5-6 months
Compounded Dry Feeds e.g sosoma	1-2 months	1-2 months
Vitamin and Protein Mixes e .g yogurt (kept cool etc.)	6 months	6 months
Wet ingredients e.g dough	2-3 hours	2-3 hours
Frozen ingredients e.g fishes	2-3 months	2-3 months

- **Always** keep the store clean. Floors and walls should be regularly swept. Spilled material must be removed, and the contents of broken bags or containers used first. Cleared areas of the store must always be cleaned before new materials are placed there.
- **Arrange** your store so that new deliveries are not put in front of old stocks. The oldest materials must be used first.
- **Make** small stacks. Large stacks of sacks lessen insect damage, which occurs mainly at the surface, but cause heat generation, with other consequential damage. In the tropics, I believe that small stacks which are used rapidly are better than large ones which remain stagnant for long periods. If possible, raise the sacks off the ground by stacking them on wooden pallets (platforms).
- **Ensure** that ingredients are clearly and indelibly labeled so that those drawing from the store are sure that they are drawing the correct ingredient (some look very similar when ground) from the oldest batch.
- **Don't** walk on the stacks of compounded feeds unnecessarily. This will break the pellets on the surface and lead to the production of a lot of wasteful fines (dust).
- **Don't** allow sacks to rest against the outer walls of the store - leave a space between the stacks and the wall.
- **Don't** allow people to sleep or eat in the feed store or, preferably, to smoke.

Fig. 1: storage of different dry goods

5.3. Preservation and storing perishable food items

Activity 5.3

Having different perishable food deliveries as vegetables, fruits, cheese, sausage, meat , cream and milk and you are asked to preserve and store them appropriately

1. Identify the required equipment that should be used to store those perishable food deliveries.
2. How do you choose that required equipment?
3. Explain how to use this equipment and take care for it
4. Describe the appropriate storage procedures that you can follow for perishable foods storage

5.3.1. Identification of perishable food

A perishable is also a type of food with a limited shelf life if it's not refrigerated e.g: vegetables, fruits, meat, fish and dairy products.

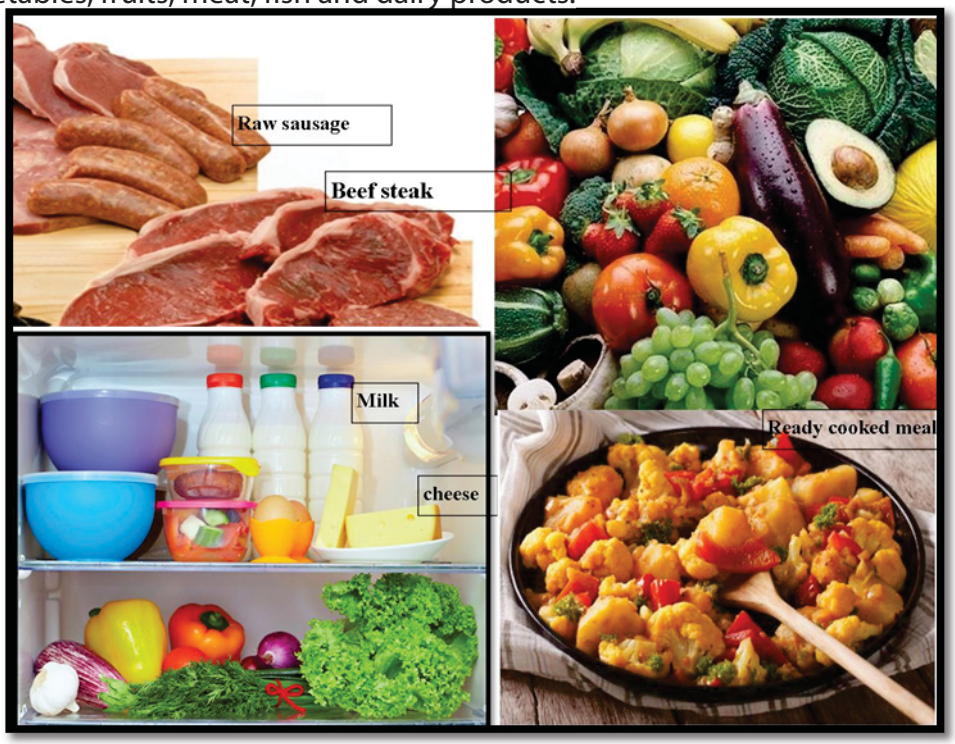

Figure2: perishable foods
httpt://www google.com/search?q=perishable+food

Dairy products: dairy products are foods or drinks that are created from cow's milk. On the other hand, they can also be produced using buffalo's milk, goat's milk, or even sheep's milk. The various types of milk (including whole milk, skim milk, buttermilk), yoghurt, cheese (e.g. Swiss cheese, cheddar cheese, cottage cheese), and ice cream are dairy products. They are often considered to be high in calcium and vitamins and are a good source of energy.

- **Dairy produce**

It is a waste of space to freeze butter or cheese as they can be stored satisfactorily in a refrigerator, unless you buy them in bulk/unpackaged.

- **Double or whipping cream dairy products**

They should be lightly whipped before freezing to prevent separation. It is possible to pipe cream into rosettes on paper and freeze them separately for use on cakes, cold sweets, meringues, etc.

Figure 3. Different dairy products

- **Bakery foods**

Bakery foods containing custards, meat, or vegetables, and frostings made of cream cheese, whipped cream, or eggs must be refrigerated. Bread products not containing these ingredients are safe at room temperature, but within several days to a week they will mold and become unsafe to eat.

- **Fresh produce**

Raw fruits are safe at room temperature, but after ripening, they will mold and rot quickly. For best quality, store ripe fruit in the refrigerator, or prepare and freeze it. Vegetables are suitable for refrigerator, they must be store fresh no longer depending on the types to maintain the freshness. Those vegetables include greens, tomatoes, spring onions, cucumber, baby marrow, lettuce, spinach, carrots, green beans, fresh peas, fresh beans… most of them should be stored in refrigerator at 3-6^{0}C for few hours.

Some dense raw vegetables such as potatoes and onions can be stored at cool room temperatures. Refrigerate other raw vegetables for optimum quality and to prevent rotting. After cooking, all vegetables must be refrigerated or frozen within two hours.

All these foods mentioned above must be kept refrigerated for safety. Refrigeration slows bacterial growth and freezing stops it.
There are two completely different families of bacteria that can be on food: Pathogenic bacteria: the kind that cause food-borne illness,
Spoilage bacteria: the kind of bacteria that cause foods to deteriorate and develop unpleasant odors, tastes, and textures.

5.3.2. Refrigerated storage

Refrigerator is an appliance or compartment which is artificially kept cool and used to store food and drink.

Fig4: Refrigerator

Refrigeration is important in food storage and in the prevention of food poisoning.
Note: Liquids called refrigerants are used to remove heat from the inside of the refrigerator.

Chlorofluorocarbons (CFCS) have traditionally been used as refrigerants, but they are now known to damage the protective ozone layer above the earth and so are being withdraw. Research into suitable environmentally friendly refrigerants continues.

Temperature distribution

Domestic refrigerators are designed to keep the temperature inside below 7^0C although it varies in different areas of the cabinet.
Some fridges have an ice box which is normally marked with a star rating to indicate the length of time that frozen food may be stored in it. It is not designed to freeze food, only to store it once frozen.

The door shelves are the warmest part of the cabinet. The diagram below shows the types of food that should be stored in each part of a refrigerator.

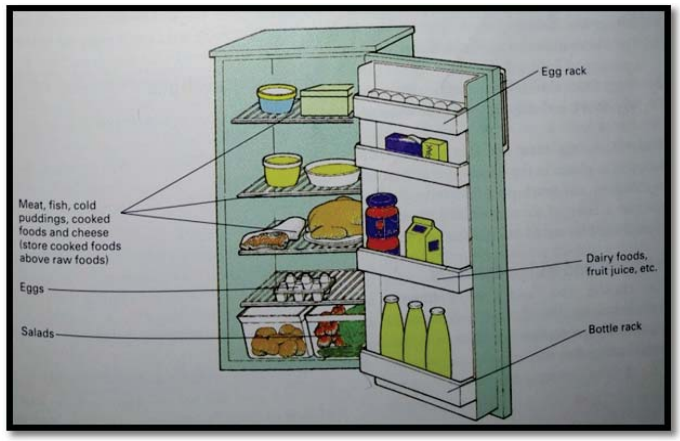

Fig. 5: Diagram shows the types of food that should be stored in each part of a refrigerator

Choosing a refrigerator

When deciding on which type and size of refrigerator to buy, the following points should be considered:

- Size and capacity required.
- Storage arrangements inside the refrigerator.
- Space available in the kitchen.
- Star rating for frozen food compartment.
- Workmanship on the refrigerator and its finish.
- Additional features, e.g. automatic defrosting, digital temperature display.
- Amount of money available

Care of a refrigerator

- **Defrosting**

Moisture is drawn from the air and food inside a refrigerator, and it freezes on the surface of the ice box or heat-exchange panel.

If this layer of the ice box or heat-exchange panel becomes more than 6mm thick, it will lower the efficiency of the refrigerator and should be removed by defrosting. Refrigerators can be defrosted in one of three ways.

Manual defrosting

The refrigerator should be switched off, and the food removed and kept in a cool place. The water collected from the melting ice is collected in a tray underneath the ice box and removed. Once all the ice has gone, the cabinet should be washed out with a solution of bicarbonate of soda in water (1 tablespoon to 575ml), which will not leave a smell. Once dry, the refrigerator can be refilled and reconnected.

Push-button defrosting

Some models have a button which when pressed stops the refrigeration process and allow the ice to melt. When this has occurred, the refrigeration process starts up again.

Automatic defrosting

Other models defrost automatically when the ice reaches a certain thickness, so that there is no need to check this, and food need not be removed.
Note: It is important to the refrigerator should always to be kept clean and hygienic inside.

5.3.3. Storing food in a refrigerator

It is advisable to wrap food before placing it in the refrigerator:

- Food loses moisture as it cools down, so unwrapped food will dry out.
- Some foods absorb odors while others give off odors, and this can spoil the flavor of the food.

Some foods, e.g. meat and fish, should not be wrapped in plastic in the refrigerator as they tend to discolor and develop off flavors and odors without a layer of air surrounding them. Such foods should be stored in a glass or ceramic dish.
Store perishable foods in the refrigerator or freezer. - Meat, poultry, fish, eggs, and dairy products (milk, cheese, yogurt, etc.) are perishable foods that spoil easily.
These foods (raw or cooked) should be stored in the refrigerator. But don't expect the refrigerator to prevent spoilage altogether. Perishable foods are those likely to spoil, decay or become unsafe to consume if not kept refrigerated at 40 F° (4°C) or below or frozen at 0 F° (-18 °C) or below.

Examples *of foods that must be kept refrigerated for safety include meat, poultry, fish, dairy products, and all cooked leftovers.*

Fig 5. Refrigerator for perishable food items
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5.4 . Preservation and storage of frozen food items

Activity 5.4

You are asked to preserve and store frozen food delivery as frozen chicken, frozen vegetables, frozen fruits and frozen fishes.

1. Identify the required storage equipment and their critical control points to be remembered
2. Identify the choice of food can be frozen
3. Determine or fix the available temperature for storage which is available
4. Describe the storage guidelines/critical can you follow

5.4.1. Identification of frozen foods items

Frozen food: food that has been subjected to rapid freezing and is kept frozen until used.

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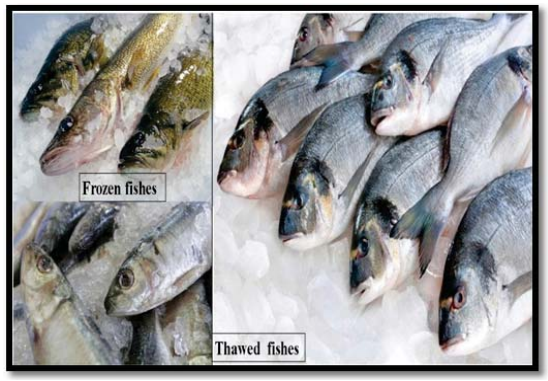


https:www.google.com?search?q=frozen fish

Choosing food for freezing

Most foods can be frozen, but some are more suitable than others .The length of time that food can be stored varies, and no food can be frozen indefinitely. Once a food has passed its storage life, e. g the length of time it can be kept frozen in perfect condition, chemical changes start to affect the flavour, quality, and edibility of the food.

- Some foods which are available for most of the year and have a long storage time in a fresh state are not worth freezing, e .g potatoes.
- Some foods react poorly to freezing and are therefore unsuitable. These include:

a. Vegetables

Lettuce, cucumber, and radish become mushy and discolored on thawing, as their high water content results in large numbers of ice crystals being formed. These rupture cells, even if quick-frozen.

- **Boiled** potatoes become leathery when thawed, if frozen whole.

- **Celery** has a high water content and loses its structure on thawing, but it can be used as a cooked vegetable in casseroles, soups,etc.

b. Fruit

- **Strawberries** tend to become mushy on thawing, due to ice crystals rupturing their cells, but they can be used in fruit salads, flans, soufflés, mousses, etc., as their flavour is not impaired.
- **Banana and avocado** pears turn black if frozen, because of enzyme activity.
- **Pears** tend to lose their texture if frozen, because of the effect of ice crystals on the cells.

c. Dairy products

- Whole pasteurized milk (non-homogenized) separates out when frozen.
- Cream with less than 40% fat separates (e.g single cream).Whipping or double cream should be whipped lightly before freezing.
- **Eggs:** whole fresh eggs crack and become gluey. However, egg white and yolks can be frozen separately.
- **Mayonnaise** separates.
- **Corn flour**-based soups and stews tend to separate.
- **Icings** (except butter cream) crumble and become soggy/ moist.

5.4.2. Storage of frozen food

- **Freezer storage**

https://www google.com/search?q=freezer+storage

Freezer is a refrigerated cabinet or room for preserving food at very low temperatures

Types of freezers

- Chest freeze (left)
- Upright freezer (center)
- Refrigerator/freezer (right)

Refrigerator/freezers usually consist of two separate cabinets, joined together with separate doors. Normally, the freezer compartment is below the refrigerator. It may operate independently or in conjunction with the refrigerator.
These models are particularly useful to single people or small families, and there is a range of sizes available.

The advantages and disadvantages are similar to those for the upright models, although the refrigerator/freezer may be slightly more economical to run.
It is often possible to buy second-hand conservators from shops or ice cream manufactures .These are not designed to freeze food, only to store foods which are already frozen at -18^{0}C. They should not be considered if food is to be frozen at home.

Appliances that are suitable for freezing food will carry the symbol.

Example:

- **Storage capacities of freezers**

The maximum storage capacity of a freezer may be more than the actual storage space available, because space is wasted when uneven-shaped packages are used .The approximate holding capacity of 30 litters of freezer space is: 16-20 identical, tub-shaped, 500m cartons; or 8kg poultry or meat; or 35-40 identical, square or rectangular, 500ml cartons

- **Using the freezer**

There are principal basic rules to follow for the successful use of a freezer.

a. Basic rules are

- Freeze only fresh foods.
- Freeze food when it is at the peak of quality e.g when just ripe or ready for eating.
- Once prepared or harvested, freeze the food quickly to avoid deterioration.
- Handle and freeze the food hygienically.
- Use suitable packaging materials and wrap the food properly.
- Pack food in single or multiple portions according to family size and needs.
- Remove as much air as possible from the package before freezing, e.g by sucking out the air through a straw, to prevent oxidation of the food during storage.
- Label the packs clearly .Keep a record of what has been frozen and when.
- Chill the food in a refrigerator before freezing so as not to increase the temperature inside the freezer too much

- Use the fast freeze switch to reduce the temperature quickly when freezing fresh food.
- Only freeze food item in the quantities recommended by the manufacturer for the capacity of the freezer.
- Store the food only for the recommended storage time
- Aim to use up stocks of food item before they come into to season again.
- Do not allow the temperature of the freezer cabinet to increase above -18^{0}C.
- A thermometer which can be placed inside the freezer is useful for checking this.
- Never refreeze foods that have been thawed/defrosted, unless they have undergone a process of cooking, e. g thawed meat made into a casserole can be frozen.
- Keep the freezer at 0°F or colder. Defrost the freezer when ice builds up. Provide sufficient freezer space for food, which includes room for cool air to circulate.

Foods frozen at peak quality will taste better than foods frozen near the end of their useful life, so quickly freeze items you don't plan to use in the next day or two. It is safe to freeze foods in their supermarket wrappings. Use these foods within a month or two. Many supermarket wrappings are air permeable. So, for longer storage, overwrap packages with airtight heavy-duty foil, plastic wrap, or freezer paper, or place packages inside a plastic bag.

Proper packaging helps maintain quality and prevent "freezer burn." Foods do not last indefinitely in a freezer, so they should be used up quickly after they are frozen. As foods go into the freezer, date the packages, and use the oldest items first when taking them out of the freezer.

If frozen food does get "freezer burn," it is still safe to eat, but it will be dry in spots. Remove freezer-burned portions either before or after cooking the food.

b. Storage times for frozen foods

Different foods will keep for different lengths of time in the freezer, and it is important not to exceed storage times .The following list gives storage times for foods stored at-18^{0}C

Food	Storage time
Vegetables	12 months
Fruit	12 months
Raw meat	
Beef and lamb	12 months
Mince and offal	2 months
Pork	9 months
Not smoked bacon	6 weeks
Sausages	6 weeks
Smoked bacon	4 weeks
Vacuum-packed rashers	3 months
Bacon joints	months
Poultry	
Chicken	12 months
Duck	6 months
Fish	
White, filleted	8 months
Oily	4 months
Shellfish	2 months
Whipped cream	2 months
Hard cheese	3 months
Cakes	
Fatless	6 months
With fat	4 months
Pastry	
Cooked	6 months
Uncooked	3 months
Bread	3 months
Soups, sauces	4 months
Stews	2 months
Meat loaves, dough	1 month
Ice cream	3 months

Setting the freezer

For the freezer to operate efficiently it must be placed in a suitable position. The following points should be considered when choosing a site:

- Dampness may damage the motor and the exterior of the freezer, so the site must be dry.
- If air cannot circulate, heart will not be removed from the condenser, so the freezer will not work properly. There must be at least 25mm of space around the freezer.
- It must be kept in a cool place. A site that is always hot will cause the motor to work overtime to maintain the temperature inside the freezer.

Suitable sites the freezer includes:

- A cool dry kitchen
- Utility room
- A dry garage, conservatory, or outhouse spare living-room or bedroom

Note: Critical control points:

- Frozen food must be kept at –18°C or lower to maintain its quality.
- Frozen foods should be stored at –18°C (0°F) or lower. If the temperature rises above –18°C, food can become discolored and lose vitamin content. Lowering the temperature after it has risen does not correct the damage.

Examples of perishable foods:

- Vegetables and fruits
- Meat, poultry and seafood
- Dairy products and all cooked leftovers

All these foods mentioned above must be kept refrigerated for safety. Refrigeration slows bacterial growth and freezing stops it. There are two completely different families of bacteria that can be on food:

1. **Pathogenic bacteria:** the kind that cause food-borne illness,
2. **Spoilage bacteria:** the kind of bacteria that cause foods to deteriorate and develop unpleasant odors, tastes, and textures.

Factors of storing frozen foods

- **Fruit and vegetables** that are received frozen will keep for months if they are properly wrapped. Fish and meat properly wrapped also have a relatively long freezer shelf life.
- **Freezing** fresh fruits and vegetables on the premises is time consuming and may be too expensive to consider. Fresh fruit must be properly prepared for freezing or it will not store well.
- All freezer products not properly wrapped will develop freezer burn, which is a loss of moisture that affects both the texture and the flavor of the food. A common sign of freezer burn is a white or grey dry spot developing on the surface of the frozen product. Meat is particularly susceptible to freezer burn.
- **Rotating stock** is extremely important with frozen foods. Such rotation is difficult in standard chest freezers as it often means that old stock must be removed before new stock is added. The temptation with frozen foods is to develop the unacceptable habit of using the last item bought first, instead of FIFO (first in, first out).

Note: Bacteria, although they are usually the first agents to begin the decomposition process, are the hardest to detect. Their presence usually only becomes noticeable after decomposition has advanced to the stage where unpleasant odors are produced.

When food is deteriorating, you will notice changes in its color, odor, and taste.

Examples:

- Fruit goes soft, gets darker, and quickly rots.
- Vegetables start wilting and then become slimy and rotten.
- Butter, cheese, and dairy products get darker and develop a sour smell.
- Meat changes gradually at first, but then becomes darker and begins to smell "off."
- Slime and mould appear.

Fig.5: Freezer and storage of frozen food items in freezer

5.5. End unit assessment

At our school we have all kinds of food deliveries from our suppliers and you are asked to receive and store them remember the good maintenance in long period/time.

1. On receiving stock of food deliveries
    a. What are necessary points are you going to check for food deliveries?
    b. Fix 3 Temperatures ranges what are you going to follow
    c. Explain the stock rotation to be applied
    d. Determine the storing of food items
    e. Describe the types of stocktaking which are required

2. On preserving and storing dry goods as dried beans, onions, rice, salsa, ketchup etc.

a. Identify the storage area and the most essential points to be observed in the care and control

b. Give general recommendations to be respected

3. On preserving and storing perishable food

a. Choose the storage equipment and fix it on the available temperature

b. Give advance for storing perishable food

4. On preserving and storing frozen food

a. Determine the choice required for freezing

b. Precise the storage equipment required

c. Enumerate the basic rules you must follow while using freezer

d. List 4 critical control points to remember when maintaining its quality

UNIT6
NUTRITIONAL DEFICIENCY AND HEALTHY DISORDER

UNIT 6: NUTRITIONAL DEFICIENCY AND HEALTHY DISORDER

Key unit competence

Learner should be able to understand that nutritional deficiency can cause health disorder

Learning objectives

- Explain the types of nutritional deficiency.
- Distinguish nutrition related to diseases and disorders.
- Describe the causes and types of nutritional deficiency.
- Measure and prepare food nutrients according to diseases and nutritional deficiency.

Appreciate the value of preventing the causes of the nutritional deficiency and contribute to the society.

Maintain a positive attitude of nutrition related to disease and disorders and make a contribution to society.

Introductory activity

Observe carefully the figures below

2. Analyze the life conditions of children on the pictures above

3. What have you observed comparing to the situation in our society?

4. On your view, what can be done to avoid the situation to the pictures shown above?

5. What can you predict to learn from this unit?

6.1. Kwashiorkor

Activity 6.1

1. Observe the picture below

2. Analyze the picture above:
   - Do these students study in the same condition? Explain your view.
   - Looking those two classes, what is the difference between the two class members?
   - From your observation, distinguish diets and care of those students from two classes.

Kwashiorkor, also known as "edematous malnutrition" because of its association with edema (fluid retention), is a nutritional disorder most often seen in regions experiencing famine. It is a form of **malnutrition c**aused by a lack of protein in the diet.

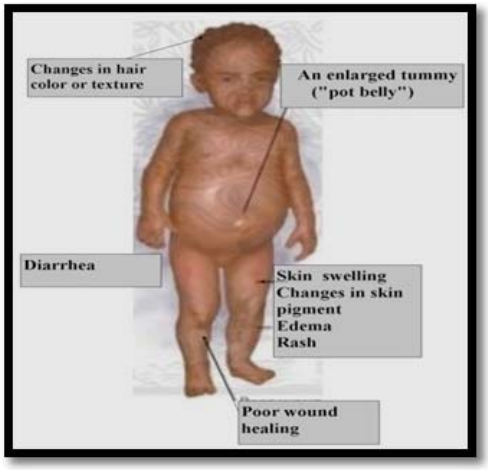
It's most common in developing countries with a limited food supply, poor hygiene, and a lack of education about the importance of giving babies and children an adequate diet.
Note: Although kwashiorkor can affect people of all ages, it's more common in children than adults.

6.1.1. Symptoms of kwashiorkor

Kwashiorkor is a severe form of malnutrition. It's most common in some developing regions of the world where babies and children have a diet that lacks protein and other essential nutrients.
The main sign of kwashiorkor is too much fluid in the body's tissues, which causes swelling under the skin (oedema). It usually begins in the legs, but can involve the whole body, including the face.

As well as oedema, symptoms of kwashiorkor can include:

- Loss of muscle mass
- An enlarged tummy ("pot belly")
- Regular infections, or more serious or long-lasting infections than usual
- Red, inflamed patches of skin that darken and peel or split open
- Failure to grow in height
- Tiredness or irritability
- Ridged or cracked nails itchy
- Poor wound healing
- Dry, brittle hair that falls out easily and may lose its colour



https://www.google.com search ?q=kwashiorkor

Note: *Kwashiorkor can be fatal if it is left untreated for too long because children become very vulnerable to infections.*

6.1.2. Treatment of kwashiorkor

If kwashiorkor is identified early it can be treated with either specially formulated milk-based feeds or ready-to-use therapeutic food (RUTF), typically made up of peanut butter, milk powder, sugar, vegetable oil, and added vitamins and minerals.
Note: *More intensive treatment in hospital will be needed in severe cases or where there are already complications, such as infections.*
Hospital treatment will usually involve:

- Treating or preventing low blood glucose
- Keeping the person warm – kwashiorkor can make it harder to generate body heat
- Treating dehydration with specially formulated rehydration solution
- Treating infections with antibiotics, kwashiorkor greatly increases the risk of infections
- Treating vitamin and mineral deficiencies – vitamin supplements are usually included in the special milks or RUTF
- Slowly introducing small amounts of food before gradually increasing the amount of food

The whole process usually takes between two and six weeks to complete.

Note:

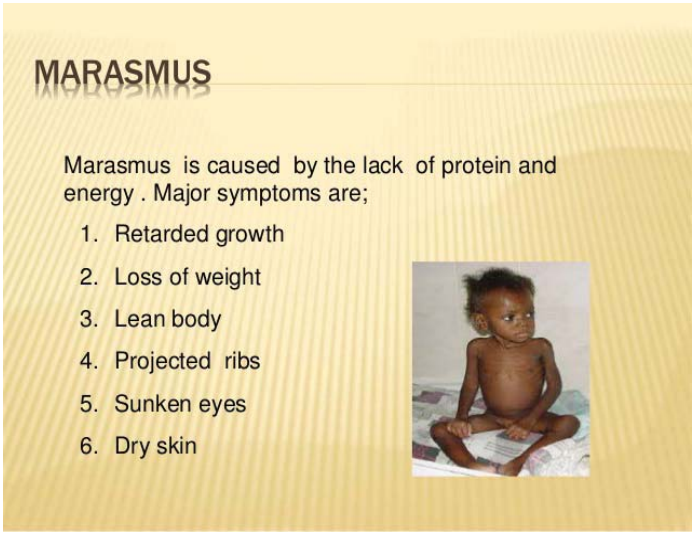
- *How well a person recovers from kwashiorkor depends on how severe their symptoms were when treatment began. If treatment was started early, the person will usually recover well, although children may never reach their full growth potential and be shorter than their peers.*
- *If treatment was started in the later stages of protein malnutrition, the person may be left with physical and intellectual disabilities.*
- *If kwashiorkor isn't treated or treatment is significantly delayed, it can lead to death.*

6.1.3. Prevention of kwashiorkor

- Kwashiorkor can be treated in the early stages though the child may not achieve full growth of height. But in chronic cases, permanent disability can occur.
- Shock in kwashiorkor patients should be treated immediately by restoring blood volume and maintaining blood pressure.
- The basic remedy is to give calories in the form of carbohydrates, sugars, fats and protein rich diets. Vitamins and mineral supplements should be given.
- Children affected by kwashiorkor have been starving for days; hence they should be fed in small quantities initially. First, carbohydrates should be given for energy then protein foods.
- Children who are lactose intolerant should be given enzyme lactose to benefit from milk products.

The best way to avoid kwashiorkor is to eat nutritious diet rich in carbohydrates, fats (10% of the total calories) and proteins (12% of the total calories).

6.2. Marasmus



https://www.google.com/search?q=marasmus+and+kwashiorkor

Marasmus is another type of malnutrition that can affect young children in regions of the world where there is an unstable food supply. Signs of marasmus include thinness and loss of fat and muscle without any tissue swelling (oedema). Marasmus can be life-threatening, but you can get treatment for it.

Like kwashiorkor, marasmus is caused by a lack of the right types of nutrients. Tests may need to be carried out to exclude other causes of thinness. The treatment for marasmus is similar to that of kwashiorkor.

Nutrient deficiency is the main cause of marasmus. It occurs in children that don't ingest enough protein, calories, carbohydrates, and other important nutrients. This is usually due to poverty and a scarcity of food.

There are several types of malnutrition. A malnourished child may have something other than marasmus. Among the more common types of malnutrition are serious deficiencies in:

- iron
- iodine
- zinc
- vitamin

Growing up in a developing country is a risk factor for marasmus. Areas that have famines or high rates of poverty have higher percentages of children with marasmus. Nursing mothers may be unable to produce enough breast milk due to malnutrition. This affects their babies.

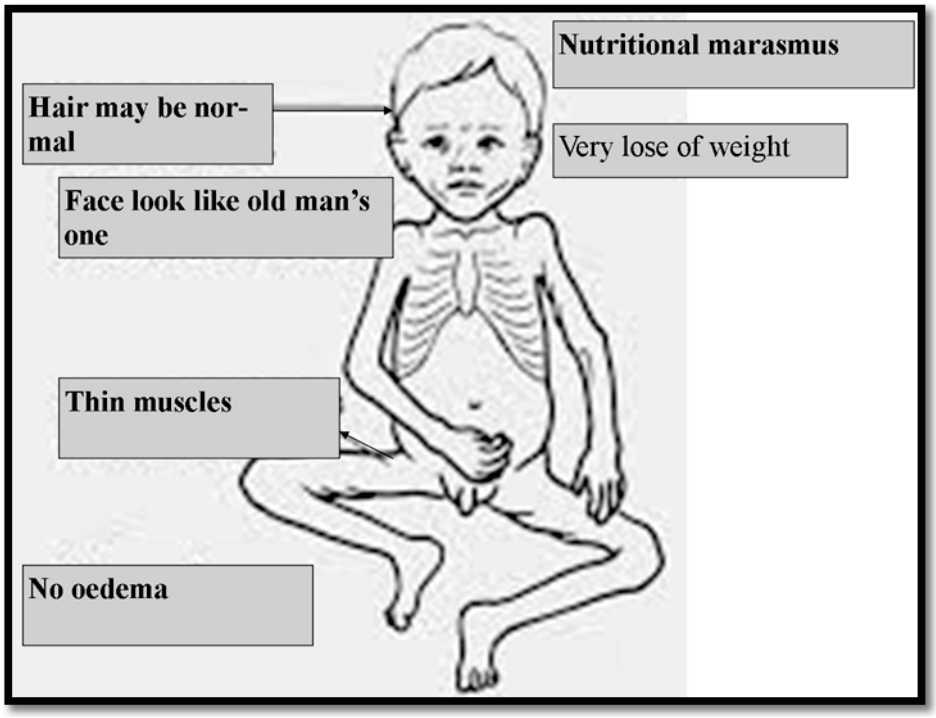
Viral, bacterial, and parasitic infections can cause children to take in too few nutrients. Regions with high disease rates and insufficient medical care may also have other factors that reduce the chances of people having enough food to eat.

6.2.1. Symptoms of marasmus

The main symptom of marasmus is being underweight. Children with this condition have lost a lot of muscle mass and subcutaneous fat. Subcutaneous fat is the layer of fat just under the skin. Dry skin and brittle hair are also symptoms of marasmus.

In children with marasmus, the following can also occur:

- Chronic diarrhea
- Respiratory infections
- Intellectual disability
- Stunted growth
- Frequent dehydration.
- Thin face.
- Ribs and shoulders clearly visible through the skin.
- Persistent dizziness
- Sunken eyes
- Active, alert, or irritable behavior.



https://www.google.com/search?q=marasmus

Actually, malnourished children may look older and have little to no energy or enthusiasm for anything. Marasmus can also make children short-tempered and irritable, but this is usually a more common symptom of kwashiorkor.

6.2.2. Treatment of marasmus

A diet treatment rich in nutrients, carbohydrates, and calories is very important. It can still take months for a full recovery, even with the right treatment plan.

Note: *The best outcomes occur when a child's parents or guardians know about the importance of nutrition and how to prepare foods properly.*

Fig1: Balanced diet for marasmus
https:/www.google.com/search?q=balanced +diet+for+morasmus

Initial treatment of marasmus often includes dried skim milk powder mixed with boiled water. Later, the mixture can also include a vegetable oil such as sesame, casein, and sugar.

Once a child starts to recover, they should have a more balanced diet that meets their nutritional needs.

Note: Infections are common among children with marasmus, so treatment with antibiotics or other medications is standard. Treating infections and any other health issues can help give them the best chance of recovery. With proper nutrition and medical care, the outlook can be a positive one.

Healthy weight gain and growth can resume fairly quickly once a child with marasmus starts consuming more of the calories, protein, carbohydrates and other nutrient.

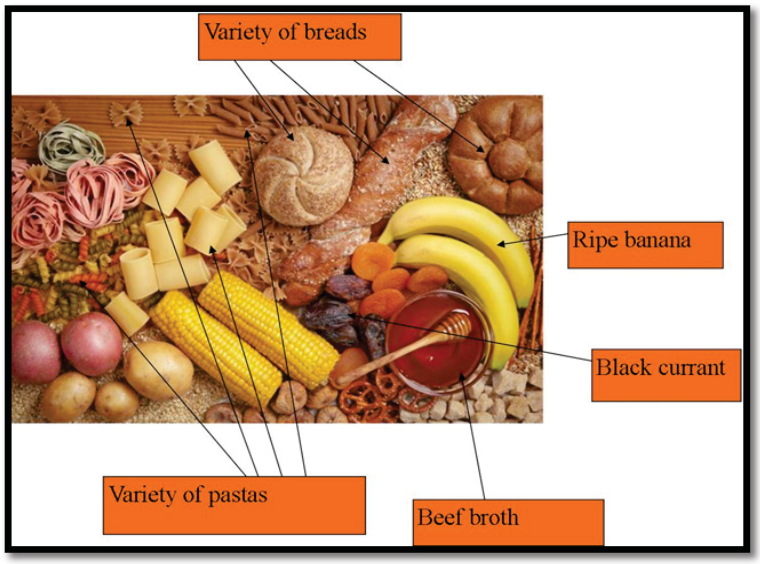


Fig2: Carbohydrate filled diet
https://www.google.com/search?q=carbohydrate+filled+diet.

Note: The complications linked with marasmus such as infections and dehydration must also be treated and prevented to help the patient regain their health.

6.2.3. Prevention of marasmus

The best way to prevent marasmus is to have a well-balanced diet. Foods rich in protein like skimmed milk, fish, eggs, and nuts are important for energy and growth. Vegetables and fruits are important for providing other nutrients and minerals for preventing malnutrition in general.

Note: *New mothers can also help prevent malnourishment in their newborns by breastfeeding as much as possible.*

6.3. Anemia

This illness means you have a lower than normal red blood cell (RBC) counts. Anemia may also result from low levels of hemoglobin, the protein that transports oxygen to the body. It is treatable once the underlying cause is identified. Long-standing or severe lack of oxygen can damage the brain, heart, and other organs. Common causes of anemia include the following:

- Anemia from active bleeding,
- Iron deficiency anemia
- Anemia of chronic disease
- Anemia related to kidney disease
- Anemia related to pregnancy
- Anemia related to poor nutrition

6.3.1. Symptoms of anemia

Because a low red blood cell count decreases oxygen delivery to every tissue in the body, anemia can cause a variety of signs and symptoms. Symptoms of anemia may include the following:

- Fatigue (feeling weak);
- Decreased energy;
- Weakness;
- Shortness of breath;
- Lightheadedness (feeling dizzy)
- Palpitations (feeling of the heart racing or beating irregularly);
- Looking pale.

Symptoms of severe anemia may include:

- Chest pain, angina, or heart attack;
- Dizziness
- Fainting or passing out; and
- Rapid heart rate.
- Cold hands and feet,
- Numbness
- Low body temperature.

Some of the signs that may indicate anemia in an individual may include:

- Sticky and foul smelling,
- Rapid heart rate;
- Low blood pressure
- Rapid breathing
- Pale or cold skin
- Lack of oxygen

Yellow skin called jaundice if anemia is due to red blood cell breakdown; heart murmur; and enlargement of the spleen with certain causes of anemia.

6.3.2. Treatment of anemia

Medical treatment of anemia varies widely and depends on the cause and the severity of anemia.

Example:

A woman's blood volume increases by approximately 20% to 30% during pregnancy. This increases her requirements for nutrients to make enough red blood.
Pregnant women should aim to get enough iron (27 milligrams) in their diets every day to ensure adequate iron levels.

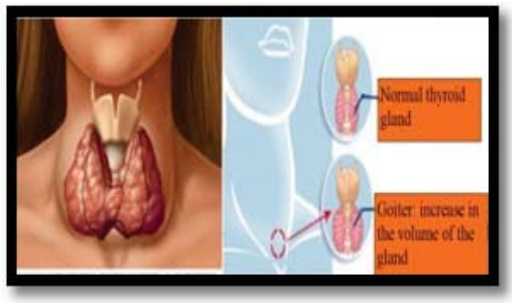
6.3.3. Prevention of anemia

Some common forms of anemia are most easily prevented by eating a healthy diet and limiting alcohol use. Eating a healthy, balanced diet may help prevent deficiencies. Liver, red meat, beans, lentils, tofu, fish, dried fruit, and dark leafy greens are good.

Red meat (Beef steak)

Vitamin B12 and folic acid are necessary for the production of RBCs, too. Dairy products, eggs, bananas, and spinach are rich in these. Breads, cereals, and pastas contain necessary minerals, vitamin B12, and folic acid. Citrus fruits and other forms of produce are high in vitamin C, which is also necessary.

6.4. Goiters



https://www.google.com/search ?q=goiter and source

The thyroid is a butterfly-shaped gland located at the base of your neck just below your Adam's apple. Although a **lack of dietary iodine** is the main cause of goiters in many parts of the world, this is not often the case in countries where iodine is routinely added to table salt and other foods. A goiter can occur when your thyroid gland produces too much thyroid hormones (thyroxin (T-4) and triiodothyronine (T-3)). They maintain the rate at which your body uses fats and carbohydrates, help control your body temperature, influence your heart rate, and help regulate the production of proteins.

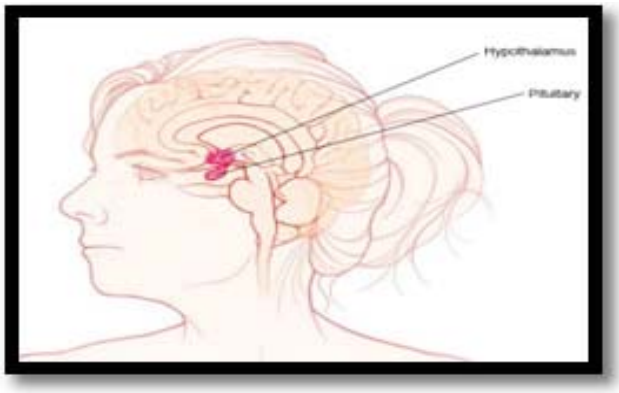


Fig3: Pituitary gland and hypothalamus

A number of factors can cause your thyroid gland to enlarge. Among the most common are:

- **Iodine deficiency**
- **Graves' disease:** A goiter can occur when your thyroid gland produces too much thyroid hormone (hyperthyroidism).
- **Hashimoto's disease.** A goiter can also result from an underactive thyroid (hypothyroidism).

6.4.1. Symptoms of goiter

The common signs and symptoms of goiter may include:
A visible swelling at the base of your neck that may be particularly obvious when you shave or put on makeup

- A tight feeling in your throat
- Coughing
- Hoarseness
- Difficulty swallowing
- Difficulty breathing

6.4.2. Treatment of goiter

Goiter treatment depends on the size of the goiter, its signs and symptoms, and the underlying cause (Medications or Surgery).

6.4.3. Prevention of goiter

There are no ways to prevent goiter unless it is caused by iodine deficiency. Dietary measures to prevent iodine deficiency include use of iodized table salt and consumption of rich sources of iodine such as seafood.

6.5. Obesity

Activity 6.2

In your home community there are different people of different size and weight. Observe the figure of different people with different health conditions.

http://www.google.com/search?q=over weight/obesity and source

1. What did you get from your observation?
2. Can those people have the performance in physical exercises on the same level?
3. Explain the reasons why people having the health conditions as for these in figure are safe or at high risk.

Obesity is a condition in which you have a body mass index (BMI) higher than 30 (a measurement obtained by dividing a person's weight (kg) by the square of the person's height).

Many behavioral factors play a role in obesity as well, including your eating habits and daily activity level

Other factors, such as stress, anxiety, and lack of sleep, can lead to weight gain

A number of factors can play a role in weight gain. These include:

- Diet
- Lack of exercise
- Factors in a person's environment, and genetics.

6.5.1. Symptoms of obesity

Without proper treatment, obesity can lead to other serious health problems, such as:

- Ostearthritis
- Stroke
- Type 2 diabetes.
- Reproductive problems
- GallstonesCertain cancers Sleep apnea (when you periodically stop breathing during sleep)
- Heart disease and blood lipid abnormalities.

6.5.2. Treatment of obesity

There is no data on the most effective way to encourage long-term weight loss, but a healthy diet and regular exercise are the keys to overall health.

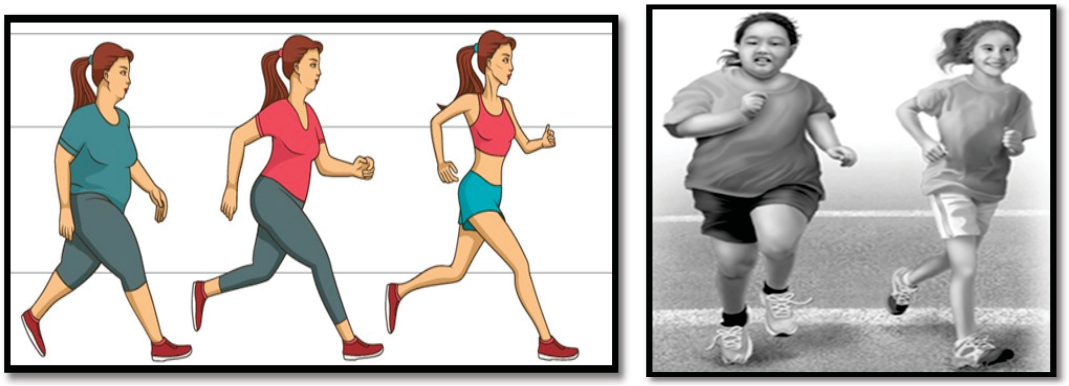


Fig4: overweight and normal weight child

httpps://www.google.com/search?q=overweight/obesity and sorce

You should work with your doctor and a dietitian to set realistic goals that will help you lose weight slowly through diet and exercise.

Note: There are several different treatment options for morbid obesity.

6.5.3. Prevention of obesity

People who are morbidly obese should avoid "fad" diets and focus instead on changing eating behaviors. Recommendations include:

- eating smaller meals
- count calories
- eating mindfully
- limiting saturated fats, trans fats, and refined sugars
- adding more fruits and vegetables to your diet

Physical activity is good for overall health and is especially important if you're trying to lose weight. **Examples** include:

- Running or jogging
- Swimming
- Jumping rope
- Brisk walking
- Biking (cycling)

6.6. Diabetes

Diabetes is a disease that affects your body's ability to produce or use insulin. When your body turns the food, you eat into energy (also called sugar or glucose), insulin is released to help transport this energy to the cells.

The cause of diabetes is unknown. ***Genetics, diet, obesity and lack of exercise*** may play a role in developing diabetes, especially Type 2 diabetes. Blood glucose levels are higher than normal for individuals with diabetes. There are two main types of diabetes: **Type 1** and **Type 2.**

When you are affected with **Type 1** (juvenile) diabetes, your pancreas does not produce insulin. It is often analyzed in children or teens.
Type 2 diabetes occurs when the body does not produce enough insulin, or when the cells are unable to use insulin properly, which is called insulin resistance (adult-onset diabetes).

6.6.1. Symptoms of diabetes

- Common warnings signs
  - Fatigue (weak, tired feeling)
  - Blurred vision
  - Headaches
  - Numbness or tingling in the feet or hands
  - Sores that do not heal

of diabetes include:

- Increased thirst
- Increased hunger (especially after eating)
- Dry mouth.
- Frequent urination or urine infections.

Unexplained weight loss (even though you are eating and feel hungry)

Symptoms of type 1 diabetes can start quickly, in a matter of weeks. Symptoms of type 2 diabetes often develop slowly (Many people with type 2 diabetes have no symptoms).

Note: *Some people do not find out that they have the disease until they have diabetes-related health problems, such as blurred vision, fatigue (weak, tired feeling), frequent urination or urine infections or heart trouble.*

6.6.2. Treatment of diabetes

Treatment for diabetes requires keeping close watch over the blood sugar levels (and keeping them at a goal set by a doctor) with a combination of medications, exercise, and diet. By paying close attention to what and when you eat, you can minimize or avoid the "seesaw effect of rapidly changing blood sugar levels, which can require quick changes in medication dosages, especially insulin.

Diabetes drugs

Types 1 diabetes, the pancreas no longer makes the insulin the body needs to use blood sugar for energy *(Injectable insulin).*

B. Exercise for diabetes

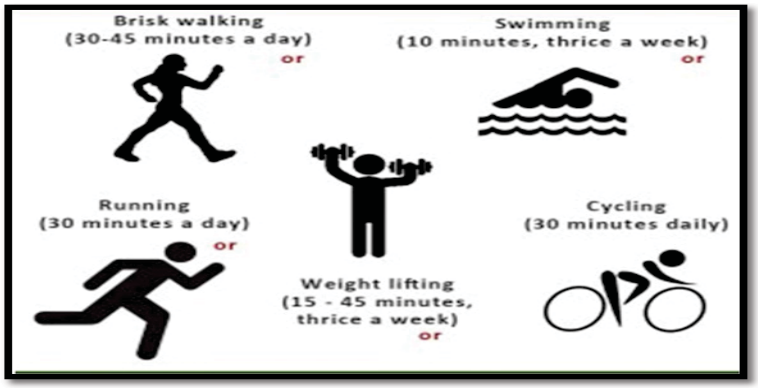


Fig5: Five best exercises for diabetes
https://www.google.com/search?q=exercise +fo+diabetes

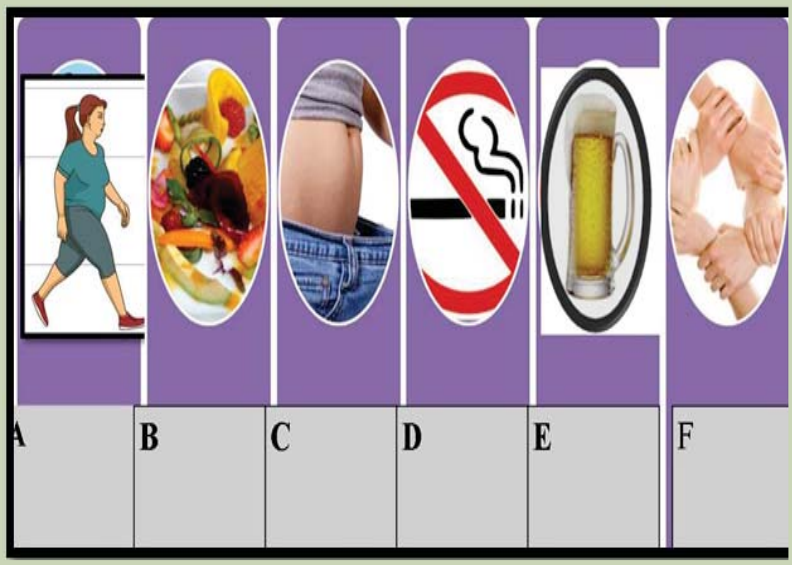
Exercise improves the body's use of insulin and may lower blood sugar levels. To prevent the blood sugar from falling to dangerously low levels, check the blood sugar and, if necessary, eat a carbohydrate snack about half an hour before exercising. If you start to feel symptoms of low blood sugar (called hypoglycemia), stop exercising and have a carbohydrate snack or drink. Wait 15 minutes and check again. Have another snack again if it is still too low.

Exercise helps some people with type 2 diabetes lower their blood glucose levels and may help prevent the disease in those at risk.
For people with either type of diabetes, exercise can lower the chance of having a heart attack or stroke and can improve circulation

6.6.3. Prevention of diabetes

Activity 6.3

1. Observe the picture below:



https://www google.com/search?q=prevention+of+diabetes&sorces=

2. What are the advices you getting from there?
3. About diabetes, analyse the picture above and fill the columns (A, B, C, D, E and F). What is indicating each letter in order to solve problems of your society.

The lifestyle is a major component to preventing type 2 diabetes. In most cases, type 2 diabetes is brought on by lifestyle factors which can often be prevented. These include:

-
- Unbalanced diet,
- Lack of activity,
- Lack of sleep
- Stress, smoking and alcohol

The strategies such as **low-carb diets** and **exercise** help to reduce levels of insulin and are therefore effective for preventing type 2 diabetes from developing.
During the exercise, our muscles use any excess sugar in the blood and the sugar, known as glycogen that is stored in the muscles and liver.
Regular exercise, along with a good diet, can reduce the risk of type 2 diabetes and can help reduce cholesterol levels and high blood pressure.

6.7. Heart diseases

Activity 6. 4: Case study 1

Read through the following clinical vignettes and take time to review each woman's cardiovascular risk factor profile. Then, refer to the questions at the end of the case study to analyze each female patient's current health status.

- Patient S is a white woman, 43 years of age, and mother of three small children. She has a long-standing history of significant obesity with little success in dieting over the years. At 5'3", she is obese, weighing 220 pounds. Her fat distribution is "apple-shaped" and consequently, her waist-hip ratio is more than the 0.8 normal range. In addition, Patient S lives a sedentary lifestyle and does not have a regular exercise program. Her dietary habits do not consider basic recommendations for cardiac nutrition.
- Patient J is 55 years of age and teaches high school English. Her coronary risk factor profile includes a 30-pack-year history of cigarette smoking and altered lipid levels. Her HDL is only 35 mg/dL and her LDL is 145 mg/dL. Patient J has tried with little success to control her cholesterol with diet. Recently, she began taking gemfibrozil as prescribed by her family physician but has not followed his recommendation to quit smoking and enroll in a smoking cessation program at a local hospital. Rather, she continues to smoke one pack of cigarettes per day.
- Patient V is a woman, 47 years of age, who has a family history of heart disease. Although she denies ever experiencing cardiac symptoms, her brother suffered a nonfatal MI at 46 years of age and her father had an MI at 53 years of age. Both of these cardiac events were medically managed. However, her father's disease did progress to the point that he underwent CABG surgery five years ago. He had three coronary artery lesions bypassed.
- In addition to her family history, Patient V is approximately 30 pounds overweight and does not exercise on a regular basis. She drinks approximately two to three glasses of red wine per day and has never smoked.
- Patient D is 67 years of age and lives in an assisted living retirement community. An insulin-dependent diabetic since adolescence, Patient D is unable to care for herself because of the diabetes on her eyesight, as well as the development of peripheral neuropathies. In addition to the diabetes, Patient D continues to smoke. By now, she has a 40-pack-year history of smoking.

- Patient F is an African American woman, 36 years of age, with a history of mild hypertension. Her blood pressure has been fairly well controlled on an ACE inhibitor over the past two years. Patient F eats a well-balanced, nutritious diet, exercises three to five times a week, and does not have a history of smoking or alcohol use. However, she does exhibit many of the characteristics of the Type A behavior pattern, such as excessive competitiveness, being harried, and rushing to complete more and more tasks in an ever-shrinking period of time. In addition to these characteristics, she exhibits a somewhat cynical or negative outlook with occasional expression of hostile or angry thoughts and feelings.

In analyzing these clinical vignettes, consider the following questions:

1. Which of these women is at greatest risk for heart disease?
2. Who is at least risk?
3. What recommendations would you make in counseling each patient regarding her cardiovascular health?

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6.7.1. Identification and description of common heart disease

A **heart attack** occurs when the blood flow to a part of the heart is blocked by a blood clot.

A **stroke** happens when a blood vessel that feeds the brain gets blocked, usually from a blood clot. A **hemorrhagic stroke** occurs when a blood vessel within the brain bursts. The most likely cause is uncontrolled hypertension (blood pressure).

A **heart failure**, sometimes called congestive heart failure, means the heart isn't pumping blood as well as it should.

An **arrhythmia** is an abnormal rhythm of the heart. There are various types of arrhythmias. The heart can beat too slow, too fast or irregularly. Causes of heart arrhythmia include:

- Alcohol abuse Diabetes
- drug abuse
- Excessive coffee consumption
- Heart disease like congestive heart failure
- hypertension (high blood pressure)
- hyperthyroidism (an overactive thyroid gland)
- mental stress
- scarring of the heart, often the result of a heart attack
- smoking
- some dietary supplements
- some herbal treatments
- some medications
- structural changes of the heart

Tachycardia is when the heart beats quicker than normal; symptoms include:

- breathlessness (dyspnea)
- dizziness
- syncope (fainting, or nearly fainting)
- fluttering in the chest
- chest pain
- lightheadedness
- sudden weakness

Bradycardia is when the heart beats slower than normal; symptoms include:

- Angina (chest pain)
- Trouble concentrating
- Confusion
- Difficulties when exercising
- Dizziness
- Fatigue (tiredness)
- Lightheadedness
- Palpitations
- Shortness of breath
- Syncope (fainting or nearly fainting)
- Diaphoresis, or sweatin

Heart valve problems

When heart valves don't open enough to allow the blood to flow through as it should, it's called *stenosis*. When the heart valves don't close properly and allow blood to leak through, it's called *regurgitation*. When the valve leaflets bulge or prolapsed back into the upper chamber, it's a condition called *prolapse*.

Hypertension and hypotension

The l**ow blood pressure**, also called hypotension, is blood pressure low enough that the flow of blood to the organs of the body is inadequate and symptoms and/or signs of low blood flow develop shock.

Symptoms can include:

- Fainting (syncope)
- Dizziness
- A feeling of lightheadedness

The **high blood pressure (**HBP or hypertension) is when your blood pressure, the force of your blood pushing against the walls of your blood vessels, is consistently too high.

Signs and symptoms of hypertensive emergency

- Nosebleeds
- Severe chest pain
- Intense headache supplemented by blurred vision and/ or increasing confusion
- Severe anxiety
- Shortness of breath, that may be increasing
- Nausea and vomiting
- Seizures
- Unresponsiveness

6.7.2. Treatment of hypertension and hypotension

A. Treatment of low blood pressure

The treatment depends on the underlying cause. For instance, when low blood pressure is caused by medications, treatment usually involves changing or stopping the medication or lowering the dose.
Depending on your age, health and the type of low blood pressure you have, you can do this in several ways:

- **Use more salt** (sodium can raise blood pressure)

Note: But because excess sodium can lead to heart failure, especially in older adults, it's important to check with your doctor before increasing the salt in your diet.

- **Drink more water**. Fluids increase blood volume and help prevent dehydration, both of which are important in treating hypotension.

B. Treatment of high blood pressure (hypertension)

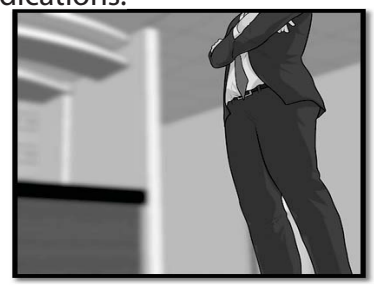
Changing your lifestyle can go a long way toward controlling high blood pressure. A diet with less salt, exercise regularly, quit smoking and maintain a healthy weight.

6.7.3. Prevention of hypertension and hypotension.

A. Prevention of low blood pressure (hypotension)

Preventing low blood pressure can be accomplished through healthy eating balanced diet, avoiding lying down or standing in one position for extended periods, and taking care when using certain medications.





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Adjusting the diet

- **Add more sodium to your diet**
- **Eat small meals** (a large meal experiences a significant drop in blood pressure)
- **Avoid rapidly digestible carbs** (Process very rapidly white rice and white bread will lower your blood pressure)
- Get enough vitamins and nutrients
- Drink more water
- Don't drink alcohol

- **Sleep with your head elevated**
- **Manage the stress levels (engage in hobbies you enjoy and spend time with friends).**

B. Prevention of high blood pressure

To prevent a hypertension, make the choice as follow:

- Maintain a healthy weight
- Eat a balanced diet

Get plenty of fruits and vegetables, especially those rich in potassium, and limit your intake of excess calories, fat, and sugar. Consider following the dietary approaches to stop hypertension diets which has been shown to help manage blood pressure.

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- **Cut back on salt** (eating a low sodium diet can help keep blood pressure normal
- **Exercise regularly** (Moderate exercise for about 30 minutes three times a week is a good start).
- **Limit the alcohol**
- **Monitor your blood pressure**

The c**ongenital heart defects** usually develop while a baby is in the womb. Heart defects can develop as the heart develops, about a month after conception, changing the flow of blood in the heart. Some medical conditions, medications and genes may play a role in causing heart defects.

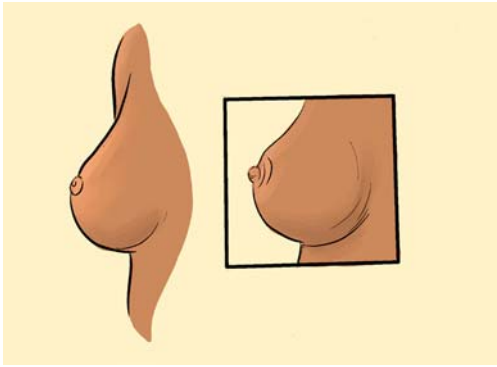
A **heart infection,** such as endocarditic, is caused when an irritant, such as a bacterium, virus or chemical, reaches your heart muscle. The most common causes of heart infection include:

- Bacteria
- Viruses
- Parasites

6.8. Breast cancer

6.8.1. Description of breast cancer

Breast cancer is a type of cancer that is formed in the cells of the breasts. After skin cancer, breast cancer is the most common cancer diagnosed in women worldwide. Breast cancer can occur in both men and women, but it's far more common in women.



Signs and symptoms of breast cancer may include:

- A breast lump or thickening that feels different from the surrounding tissue
- Change in the size, shape or appearance of a breast
- Changes to the skin over the breast, such as dimpling
- A newly inverted nipple
- Peeling, scaling, crusting or flaking of the pigmented area of skin surrounding the nipple (areola) or breast skin
- Redness or pitting of the skin over your breast, like the skin of an orange

6.8.2. Causes of breast cancer

The breast cancer occurs when some breast cells begin to grow abnormally. These cells divide more rapidly than healthy cells do and continue to accumulate, forming a lump or mass. Cells may spread (metastasize) through the breast to the lymph nodes or to other parts of the body.

6.8.3. Treatment of breast cancer

There are several ways to treat breast cancer, depending on its type and stage.
Local treatments: treatment of the tumor without affecting the rest of the body. Types of local therapy used for breast cancer include surgery and radiation therapy
Systemic treatments: Drugs used to treat breast cancer are considered systemic therapies because they can reach cancer cells almost anywhere in the body. Depending on the type of breast cancer, different types of drug treatment might be used, including **chemotherapy, hormone therapy** and **targeted therapy**

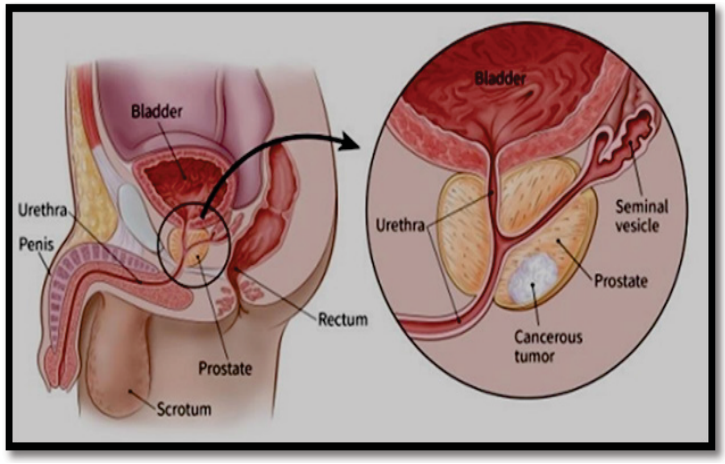
6.8.4. Prevention of breast cancer

The strategies to prevent breast cancer are:

- Choose a healthy diet
- Drink alcohol in moderation, if at all
- Exercise most days of the week
- Limit postmenopausal hormone therapy
- Preventive surgery
- Maintain a healthy weight

6.9. Prostate cancer

The prostate is a small gland in the pelvis found only in men. It's located between the penis and the bladder and surrounds the urethra.



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The **prostate cancer** is the most common cancer in men, the chances of developing prostate cancer increase as you get older. Most cases develop in men aged 50 or older.

Symptoms often only become apparent when your prostate is large enough to affect the urethra (the tube that carries urine from the bladder to the penis). When this happens, you may notice things like an increased need to urinate, straining

while urinating and a feeling that your bladder has not fully emptied.

6.9.1 Causes of prostate cancer

It is not known exactly what causes prostate cancer, although a number of things can increase your risk of developing the condition. These include:

- **Age** – risk rises as you get older and most cases are diagnosed in men over 50 years of age.
- **Ethnic group** – prostate cancer is more common among men of African-Caribbean and African descent than in men of Asian descent.
- **Family history** – having a brother or father who developed prostate cancer under the age of 60 seems to increase the risk of you developing it. Research also shows that having a close female relative who developed breast cancer may also increase your risk of developing prostate cancer.
- **Obesity** – recent research suggests that there may be a link between obesity and prostate cancer.
- **Exercise** – men who regularly exercise have also been found to be at lower risk of developing prostate cancer.
- **Diet** – research is ongoing into the links between diet and prostate cancer. There is evidence that a diet high in calcium is linked to an increased risk of developing prostate cancer.

NB: In addition, some research has shown that prostate cancer rates appear to be lower in men who eat foods containing certain nutrients including lycopene, found in cooked tomatoes and other red fruit, and selenium, found in Brazil nuts.

6.9.2. Symptoms of prostate cancer

Symptoms of prostate cancer can include:

- Need to urinate more frequently, often during the night
- Need to rush to the toilet
- Difficulty in starting to pee (hesitancy)
- Straining or taking a long time while urinating
- Weak flow
- Feeling that your bladder has not emptied fully

6.9.3. Treatment of prostate cancer

The treatment for prostate cancer will depend on the individual circumstances. For many men with prostate cancer, no treatment will be necessary. Sometimes the cancer has already spread, the aim is not to cure it, but to prolong life and delay symptoms.

Note: When prostate cancer is diagnosed at an early stage, the chances of survival are generally good.

About 90% of men diagnosed at very small prostate cancer and completely within

the prostate gland will live at least five more years and 65-90% will live for at least 10 more years.

6.9.4. Prevention of prostate cancer

In general, the men with an average risk of prostate cancer make choices that benefit their overall health if they're interested in prostate cancer prevention:

Healthy diet

There is some evidence that choosing a healthy diet that is low in fat and full of fruits and vegetables may contribute to a lower risk of prostate cancer, though this hasn't been proved concretely.

- **A low-fat diet**: Foods that contain fats include meats (boiled, roasted), nuts, oils and dairy products, such as milk and cheese.
- **More fat from plants than from animals**: using plant-based fats instead of animal fats. For instance, cook with olive oil, sunflower oil rather than butter. Sprinkle nuts or seeds on your salad rather than cheese.
- **Increasing the amount of fruits and vegetables per day**: Eating more fruits and vegetables also tends to make you have less room for other foods, such as high-fat foods.
- **Eat fish. Fatty fish such as**: salmon, tuna and herring contain omega-3 fatty acids, a type of fatty acid that has been linked to a reduced risk of prostate cancer.
- **Reducing the amount of dairy products eaten every day.** In studies, men who ate the most dairy products such as milk, cheese and yogurt each day had the highest risk of prostate cancer

Maintain a healthy weight

Reducing the number of calories to eat each day and increasing the amount of exercise you do.

6.10. End unit assessment

1. Answer true or false
    a. Kwashiorkor is heart disease caused by malnutrition.
    b. Kwashiorkor is nutritional deficiency disease.
    c. Marasmus is the same as kwashiorkor
    d. Marasmus has some symptoms as for kwashiorkor
    e. Obesity is caused by malnutrition
    f. Obesity can lead to heart disease.

1. Match the columns A and B

A	B
A goiter	This illness means you have a lower than normal red blood cell (RBC) counts
Anemia	It is an abnormal enlargement of your thyroid gland.
Marasmus	It is a nutritional disorder most often seen in regions experiencing famine. It is a form of malnutrition caused by a lack of protein in the diet.
Kwashiorkor	is another type of malnutrition that can affect young children in regions of the world where there is an unstable food supply
Obesity	It is a disease that affects your body's ability to produce or use insulin.
Diabetes	It is a condition in which you have a body mass index (BMI) higher than 30.

2. As you have seen different nutrition deficiency disease, distinguish briefly kwashiorkor and marasmus.
3. Provide advices to people who have obesity and still have bad eating habits but their body stay inactive every day.
4. Outline the major causes of heart disease and obesity
5. Explain briefly the relationship between obesity and heart attack.
6. Distinguish hypertension and hypotension.

UNIT7
BASIC DISHES AND SERVICE

UNIT.7. BASIC DISHES AND SERVICE

Key unit competence

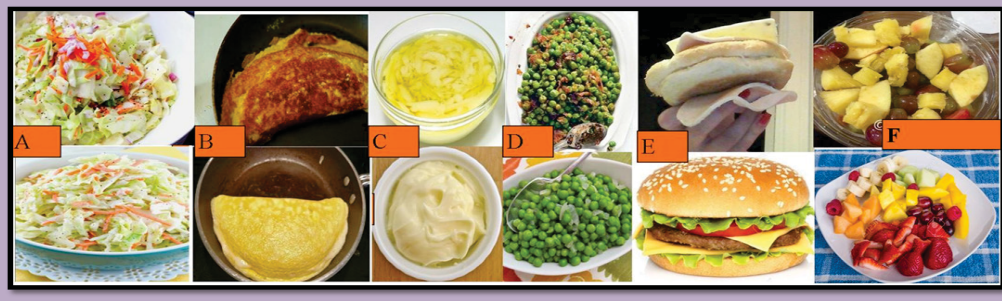
Learners should be able to prepare and serve a variety of basic dishes

Learning objectives

- Compare basic dishes using basic cooking methods
- Categorise food presentation techniques
- Contrast basic food services techniques
- Prepare dishes using basic cooking methods
- Apply food presentation techniques on different dishes
- Perform food service techniques
- Appreciate basic dishes towards cooking methods related to different recipes.
- Show concern on food presentation techniques on using garnishing techniques.
- Pay attention to food service techniques related serving
- Participate willingly and comply with principles on serving dishes

Introductory activity

1. Observe the pictures A, B, C, D, E and F below:



2. What kind of dishes do you observe on each of the figures A, B, C, D, E and F?
3. Compare based on the preparation of dishes in each pair from A, B, C, D, E and F pictures above. Justify your answer.
4. What do you expect to learn in this unit?

7.1 Cooking of Basic dishes

7.1.1. Preparation of salad

Activity 7.11.

1. Observe the pictures 1, 2, 3, 4, 5 and 6 below:

1 2 3 4 5 6

2. Describe ongoing activity on each picture above
3. What is your attention while cutting vegetable like shown in picture 1 & 2?
4. What is your attention while handling finished salad?

Salad is any of various dishes consisting of foods, as vegetables, meat, seafood, eggs, pasta, or fruit, prepared singly or combined, usually cut up, mixed with a dressing, and served cold

Examples: chicken salad; potato salad.
Salads are low in calories, high in fiber and rich in other nutrients including vitamins that can help the body fighting against diseases. Fiber helps you feel full making you eat the remaining meal less and ultimately lose weight. Eating a high fiber salads aids in lowering cholesterol and also is known to prevent constipation.

Classification of salads

Salads take on many different appearances. However, all salads can be categorized as one of two main types based on the salad components:

source;https;//www.google.com/search?q=carrot+sarad/steps

Fig1: Carrot salad

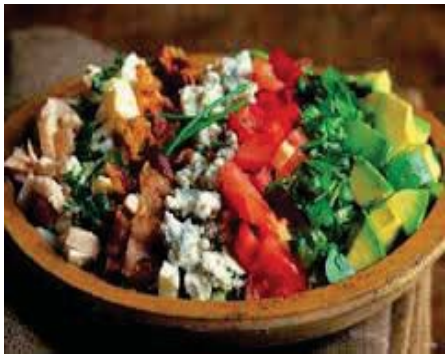
Simple salads

These salad are known as simple salads as they are prepared by using one type of ingredient. Dressing plays a vital role in these types of salads. These salads may be served with dressing separately too.

Mixed salads

Mixed salads are made by a combination of more than one type of ingredient. These are also dressed with an appropriate dressing. Dressing helps in binding the ingredients together. Example: Coleslaw salad with mayonnaise

Compound (mixed and composed) salads



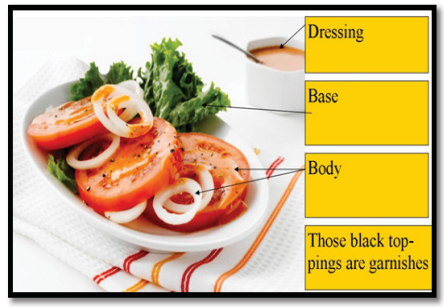
Composed Salads

The ingredients of the composed salad are not mixed and tossed. However, it is the arrangement of ingredients which plays a vital role in this type of salad. After a suitable arrangement of the ingredients, the dressing is poured over it or is served separately.

Examples: Salad nicoise, Cobb salads

Note: Salads take a starring role in the trend toward lighter eating and can serve a number of purpose for a specific diet (**Appetizer salad**- is salad served before main meal to stimulate appetite; Main course salad- is salad composed by vegetables and pieces of meat or fish; Side salad- is salad served at side to complete the main course; Dessert salad-are dishes made with syrups, whipped toppings, fruits, vegetables, mayonnaise, and various other ingredients and served at some buffet and cafeterias, and also served parties).

Main components of salad



source;https;//www.google.com/search?q=main+components+of+salad/steps

There are four elements of salad such as base, body, dressing and garnish:

- **Base:** these are leaves or vegetables that must be on plate as base
- **Body:** The main ingredients which compose the salad itself
- **Garnish:** They are ingredient used to improve color, texture, and flavor of salad.
- **Dressing:** It is cold sauce which improve flavor and aroma of salad

There are three categories of **salad dressing** such as:
Vinaigrette dressing: is a mixture of oil, vinegar, often flavored with spices, herbs, salt and pepper.
Italian dressing (vinegar, lemon juice, bell peppers, sugar, vegetable oil, herbs and spices)
Creamed dressing: usually composed by mayonnaise sauce or fermented milk products such as yoghurt and fresh cream

Example: Ceasar dressing: It is made by parmesan cheese, mayonnaise, olive oil, white wine vinegar, Worcestershire sauce, garlic and black pepper
Cooked dressing: it is a mixture of oil, fermented milk, egg yolk and simmered until creamy.

Example: thousand hills dressing;
It is based on; Mayonnaise, olive oil, hard-boiled egg, vinegar, paprika, Worcester shire sauce, cream, mustard
Salad garnishes and toppings: Salad should be garnished and topped with different types of food applied on salad to improve color.

Examples: Cheese, meat, fishes, tomato slices or dices, vegetable flowers, capers, gherkins, black olives, lemon, orange....
Basing on the importance of having salads which will lead to start having salads with your meals, you can also be very creative in making your salad colorful, tasty, crunchy, balanced, appealing to eat and obviously healthy. The following steps can be applied when you are preparing salad:

a. Making coleslaw salad (2 serves)

Ingredients:

• 1 medium cabbage head juliennes • 1 carrot cut into juliennes • 1 green pepper cut into juliennes • 1 medium white onion juliennes • 1 small drizzle of hot sauce • 8 ounces of sour cream	• ½ cup mayonnaise • 2 table spoons vinegar • 3 tablespoons sugar • 2 tea spoons celery leaves chopped • Salt and pepper

Steps of making coleslaw salad

Step.1: Cabbage and carrot shredding

Step.2: Cut green pepper and onion into Julien

Step .3: Combine cabbage, carrot, green pepper remaining and onion in a large bowl

Step.4: In another bowl, combine ingredients and mix well

Step.5: Pour the dressing mixture over the slaw, mix and chill until ready to serve, or serve immediately.

Step.6: Finished and ready to be served.

source;https;//www.google.com/search?q=coleslaw.salad/steps

b. Making low calorie coleslaw salad (1 serve)

Coleslaw used to be the side dish of choice for picnics and beach parties. Today, it can enhance the best of dinners, sandwich, or stand alone as a side salad. Not only is it fast and easy to make, it is also economical, nutritious and delicious and is low in calories.

Ingredients

- 16 ounce bag of shredded cabbage
- 2 medium or 1 large, fresh carrot

- 3/4 glass white vinegar

Step.1: : Cutting open of shredded bag cabbage and tossing into a large bowl

Step.2: Grating large carrot to be combined with cabbage

Note: Be sure to remove the top greens and peel the carrot with a potato peeler

Step .3: Pouring white vinegar and dressing mixture together into one glass or bowl and adding sugar.

Do a pinkie taste-test of the mixture in the glass before pouring it into the cabbage. This is to determine if you might need a little more or less of any of the ingredients. If satisfied, pour and stir onto the cabbage then mayonnaise, folding in the salad gently for adjustment.

Step.4: Season with salt and pepper to taste

c. Making sweet potato salad (12 serves)

Ingredients

- 3 pounds red potatoes
- 2 1/2 pounds sweet potatoes
- 1/4 cup white wine vinegar
- 1/4 cup olive oil
- 1 clove garlic minced

source;https;//www.google.com/search?q=coleslaw.salad/steps

Steps of making sweet potato salad

Step.1: Boiling sweet potatoes until tender but still firm, about 15 minutes. Drain, cool and slice.

Step.2 Combining vinegar, olive oil, garlic and onion in a large bowl. Adding sliced potatoes and mixing to coat.

Step.3 Whisking together mayonnaise, pepper, sour cream and parsley. Pouring over potatoes and chilling at least 2 hours before serving.

d. Making cucumber Salad

Ingredients

- 2 tablespoons chopped fresh dill or parsley
- teaspoon pepper
- ½ teaspoon salt
- 2 tablespoons (30 grams) sugar
- cup (80 milliliters) water
- cup (80 milliliters) white or apple cider vinegar
- 2 medium cucumbers, thinly slicedSteps for making cucumber Salad
- 1/2 cup chopped red onion
- 1/3 cup mayonnaise
- 1 pinch ground black pepper
- 1/3 cup sour cream
- 1/2 cup chopped parsley

Step.1: Place the thinly sliced cucumbers into a small bowl

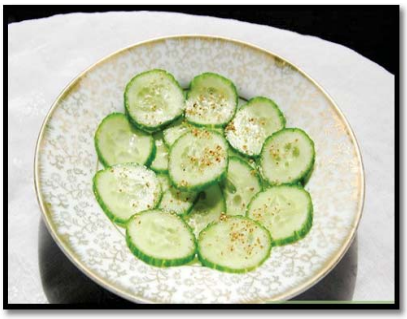
Step.2: Preparing of the dressing
Pour the vinegar and water into a jar. Add the sugar, salt, and pepper. Close the jar tightly, and then shake it to combine the ingredients.

Note: In case there is no jar, use a plastic container with a tight-fitting lid or a cup and stir it briskly with a fork or mini whisk.

Step.3: Pouring the dressing over the cucumbers and gently toss the cucumbers to distribute the dressing.

Step.4: Covering and refrigerating the cucumbers
Cover the bowl with a piece of plastic wrap. Place the bowl into the fridge and leave it there for at least 3 hours. This will allow the cucumbers to soak up the flavors from the dressing.

Step.5: Draining of the cucumbers
Remove the plastic wrap off the bowl. Dump the salad into a strainer or colander. Shake the strainer or colander over a sink to get rid of any excess moisture.



Step.6: Place the cucumbers into a serving bowl
Toss the cucumbers with chopped fresh dill or parsley.

Note: Serve the salad immediately or refrigerate it until you are ready to serve it.

source;https;//www.google.com/search?q=cucumber salad/steps

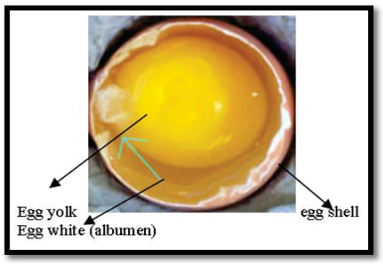
7.1.2. Preparation of eggs

Activity 7.2

1. Observe the picture above and describe its component.
2. What about the position of egg in the bowl? Why?

The eggs make a valuable contribution to a healthy, balanced diet. Eggs provide protein, vitamin A, riboflavin, and other vitamins and minerals. Eggs are an excellent source of high-quality protein and are far less expensive than most other animal-protein foods.

a. Structure of egg



b.Freshness of eggs (testing egg freshness)

The risk of getting a foodborne illness from eggs is very low. When you handle eggs with care, they pose no greater food-safety risk than any other perishable food. The following methods help to ensure the freshness of eggs which can be used safely: Floating, sloshing /shaking test and cracking test

- **Floating**

Place an egg in a bowl of water.
A very fresh egg will immediately sink to the bottom and lie flat on its side.

Note: Egg should be eaten very soon, or hard boiled when lays upright on the bottom while do not eat if the egg float to the top of bowl of *water.*

- **Sloshing /shaking test**

Hold egg Up to the ear, shake it gently and listen for sloshing. The best egg to consume doesn't have any sloshing sound


- **Cracking test**

Crack the egg on flat surface, like on plate below, and observe the yolk and albumen

source;https;//www.google.com/search?q=testing+egg+fork+freshness/steps

The yolk of fresh egg is slightly globe-shaped and sitting high, and albumen (or egg white) is gathered closely around it.

Note: When yolk is sitting a bit lower and the albumen is transparent, but still gathered close, then the egg is a bit older, but still safe to eat, while yolk is flat and the albumen is runny (almost like water), then egg is bad.

Cooking of egg dishes

Cooked eggs are a very good inexpensive source of high quality protein, either you cook them as omelets, hard boiled or soft boiled, scrambled, etc

Application activity 1: Cooking of salsa omelet

Ingredients

- Salsa
- 1/4 cup chopped tomatoes
- 1/4 cup thinly chopped green peppers (or chilies), drained
- 1/4 cup finely chopped onion
- 1/2 cup diced ham, cooked
- 1/2 cup grated cheddar cheese
- 6 tablespoons of milk
- 6 eggs, white or brown

Steps cooking salsa omelet

Step.1: Beat eggs in a medium sized bowland add milk gradually

Step.2: Put a skillet over medium heat and melt butter

Step .3: Pour the eggs from the bowl into the skillet**l**

Step.4: Tilt the pan or use a spatula to move the eggs around pan, cooking them evenly

Step .5: Continue cooking until eggs are almost firm in the center.

Step 6:**:** Sprinkle cheese, ham, onion, green pepper and tomatoes on top of half the egg in the skillet and then fold the other side over on top of the cheese, ham, onion... etc.

Step 7: Continue cooking for 1-2 minutes or is firm and cheese is melted.

Step.8: Put the omelet on a plate and pour until the egg some salsa on top

Step. 9: Finished salsa omelet

source;https;//www.google.com/search?q=cooking+salsa+omolet/steps

Application activity 2: Cooking plain omelet

Ingredients

- 2 eggs
- A teaspoon of salt and pepper
- 1¼ tablespoons of butter

Steps of cooking plain omelet

Steps.1: Crack 2 eggs into a bowl.

Use a fork to mix the cracked eggs until the mixture turns all yellow.
Step.2: Add salt and pepper

Mix the ingredients together until everything looks the same. Heat the skillet to just a bit over medium and place the butter on the skillet
Step.3: Tip the butter across the pan

Once the butter is soft, tilt the pan to make the butter run all around the skillet; the buttery surface will ensure that the omelet is easier to take off the skillet after cooking. When done, add the mix to the skillet.

Step.4: Check if the omelet is done, gently look under the omelet when it's done, it should be golden.
When you think that the omelet is halfway done, turn the heat to medium.

Step.5: Remove from the heat and plate up. When you see it's done, turn off the skillet and place your omelet into a plate.

Application activity 3: Cooking scrambled egg

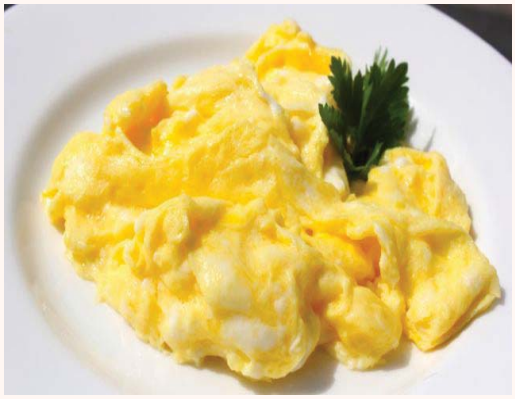
Ingredients

- Salt and black pepper
- 50g butter
- 1 table spoon fresh cream
- 6-8 eggs

4 table spoon milk

Steps for cooking scrambled egg

Step.1: Break the eggs in a bowl.
Step.2: Add milk+ fresh cream and season with salt and pepper.
Step.3: Whisk completely+ melted butter in thick bottom pan.
Step.4: Pour in pan and simmer.
Step.5: Stir continuously until milk is evaporated and egg is lightly cooked.
Step.6: Test the seasoning and serve.



7.1.3. Preparation of Sandwiches

A sandwich is a food typically consisting of vegetables, sliced cheese or meat, placed on or between slices of bread, or more generally any dish wherein two or more pieces of bread serve as a container or wrapper for another food type. The bread can be either plain, or coated with condiments such as mayonnaise or mustard, to enhance its flavor and texture

Application activity 7.4: Making of ham and cheese sandwich

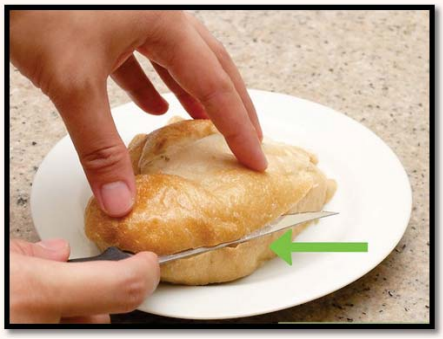
Ingredients

- ¼ tablespoon melted butter
- 1 Ciabatta roll or bread rolls
- 4 slices ham
- 2 slices cheese
- 2 tablespoons (30 grams) mayonnaise sauce
- ½ tablespoon (11 grams) honey
- ¼ to ½ teaspoon dried mustard
- ¼ teaspoon poppy seeds
- Glaze (optional)
- Pinch of poppy seeds

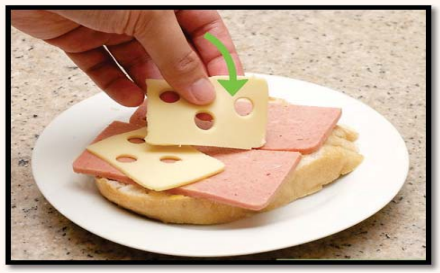
Observe the steps below

Why would you pay attention when you over load or stuff the sandwich on the last step?

Steps for preparing ham and cheese sandwich



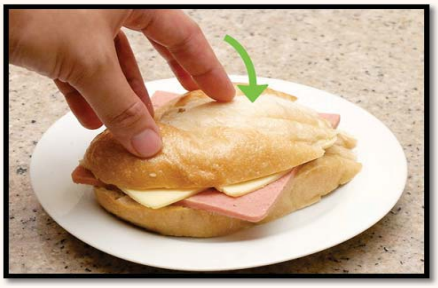
Step.1: Slicing a bread roll in half lengthwise



Step.2: Layering the ham and cheese on top of the bottom slice
Set the bottom half of the roll down, cut-side-up. Place 2 slices of ham on top of it, followed by 2 slices of cheese such as the Gouda cheese.

Step.3: Preparing the honey-mustard spread
Scoop the mayonnaise into a small cup or bowl. Add the honey, dried mustard, and poppy seeds. Stir everything together with a fork or mini whisk until evenly combined.

Step.4: Spreading the honey-mustard over the top roll
Flip the top half of the bread roll over so that the under/cut side is facing you. Use a butter knife to spread the honey-mustard across the roll.



Step.5: Assembling the sandwich

Place the top half of the roll down onto the cheese, with the honey-mustard side facing down. For a fancier sandwich, stir a pinch of poppy seeds into ¼ tablespoon of melted butter, and then spread it across the top of your sandwich with a pastry brush.

Step.7: Serving the sandwich

Let sandwich cool for about 3 to 5 minutes and cut it in half. Stick a fancy, sandwich / cocktail toothpick through the middle of each half.

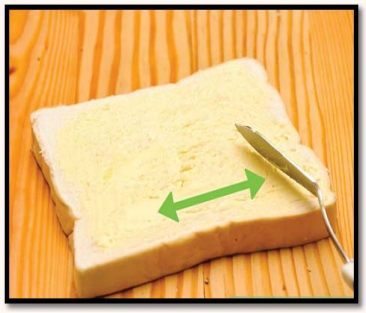
Note: Sandwiches are a popular type of lunch food, taken to work, school, or picnics to be eaten as part of a packed.

Application activity 7.5: Making a grilled cheese sandwich (1 serve)

Ingredients

- 2 slices white bread
- 1 tablespoons (15 grams) butter, softened
- 1 to 2 slices cheddar cheese

Steps for making a grilled cheese sandwich

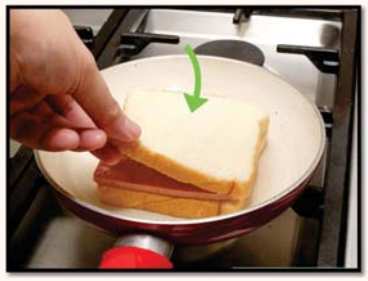


Step 1: Butter two slices of bread

Spread ½ tablespoon of butter on each slice of bread. Only coat one side of the bread; leave the other side bar.

Step 2: Heat up a skillet over medium heat
Note: Don't pour the oil on the skillet because the bread already has butter on it.

Step.3: Layer the bread and cheese onto the skillet
Place a slice of bread, butter-side-down, onto the skillet. Add 1 to 2 slices of Cheddar cheese on top of the bread.



Step 4: Add the last slice of bread

Note: When setting down the last slice of bread, make sure that the buttered side is facing upwards this time

Step 5: Grill the sandwich until it starts to turn a light brown color This will take about 2 to 3 minutes and wait for the cheese to start melting instead.

Step 6: Flip the sandwich over and continue grilling it
Once the sandwich has started to turn golden-brown and the cheese has melted, slide a spatula under it and flip it over. Grill the sandwich for another 1 to 2 minutes.

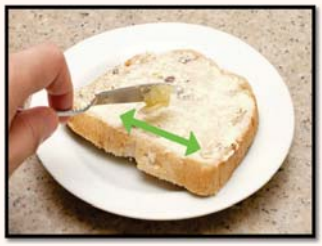
Step. 7: Serve the sandwich

Use a spatula to transfer it from the skillet and to a plate. Leave the sandwich whole, or cut (vertically or diagonally) it in half.

Application activity 7.6: Making a veggie cheese sandwich (1 serve)

Ingredients

- 2 slices bread, preferably with a thick crust
- Butter, softened (to taste)
- 1 to 2 slices sharp white Cheddar
- 2 slices tomato
- A few lettuce leaves
- A few rings of thinly sliced red onion
- Salt and pepper, to tasteSteps of making a vegetarian/veggie cheese sandwich



Steps 1: Spreading the butter onto the bread

Cut 2 slices of crusty bread, such as French bread. Spread some softened butter over one side of each slice of bread.

Steps 2: Layer the lettuce on top of the bottom slice

Place the bottom slice down, buttered-side-up. Place 1 to 2 leaves of lettuce on top and add onion rings.

Note: Lettuce leaves are much larger than the sandwich, cut them into halves or thirds first. Some types of lettuce have a very thick stem in the middle. Reduce bulk by cutting this stem out with a sharp knife.

Step. 3: Top it off with tomato slices
Cut off two thick slices of tomato. Stack them on top of the lettuce and onion.

Step. 4: Add some reasoning
Add a sprinkle of salt and a dash of pepper on top of the tomato slices.

Step. 5: Covering the tomato with cheese
Carefully lay 1 to 2 slices of sharp, white cheddar on top of the sandwich. Make sure that they are covering the tomatoes entirely.

Step. 6: Place the final slice on top and serve the sandwich
For an extra-fancy touch, slice the sandwich in half diagonally from corner-to-corner. Stick a fancy toothpick or cocktail stick through each sandwich half to hold it together.

7.1.4. Preparation of vegetable dishes

The term vegetable means all plants which are used for human nutrition. It can be eaten raw, cooked or preserved.

Application activity 7.7: Cooking spiced potatoes (4 serves)

Ingredients

- Potato :6-7 pieces medium size
- Lemon juice: 3 teaspoon
- Salt
- Vinegar :1 teaspoon
- Coriander seeds: 2 tablespoons

Steps for cooking spiced potatoes

Steps .1: Blanching Irish potato

Wash and peel off the skin of potatoes, take the peeled potato into pressure cooker along with a glass of water, close the lid of the cooker and pressure cook it on a high flame for one whistle, then keep the flame low and cook for another 6-7 minutes. Switch off the flame, open the cooker and strain the water using a strainer. Keep the potato a side.

Steps 2: Cutting of potato into cubes or slices

Steps 3. Roasting of spices

Dry roast coriander seeds, cumin seeds, dry red whole chili and cardamom brown till nice aroma comes from the spices in skillet. Switch off the flame. Let the spices cools at the room temperature. In a grinder, add roasted spices and dry grind it coarsely.

Steps 4: Pouring of spices onto sliced potatoes

Take the diced potato in a broad bowl; add 1 table spoon ground spices, salt and vinegar.

Steps 5: Finishing

Squeeze lemon juice mix it well and garnish with coriander leaves. Delicious Spicy Potato is ready to serve.

Application activity 7.8: Cooking buttered peas and carrots

Ingredients

- 2 tablespoons butter
- 4 big carrots cut into small dice
- 16 ounces frozen peas
- Salt and pepper
- Fresh basil leaves chopped
- Coriander leaves
- Cardamom brown 1
- Cumin seeds: 2 tablespoons
- Dry red chilly: 7-8

Steps of cooking buttered peas and carrots

Steps.1: Melt the butter in a sauce pan over medium heat.
Steps.2: Add the carrots and sauté until they are tender.
Steps.3: Add the peas and salt and pepper to taste and sauté until they are thawed and cooked through.
Steps.4: Stir in the chopped basil before serving.

Application activity 7.9: Cooking roasted carrots (6 serves)
Ingredients

- 12 pieces of carrots
- 3 tablespoons good olive oil
- 1 1/4 teaspoons kosher salt
- 1/2 teaspoons freshly ground black pepper
- 2 table-spoons minced fresh dill or parsley

Steps for cooking of roasted carrots

Step.1: Pre-heat the oven to 400 degrees F
Step.2: Slice the carrots diagonally in 1 1/2-inch-thick slices.
Step.3: Toss them in a bowl with the olive oil, salt, and pepper.
Step.4: Transfer to a sheet pan in 1 layer and roast in the oven for 20 minutes, until browned and tender.

Step.5: Toss the carrots with minced dill or parsley, season to taste, and serve.

source;https;//www.google.com/search?q=cooking roastedcarrot/steps

Application activity 7.10: Cooking sweet potatoes wedges

Ingredients

- 1/2 cup corn starch/ corn flour
- 1 cup rice flour
- 1/2 cup all-purpose flour
- 1 tablespoon salt
- 1 tablespoon chili powder
- 1 teaspoon turmeric powder
- 1 teaspoon cinnamon powder
- 1 tsp ground pepper
- 1 tsp ground cumin
- Water 1/2 cup
- Potatoes cut into wedges
- Oil for fry

Steps of cooking buttered peas and carrots

Steps.1: Melt the butter in a sauce pan over medium heat.
Steps.2: Add the carrots and sauté until they are tender.
Steps.3: Add the peas and salt and pepper to taste and sauté until they are thawed and cooked through.
Steps.4: Stir in the chopped basil before serving.

teps of cooking sweet potatoes wedges

Step.1: Cut potatoes into wedges medium size pieces
Step.2: Mix all dry ingredients on list above except water, potatoes, and oil
Step. 3: Add water into the dry mixture gradually until the texture looks like pancake batter then you ready to coat
Step.4: Prepare a baking pan or a flat surface and put a baking sheet/foil on top of the surface

Step.5: Add potatoes wedges into the batter and coat well and transfer it one by one to the baking pan, give space so it is not touch one another
Step .6: Put it in the fridge around 3 to 4 hours or overnight
Step.7: After at least 3 to 4 hours then it is ready to fry
Step.8: Fry on medium heat and cook until golden brown and set it aside.
Step.9: Finished and serve

7.1.5 Preparation of fruit dishes

Most fresh fruits are considered at their best when are raw. However, cooking can intensify flavors and create appealing textures, especially in unripe fruit. Cooked fruits can be served as side dishes, desserts, sauces, compotes or main dish components.
Fruit salad is a delicious dessert that you can make in less than ten minutes and one that you can enjoy without gaining weight. Fruit salad can also be a perfect way to start your morning, a great side dish at a daytime picnic or party, or the perfect snack during any time of day.

Application activity 7.11: Making fruit salad

Ingredients

- 1 cup of strawberries (140 g)
- 1/2 cup of ripe mango (70 g)
- 1/2 red apple
- 1/2 peach
- 1 banana
- Pineapple
- 2 tablespoon of lemon juice (30 ml)Steps for making fruit salad

Step.1: Choosing fruits

Pick up fresh fruit, nice and ripe ready to be made into a fruit salad.

Step.2: Washing of fruits
Eating a varied diet, including plenty of fruits and vegetables, is one of the keys to good health. However, to stay healthy, it's equally important to make sure that the product to be consumed is safe to eat. One way to do that is to make sure any fruits or vegetables you use have been washed well before you peel, cut, eat, or cook with them

Step.3: Cutting the strawberries, red apple, peach, and kiwi into bite-sized pieces
Place 1 cup (140 g) of strawberries, 1/2 of a red apple, 1/2 of a peach, and 1 kiwi on a cutting board and dice them into bite-sized pieces, measuring over 1 inch (2.5 cm).

Step.4: Place fruit in a bowl
Coat the bowl with 2 table-spoon, (30 ml) of lemon juice first to sweeten the fruit and keep them from oxidizing quickly. Place the strawberries, chopped cherries, 1/2 of a red apple, 1/2 of a peach, 1 kiwi, and 1/2 a cup (70 g) of blueberries together in the bowl. Then toss them lightly to blend the flavors.

Step.5: Serving fruits salad
Enjoy this dish at room temperature or slightly chilled. Pair this dish with a glass of orange juice to help bring out its fruity flavor.

source;https;//www.google.com/search?q=making fruits salad/steps

Application activity 7.12: Making yoghurt fruits

Ingredients

- 14 oz plain yogurt, or, for a less bitter taste, vanilla yogurt
- 7 oz fresh, seasonal mixed fruits, sliced
- 1 tablespoon vanilla sugar
- 3 fl oz honey
- 3 Tablespoon salted nuts (optional, see tips)
- Some mint sprigs, for garnish (optional)

Notes: Seasonal mixed fruits, sliced include: Apples, orange, peaches, raspberries, blueberries, bananas (any fruit you like). Steps of making fruits yoghurt

Step.1: **Slice** fruit and put yogurt into a bowl

Step.2: Whisk the yogurt until it is thoroughly smooth and without any lumps

Step 3: Sprinkle the fruit with the vanilla sugar

Step 4: Place a couple of spoonfuls of the fruit mixture into the two serving glasses

Step 5: Adds two spoon-full of the yogurt on top and drizzle some honey over it

Step.6: Make a second layer of fruit, yogurt, and honey

Step.7: Add a sprinkling of chopped nuts and some berries or a slice of fruit **Step 4:** Place a couple of spoonfuls of the fruit mixture into the two serving glasses

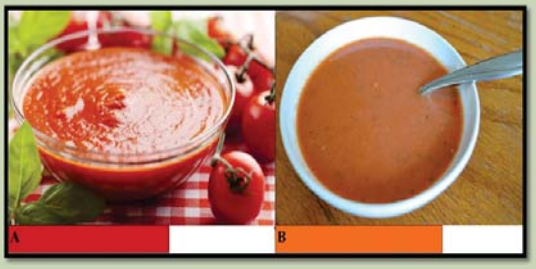
Step.8: As a colorful garnish, decorate your yogurt with a few sprigs of mint

Step.9: Finished fruit yoghurt

7.1.6 Preparation of soups

Activity 7. 3

3. Observe the picture below:



4. What do you observe from the figure above?
5. What is the use of A and B items in our life?
6. What is the difference between A and B?

Soup is a liquid dish, typically savory and made by boiling meat, fish, or vegetables etc. in stock or water that is served warm or hot (but may be cool or cold). It is basically composed by the following main ingredients (Seasonings, liquids, thickening agents and garnishes)

Application activity 7.13:

Cooking of creamed carrot soup

Most of **the benefits of carrots** can be attributed to their carotene and fiber content. They are rich in vitamins and mineral elements.

Ingredients

- 1/2 cup onion finely chopped
- 2 tablespoon butter or margarine
- 4 cup carrot sliced
- 1 large potato diced
- 1 l chicken stock or water
- 4 tablespoon fresh cream
- Salt and black pepper to taste

Steps of cooking creamed carrot soup

Step.1: Melting the butter in large stock pan and sweating onions.

Step.2: Adding carrots, potatoes and chicken stock.

Step.3: Covering and cooking on medium heat (30 minutes or until tender)

Step.4: Removing from the heat (let it cool for 15 minutes).

Step.5: Using a stick blender purees the soup

Step.6: Re-heating and adding milk, salt, and pepper. Pouring into the bowl and garnish.

Step.7: Finished cream of carrot soup

Application activity 7.14: Cooking mushroom soup

Ingredients

- 3tbsp cold butter
- 4 table spoons flour
- 2 onions chopped
- 6 tablespoons olive oil
- 12 cups beef stock
- ½ cups white wine
- 4 cups sliced mushrooms

Steps for Cooking mushroom soup

Step.1: Making a blond roux and set at side

Step.2: Sweating onions and mushrooms together

Step.3: Sprinkling with remaining of the flour and mixing well

Step.4: Adding white wine, stock, mix frequently and simmer for 4 to 5 minutes

Step.5: Tasting the seasoning and consistency

Step.6: Serve hot.

Application activity 7.15: Cooking potage St. Germaine (Green peas soup)

Ingredients

- 2Cups water
- 2 cups. chicken stock
- 2 cups dried split peas rinsed
- ½ cup finely chopped leeks or red onions
- 1/3 cups finely chopped carrots
- 2 cloves finely chopped celery
- 100g finely chopped cooked chicken

Steps for cooking potage St. Germaine
Step.1: In large soup pan combine, water, chicken stock and peas and boil.
Step.2: Simmer 30 minutes and skim.
Step.3: Add leeks or green onions, carrots, celery, sugar, spinach and pepper.
Step.4: Simmer, stirring occasionally, 30 to 40 minutes, until peas are soft.
Step.5: Add milk and Puree the soup in blender
Step.6: And reheat, add cream, chicken and season.
Step.7: Serve with croutons

Application activity 7.16: Cooking fish Soup

Ingredients

- 1/2 onion chopped
- 1 clove garlic minced
- 1 tablespoon chili powder
- 1 green Chile peppers chopped
- 1 1/2 cups peeled and diced tomatoes
- 1/2 cup chopped green bell pepper
- 150g tilapia fillets diced
- 3/4 cup plain nonfat yogurt (cream)

Steps for cooking fish soup

Step.1: Heat oil in a sauce pan and brown onions with all vegetables for 5 minutes
Step.2: Add the garlic and sauté for 2 more minutes.
Step.3: Then add the fish stock, Chile peppers and
Step.4: Bring to boil, reduce the heat to low, cover and simmer for 20 minutes.
Step.5: Next, add tilapia fillet and simmer for another 5 minutes.
Step.6: Strain the soup in food blender and re-heat until boiled
Step.8: Gradually stir in the cream and season then garnish well.

Step.9: Serve finished fish soup

7.1.7 Preparation of sauce

A sauce is a thin or partially thickened liquid compounded from various foods and used as an accompaniment to enhance the flavor of the food and exciting the appetite.

Main composition of a sauce

The sauce is basically composed by the following items;

a. Flavoring and seasoning agents: herbs, spices, peppers, peppers, mirepoix, salt...

b. Thickening agents: liaison (egg yolk+ cream), vegetable puree, corn starch, rice starch, cream, roux.

c. Liquids: stock, tomato puree, water, beure meniere, milk... a basic ingredient.

- **Note:** -
- All thickened sauces should be smooth, light in texture and definite in taste
- Most of the hot basic sauces use stock
- There are varieties of sauces which are prepared in different ways.

Application activity 7.17: Cooking Béchamel sauce (4 serves)

Béchamel sauce is one of the 5 basic sauces of French cooking. It is a milk-based sauce that can be served on its own or used as the base for a more complicated sauce.

Steps for cooking Béchamel sauce

Ingredients

- 2 tablespoons butter
- 2 tablespoons flour
- 1 cup of milk
- Onions roughly chopped
- Bay leaf

Step.1: Placing 2 tablespoons of butter in a small saucepan

Step.2: Heating the butter over medium heat until it's melted.

Step.3: Mixing of 2 tablespoons of flour to make a roux or the beginning stage of the sauce.

Always keep the ratio of butter to flour equal, regardless of whether you are producing a thinner or thicker sauce.

Step 4: Cooking of the roux gently, stirring well until it pales and taking on the color of straw.

Step.5: Lowering the heat and slowly incorporating 2 or 3 tablespoons of milk.

Step.6 Mixing of milk and stirring until it is completely incorporated into the roux

Step.7 Mix in an additional 2 to 3 tablespoons of milk and stir them in until they're completely incorporated.

Step.9: Removing sauce from the heat, adding salt and pepper if desired and removing onions and bay leaf.

source;https;//www.google.com/search?q=cooking bechanel+sauce/steps

Note:

Use according to the particular recipe, the béchamel sauce can be seasoned if it will be accompanied with the food.

Béchamel sauce prepared properly, Béchamel sauce should meet the following quality points.

- **Flavour** – creamy, reflecting its base liquid, milk. Taste the sauce using a clean spoon for each tasting.
- **Colour** – should be that of heavy cream, slightly off-white, no hint of grey.
- **Clarity** – lustrous, with a definite sheen. Should be perfectly smooth with no graininess.
- **Body** – noticeable, thick enough to coat the back of a spoon yet still quite liquid.
- **Aroma** – that of cream. A slight hint of nuttiness from the roux will be apparent but should not overpower the milk aroma.

Application activity 7.18: Making mayonnaise sauce

Ingredients

Preparing homemade mayonnaise can significantly enhance the flavor of a variety of different entrees, sandwiches, hors d'oeuvres and appetizers. Mayonnaise made from scratch typically has less additives and preservatives, and offers a deep, rich, fresh flavor when compared to pre-prepared mayonnaise.

Ingredients

- 2 small eggs
- 1table spoon (5g) of salt and pepper
- 1 table spoon (15g) of lemon juice
- or white vinegar
- 8 oz (2,5dl) of olive oil or vegetable oil
- 2 cups. spinach crushed
- Salt and black pepper
- 2 cups milk
- Table spoon heavy cream

Steps for making mayonnaise

Steps.1: Preparing ingredients
Gather 1 large egg or 2 small eggs, 8 oz (2.5 dl) of cooking oil, and 1 table spoon (15 g) lemon juice or vinegar. Leave all the ingredients out at room temperature for approximately 30 minutes prior to preparing the mayonnaise. This aids in the process of emulsification, or binding of the ingredients.

Step.2: Separating egg yolks from the whites
Cup your hand with your fingers spread slightly apart over a small mixing bowl. Crack the egg in your hand and allow the whites of the egg to slide between your fingers into the bowl. When only the egg yolk remains in your hand, place it in a separate container and set aside.

Step.3: Mixing ingredients
Once the ingredients have reached room temperature, place 2 small egg yolks or 1 large egg yolk, along with 1 table spoon (5 g) of salt and 1 table spoon (5 g) of white pepper, into a medium size mixing bowl and mix gently using a wire whisk.

Step.4: Preparing mayonnaise.
Fill a measuring cup with 8 oz (2.5 dl) of olive, corn, peanut or sunflower oil.
Holding the measuring cup of oil in 1 hand and a wire whisk in the other hand, let a small amount of the oil drip into the mixing bowl while stirring briskly with the wire whisk.

Once the mixture has begun to thicken and increase in volume, increase the rate of oil from a drip to a very slow pour. Continue to vigorously stir in the remaining oil.

Step.5: Completing mayonnaise
Flavor the mayonnaise by stirring in 1 table spoon (15 g) of lemon juice or vinegar. Add more salt and white pepper to taste as needed. Transfer the mayonnaise into a glass, ceramic or plastic container once completed. Be sure to keep the mayonnaise covered and refrigerated following preparation.

Application activity 7.19: Making velouté sauce

Velouté sauce is one of the most common sauces from French cuisine and is often used on poultry or seafood dishes.
Ingredients

- 80g of butter
- 80g of flour
- 1l white Stock
- Salt and pepper to taste.

Steps for cooking veloute sauce

Steps 1: Melting butter in a saucepan over low heat and adding the flour

Stir well until it has lightened in color to be a blonde roux.
Note: You can make it a dark roux for a browner color by continuing to cook it until it reaches a desired brown color. Stir continuously to prevent it from burning.

Step.2: Adding stock to the roux in batches and whisk or stirring each batch until smooth.

Step.3: Cooking gently for approximately 5 minutes while stirring regularly to prevent sticking.

Step.4: Seasoning and tasting to ensure the sauce is smooth and not floury in taste

Step.5: Finished veloute sauce

source;https;//www.google.com/search?q=cooking volonte+sauce/steps

Application activity 7.20: Making tomato sauce

Ingredients

- 10 gm butter
- 50gm mire-poix (onion, carrot, celery)
- 1piece bay leaves
- 1piecec thyme spring
- 10gm flour
- 15gm tomato puree
- 375 ml vegetable stock
- 1clove garlic
- 1table spoon salt and pepper

Steps for making tomato sauce

Step 1: Adding olive oil and onions
Use a wide skillet or a wide-bottomed pot. Start with plenty of olive oil and add diced onion. Sauté until translucent and very soft.

Step 2: Seasoning
Season the onions with salt so they release their liquids. This will help to bring out the natural sweetness of the onions. Take your time with this, it's the first step in layering good flavor.

Step 3: Adding garlic
Add in garlic and sauté until fragrant.

Step 4: Crushing tomatoes
Open a can of whole, peeled tomatoes and crush them with clean hands or use tomato puree.

Step 5: Adding tomatoes and simmering
Add the tomatoes to the garlic and onions, Taste and season. Simmer for about 20 minutes until the flavors come together. Tip: If your sauce gets too thick, just add a bit of water.

Step 6: Flavoring with spices
Note: Spices such as chili flakes, capers or olives.

Step 7: Finishing

Pureeing by using blender to make smoother sauce. Adding butter or a drizzle of olive oil and garnishing with fresh herbs, like basil.

7.2. Food presentation Techniques

Activity 7.4

1. Observe the pictures below:

2. What do you observe from the two pictures above?
3.Which picture is looking attractive?
4.What is the importance of making plate to be attractive like this?

a. Importance of food presentation

The **food presentation** is the art of modifying, processing, arranging, or decorating food to enhance its aesthetic appeal. For food to be appreciated and enjoyed, the appetite must be stimulated before a meal.
The way the food looks on the plate is what attempts the eyes and encourages you to taste it.

The presentation of plating makes an impression, even a promise, with the viewer. The gourmet (connoisseur) is attracted by the food when the artistic plating has done its job well. Dish looks good, you wish to have it.
Note: Plating your food is as important as making a good first impression. We eat in more ways than one. Before we eat with our mouths, we eat with our eyes. Visual appeal is just as important as the tasting experience of the food.

b. Garnishing of food

A food item which is served with garnish may be described as being garnished. A garnish is an item or substance used as a decoration or embellishment accompanying a prepared food dish or drink. Some garnishes are selected mainly to augment the visual impact of the plate, while others are selected specifically for the flavor they may impart. Note: Many garnishes are not intended to be eaten.

c. Types of garnishes

Garnishing food is as simple as a single fruit slice or as complicated as flying birds carved from vegetables. Whether you choose the former or attempt the latter, keep the garnish related to the dish. Add the garnish at the last minute for hot foods. Fruits, herbs, vegetables and edible flowers add color to food and tempt the appetite.

- **Fruit garnishes eg.** Limes (Lemon, orange ect), pineapple, berries, apple, banana, mango olives etc
- Fish on a plate garnished with lemon, herbs, and fresh vegetables

Gather the herbs into a small bouquet and place on the plate.

- **Herb garnishes** eg. Rosemary, parsley, basil, mint, thyme, celery, fennel, chive ect

A close-up of a rose carved from a tomato on a salad

- **Vegetable garnishes** eg. Carrot, tomato, cucumber, eggplant, laddish, turnips, baby marrow, cauliflower, broccoli, gherkins, onions, cherries, ect

A roasted chicken served on a bed of green kale

- **Green garnishes** eg lettuce, spinach, French beans, green kale, green cabbage , leeks ect

- **Sauce garnishes** e.g. Tomato sauce, white sauce, brown sauce, veloute sauce, chocolate sauce, vanilla sauce, hollandaise sauce etc

Lamb chops with a drizzle of sauce on a plate and chocolate mousse

- **Egg garnishes** eg hardboiled egg, poached egg, fried egg, omelet, etc

source;https;//www.google.com/search?q=types of garnishes

Meat, fish and poultry garnishes eg. Small piece of cooked meat (Minced meat, small pieces of fish ect)
Dairy products eg cheeses, yoghurt, cream ect

d. Garnishing techniques

Classic french garnishes are included:

- Chilled leek and potato soup garnished with croutons

- **Brunoise**: one to 3 mm diced vegetables (e.g carrot)

- **Chiffonade**: Finely shredded lettuce or sorrel stewed in butter

- Julienne: Thinly sliced vegetables

Croutes: small pieces of halved French bread buttered and oven dried
Croutons: Small pieces of bread (typically cubes) fried in butter or other oil

7.3. Basic food service technics

a. Basic table service methods

Activity 7.5

1. Observe the picture below:

2. Describe the food setting order on pictures above?
3. Analyze the table setting on the picture above? Justify your answer.

They are many different approaches to serving food. An operation should use a service style that is the best to satisfy its family members. The traditional table service provides service for family members who are seated at table. The English service comparable to Rwandan style is a type of service known as "family style service". In this service the big dish is placed in front of the host along with serving plate and family members serve themselves. Picture:

b. Principles for meal service

The family style meal service allows participants to eat together and to make food choices based on individual appetites and food preferences. It promotes mealtime as a learning experience to help participants develop positive attitudes toward nutritious foods, share in group eating situations, and develop good eating habits. Family style meal service can be conducted in a variety of ways. For example, participants may help in preparing for the meal by clearing the table and setting places, sharing conversation during the meal, and cleaning up after the meal.
Family style meal service operates as follows:

- All required meal components are placed on the table at the same time.
- Participants may serve themselves from serving dishes that are on the table.

- Adults supervising the meal help those participants who are not able to serve themselves.
- Participants can make choices selecting foods and in the size of the serving.
- A supervising adult actively encourage family members to serve themselves and offers the food item again later in the meal if member (s) initially refuse the food or take a very small portion. Adult should model good eating habits while supervising participants at the dining table.

c. Standards of serving food temperatures

The importance of temperature

The crucial important part of food safety in the home is to keep hot food hot and to keep cold food cold. For safety it is vitally important to keep food out of that danger zone.
The food being served should be kept at specified range and appropriate temperature (to):

Type of food	Hot food	Cold food
To	$63^{O}C <$ to $< 75^{O}C$	$0^{O}C <$ to $< 5^{O}C$

Note:

- **The temperature danger zone for bacteria reproduction and growth: $5^{O}C <$ to $<$** $63^{O}C$, food is not suitable for eating.

Bacteria do not multiply and start to die at 63OC above and do not grow and multiply at 5OC below.

7.4 End unit assessment

Prepare a three-course menu including starter, main course and dessert from available ingredients in the store and serve at 12h30 as lunch time.

UNIT8
BASIC PRINCIPLES OF PREPARING CAKES

UNIT 8: BASIC PRINCIPLES OF PREPARING CAKES

Key unit competency

Learner should be able to prepare and bake a variety of basic cakes

Learning objectives

- Distinguish types of cakes
- Explain the steps in making cakes
- Make different types of cakes
- Perform appropriate steps used in baking cakes
- Ability to make cakes following all the steps
- Appreciate the end results of the products

Introductory activity

1. Observe the pictures below

a

b

2. Describe the components of pictures above.
3. What are the similar components on the pictures a and b?
3. Choose the component set to make "carrot cakes".
4. Discuss the principles for making a cake
5. What do you predict to learn in this unit?

The **cake** is a form of sweet dessert that is typically baked. In its oldest forms, cakes were modifications of breads, but cakes now cover a wide range of preparations. But many of the preparation principles remain the same

The typical cake ingredients are flour, sugar, eggs, butter or oil or margarine, a liquid, and leavening agents, such as baking soda or baking powder.

Common additional ingredients and flavorings include dried, candied, or fresh fruit, nuts, cocoa, and extracts such as vanilla, with numerous substitutions for the primary ingredients.

Cakes can also be filled with preserves, nuts or dessert sauces (like pastry cream), iced with butter cream or other icings, and decorated with marzipan, piped borders, or candied fruit.

Today we serve specially decorated cakes as a dish to celebrate many different ceremonial occasions: weddings, christenings, engagements, anniversaries, birthdays and Christmas

8.1. Main principles behind the making of cake

1. Combining of Ingredients

Careful attention has to be given to the mixing process. The cake mixture has to form a uniform emulsion, so that the water is held in suspension surrounded by fat and other ingredients in the batter. A batter can curdle if the mixture changes to fat in water, with small particles of fat surrounded by water.

2. Formation of Air Cells

Formation of air cells in a batter is of great importance since they give the sponge its texture and also act as a leavening agent. The air trapped in the batter expands when subjected to heat and this acts as a natural leavened giving the sponge a good raise even if no chemical agent is used.

The correct temperature of ingredients and a suitable mixing are vital for the formation of good air cells in the batter. In the case of foam cakes the egg and sugar mixture should be slightly warmed to approximately 38°C. Whipping should be done at a high speed first, then at a moderate speed to retain the formation of air cells.

3. Texture

In sponge making the development of gluten in the batter is responsible for the texture of the end product. A very little amount of gluten is required in cake making; hence weak flour will be a better choice.

In some sponge recipes, corn starch replaces some of the flour requirement, thereby reducing the gluten content even more. On the other hand certain rich fruit cakes require more gluten to hold the structure and the fruits in the cake.

Since the amount of mixing affects the gluten, the flour in the recipe is always added

towards the end of the mixing process after all the ingredients have been added, thus ensuring that there is very little development of gluten. If the batter is mixed for too long after the addition of flour, then the cake is likely to be tough.

4. Formula and Balance

Ingredients and quantities can be changed only to a certain extent in a given recipe. A formula in which the ingredients fall within these limits is said to be in balance.

The purpose of balancing ingredients can be classified into the following four functions:

a. *Toughener:* They provide structure, for example, flour, eggs (white and yolks).
b. *Tenderizers:* They provide softness or shortening of protein fibres, for example, sugar, butter, and chemical leavener.
c. *Driers:* These are the ingredients that absorb moisture. **Examples:** flours and starches, cocoa powder, and milk solids (powder).
d. *Moisteners:* They provide moisture to the batter. **Examples:** water, milk, liquid sugar, eggs.

A common practice in balancing a formula is to decide the flour and sugar ratio, then balance the rest ofthe ingredients against this combination as follows:

- If liquid is increased, reduce the eggs and the shortening.
- If eggs are increased, increase the shortening.
- If extra milk powder is added as enrichment, add an equal weight of water.
- If large quantities of moist ingredients such as apple sauce, mashed bananas are added, then the batter may require an increase in the quantity of flour and eggs.

5. Baking and cooling of cakes

The importance of the relevant features of baking while baking breads and the same should be followed for baking cakes. In addition, the following points would be useful:

- Preheat the oven
- Make sure that the oven shelves are even
- Do not let pans; tin trays, etc. touch each other
- Bake at the correct temperature
- Do not open the oven door and disturb the sponge, until it has finished rising and is partially browned.

Doneness of cake

The doneness can be tested by the following:

- The sponge will be springy; the center of the cake on the top will spring back lightly.
- A cake tester or a wooden skewer/toothpick when inserted into the center of the cake should come out clean.

Cooling and removing from the pan

The following points should be remembered for cooling and removing the sponge cakes from the pan:

- Cool the sponge cakes for 15 minutes in the pans and then turn out when slightly warm. If removed from the moulds when just baked they will be too hot and break.
- Place the sponge onto cooling racks for proper circulation of air. If they are not cooled on the cooling racks, the moisture will accumulate in the base resulting in a soggy cake.

Frosting and Finishing

Cake decorating is one of the sugar arts that uses icing or frosting and other edible decorative elements to make plain cakes more visually interesting. Alternatively, cakes can be molded and sculpted to resemble three-dimensional persons, places and things.
Cakes are decorated to mark a special celebration (such as a birthday or wedding). They can also mark national or religious holidays, or be used to promote commercial enterprises. However, cakes may be baked and decorated for almost any social occasion.

8.2. Types of cakes

Case study: The dessert

The word gourmet is from the French term, defined as "refined and uncontrolled love of good food". Gourmet is an industry classification for high-quality premium foods in the United States.

Gourmet produces a wide variety of bakery items, sweets and dairy products and offers high quality services in their restaurants. Gourmet stresses hard on quality and taste of their products and making them affordable for their customers at the best prices in the market.

The company has shown an explosive annual growth of more than 25% in 2006.The year item to produce income was a cake. Now Gourmet look like increasing income in December considered as period of many diverse events to close and start New Year.

On 20th December 2006, Christian's group of twenty gentlemen was in gourmet market and everyone selected by its own preference a dessert for Christian's birthday. The first choice was a cake. Most of them choose queen cakes, banana cake, angel food cake, apple pie cake, angel cake, carrot cake and muffin cake. Each cake chosen had its own mark according to different end year events. One of the cake mark chosen by four group mate was "happy birthday".

Questions:

1. What was Christian's group mate purpose during the visit to gourmet market?
2. Carry out the types of cake used while Christian's birthday?
3. Suggest raison why different cake marks were chosen?
4. Apart the event purpose which principle can stimulate a gourmet to choose any kind of cake?

In our society, the cakes below are commonly used during the celebration of certain events:

a. Queen cake

It is a simple yellow cake made with an optional whipped cream and fruit preserves filling.

b. Muffin cake

A muffin is an individual-sized, baked product. Muffins are available in both savory varieties, such as cornmeal and cheese muffins, and sweet varieties such as blueberry, chocolate chip, lemon or banana flavors. They are often eaten as a breakfast food, often accompanied by coffee or tea.

c. Carrot cake

The carrot cake is a cake that contains carrots mixed into the batter (a thin dough that can be easily poured into a pan).Moist, dense, sweet cake made with carrots.

d. Banana cake

The banana cake is prepared using banana as a primary ingredient and typical cake ingredients such as flour, sugar, eggs, butter, margarine or oil and baking soda.

e. Apple pie cake

It is a sponge cake baked with fresh apple pieces in it.

Source: (https: www.google.com search of= types of cakes.)

8.3. Making a cake

When preparing to make cakes get ingredients and equipment together and follow step by step for cake making.

Activity 8.1

1. Observe the pictures a and b below:

2. Describe the pictures above
3. Discuss what is happened from a to b?

a. Making carrot cake

Ingredients

- 3 3/4 cups of flour
- 3/4 cup brown sugar
- 1 tablespoon baking powder
- 1 teaspoon baking soda
- 1/2 cup margarine or butter
- 4 eggs o 3/4 cup orange juice
- 3 cups shredded carrots (6 carrots)
- 1 teaspoon cinnamon
- 1 teaspoon ginger
- 1-2 cups chopped pecans (optional)
- 1/4 cup unrefined (virgin) coconut oil
  16 oz powdered sugar
- 4-6 tablespoons coconut or soy milk
- 1 teaspoon vanilla

Step 8: Frosting and finishing carrot cake

Cream the coconut oil until it breaks up and gets nice and smooth, add in 1/4 of the powdered sugar, vanilla and 2 tablespoons of soy milk, then mix together until nice and smooth.

Steps of making carrot cake

Step. 1: Preparing ingredients on work place

Step. 2: Shred the carrots

Peel the carrots and trim the ends, and then grate with a food processor or on a box grater.

Step.3: Combining dry ingredients and cutting in the butter

Put the flour, sugar, baking soda, powder and spices in a large bowl.
Cut cold butter/margarine into small cubes.

Step.4: Add the wet stuff

Add the eggs, ginger, orange juice and mix until very well combined.

Step.5: Adding carrots

Mix in the carrots and make sure they're evenly distributed. Line your baking pan with parchment paper, pour in the batter and smooth it out

Step. 6: Baking

Take batter in the oven at 350 F for 50-60 minutes.

Note: Once a toothpick inserted into the middle comes out clean you know that carrot cake is done.

Step.7: Cooling
Let it cool for at least a half hour in the pan on a wire rack then after keeping it in the fridge.

Keep adding powdered sugar along with tablespoons of soy milk as needed until everything is combined (you don't want any clumps of powdered sugar or coconut oil) then frost everything in the vicinity.

Finish carrot cake by using preferred butter cream and the required decorations.

Figure 21.Finished carrot cake

Source: (https: www.google.com search of= making + carrot+cakes steps)

b. Making apple pie cake (4 serves)

Ingredients

Crust/coating

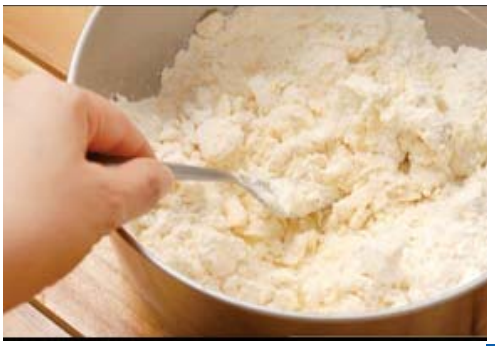
- ½ liter or 2 cups of plain flour
- 1 teaspoon of salt
- ¾ of a stick (90 grams) of butter
- 5 tablespoons of cold water
- 1 egg
- Milk

Filling

- 80 ml or 1/3 cup of white sugar
- 80 ml or 1/3 cup of brown sugar
- ¼ teaspoon of salt
- 1 teaspoon cinnamon
- ½ teaspoon nutmeg
- 3 tablespoons of flour
- 6-8 medium-sized apples
- 1 teaspoon lemon juice

Steps for making apple pie cake

Step .1: Preheat the oven to 400°F (200°C).



Step .2: Place the flour, salt, and butter in a large bowl

With a pastry blender or, crush the butter until it forms tiny balls with the flour. Then slowly add the water.

Step .3: Kneading with floured hands

Kneading until a large dough ball forms, split the ball in half and wrap the two pieces of dough with plastic wrap and place them in the refrigerator 30 minutes before proceeding to the next step.

Step .4: Rolling the dough

On a floured **counter-top,** begin to roll the dough out into a circle shape about 2 inches (5.1 cm) larger in diameter than the pie pan

Step .5: Slowly lift the flattened dough off the counter-top by wrapping it completely around the rolling pin.

Step .6: Fitting dough into the pan

Unroll the dough over the pan and fit it into the pan, pressing it against all the sides.

Step .7: Cut off the overhanging edges
Leave about 1⁄4 inch (0.6 cm) of extra dough over the pie pan.

Step .8: Place the pie shell in the refrigerator

Step .9: Making filling
Peel and slice the apples into pieces about 1/8 of an inch thick or chop them into 1/2" cubes. Put them into a large bowl and mix with sugars (white and brown), salt, lemon juice, flour, nutmeg and cinnamon. Drain apples for 20 minutes and then heat the liquid produced along with 3 cubes of butter in the microwave until it's reduced to third of its volume and becomes thicker (prevents a soggy crust).

Step .10: Making strips

Rolling out remaining ball of dough on a floured surface, just like done before. Cut the rolled out dough into as many 1" wide strips.

Step .11: Removing pie shell and fillings from the **refrigerator**

Step .12: Stuffing pie shell

Pour the filling into the pie shell (enough filling to fill the entire pan and stack up above the edge at least an inch in the center).

Step .13: Brush the edges of the pie shell with a beaten egg.

Step. 14:Covering pie shell

Lay the sliced top crust over filling, place the pastry strips across the top of the apples in a crisscross pattern, and then weave them together to create a lattice effect. Cut off the overhanging excess pastry and press the edges down into the rim as previously described.

Step. 14: Sprinkling milk over the top or brush the lattice with the egg wash.

This will help to brown the crust. Dust cinnamon and sugar over the top crust for an extra touch. Ihica oma, suam iam, Cupions idiemun umedeo horionsula nos omnihina, etorit, nu vivirmis. Sedium conos, noca

Step 15: Baking

Baking at 400ºF (200ºC) for 15 minutes then turn down the oven to 375ºF (190ºC) for 45 minutes and remove when top crust is golden brown.

Step. 16: Cooling

Allow the pie to cool 45 minutes to 1 hour at room temperature before serving.

Fig1: Finished apple pie cake

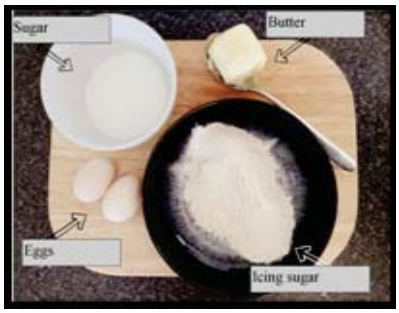
Source: (https: www.google.com search of= making apple pi e cakes steps)

c. Making muffin cake

Ingredients Sugar

- Butter
- Eggs
- Flour (self-raising).
- Icing sugar
- Dark chocolate

Note: There are many muffins (cupcake) recipe out there each using varying amounts of these four basic ingredients.



Step.1: Weighting ingredients (equal amounts)

Example:*For 120g of egg you would measure out 120g flour, 120g sugar and 120g butter (5 serves).*

Fiure2: mise en place of muffin cake ingredients

Step. 2: Mixing ingredients

Cream the butter and sugar together until light and fluffy, add the eggs one at a time and whisk, fold in the flour, added some vanilla paste at this point, add cocoa powder if you wanted chocolate flavored cakes then added a half teaspoon of baking powder. Divide the mixture between 12 cupcake cases

S tep. 3: Baking

Bake the cakes in the oven for about 15-20 minutes.

Step .4: Making icing

Whisk the icing sugar and butter together until really smooth and creamy, then add the melted dark chocolate and whisk again (Use an electric whisk for best results).

Step .5: Decorating muffin cake

Pipe the icing onto the cake in swirls and add any decorations you wish. Spread the icing on if you don't have a piping set.

Note: Freeze-dried strawberries can be added as they add great colour and taste.

Fig3: Finished muffin cake

Source: (https: www.google.com search of= making + muffin+cakes steps)

d. Making queen cake

Ingredients

- 18 ½ ounce box german chocolate cake mix
- 1 and ¼ cups (300 ml) water
- cup (80 ml) canola oil
- 3 eggs
- ¼ cup (60 grs) margarine, up to 1/2 cup (115grs) total, softened
- 3 tablespoons baking cocoa
- 1 teaspoon instant coffee
- ¼ teaspoon salt
- 3 cups (360 grs) powdered sugar
- 1 teaspoon vanilla extract
- 2 - 3 tablespoons milk

Steps for making queen cake

Step.1: Mixing ingredients
Pour cake mix, water, canola oil and eggs to mixing bowl

Step.2: Beat on low speed until moistened

Step.3: Increase mixer speed to high and beat batter for 2 minutes

Step.4: Grease and flour a 9x13-inch (23x33cm) baking pan

Step.5: Pouring the batter into the baking pan

Step. 6: Baking at 180oc for 25 to 30 minutes or until cake tests done.

Step.7: Cooling

Step. 8: Frosting and finishing queen cake

1. Add softened margarine to mixing bowl

2. Add cocoa, instant coffee and salt, and then beat until fluffy

3. Add milk and vanilla; beat until well mixed

4. Add powdered sugar slowly and continue to beat until mixture is creamy and fluffy

5. Frost cooled cake

6. Finish queen cake depending the required use

Fig4:Finished queen cake

Source: (https: www.google.com search of= making apple pi e cakes steps)

e. Making banana cakes

Ingredients

- 125g of butter
- 150g of caster sugar
- 1 teaspoon of vanilla extract
- 3 or more very ripe bananas
- 190g of self-raising flour
- 60ml of milk
- 1 egg

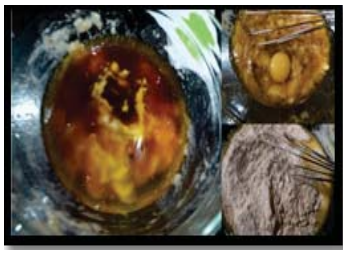
Steps for making banana cake

Step.1: Collect ingredients

Step .2: Greasing leaf tin
Grease the loaf tin with butter or olive oil on a tissue or greaseproof paper etc.

Step 3: Mushing bananas

Step 4: Melting
Add the sugar, butter and vanilla extract into a saucepan/pot. Melt the mixture under a medium heat. Make sure everything is melted and take it off the heat once it has melted.



Step 5: Mixing
Add the melted butter, sugar and vanilla into the bowl of mashed bananas. Mix well and add in the egg. Mix well and then add in the flour.

Step 6: Baking

Transfer the mixture into the loaf tin and place it in the oven at 170oC for 35 minutes, or until a skewer comes out clean.

Step.7: Cooling banana cake

Step. 8: Frosting and finishing

Fig5: Finished banana cake

Source: (https: www.google.com research of= making banana cakes steps)

8.4. End unit assessment

Select ingredients and make muffin cakes for 20 guests in birthday event of your best friend and finish it attractively.

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