

Competency Based

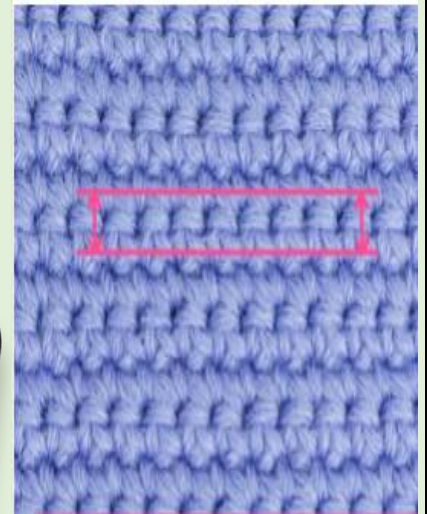
Curriculum

GRADE 6

AGRICULTURE & NUTRITION

Rationalised

NOTES.



0710250520/0743939160

Vyntex Softcopies.



Topic 1

CONSERVING OUR ENVIRONMENT

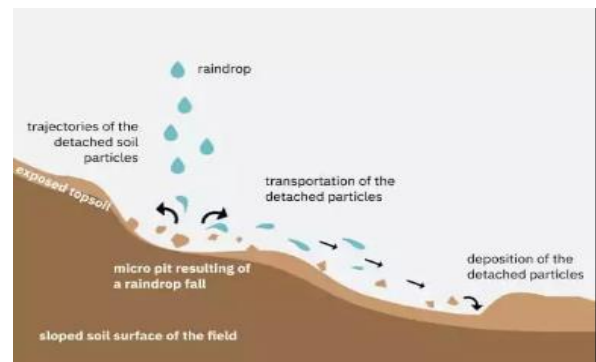
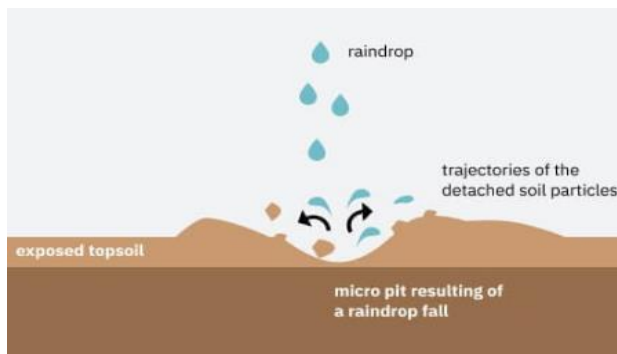
1.1 -Soil Erosion.

Soil erosion is a process by which topsoil is gradually removed (carried away) from one place, transported and then deposited to another place by the action of water, wind, animals and human beings.

○ Types of soil erosion.

a. Splash erosion.

- This is the first stage in the soil erosion process which takes place by the action of water.
- When raindrops hit bare ground, the soil is broken into particles.
- The lighter particles are then removed and splashed in various directions onto the soil surface by the force or energy of the raindrops. Therefore, small circular depressions can be seen where soil particles have been removed by splash erosion.
- Splash erosion occurs mainly during heavy rainfall that falls for a short duration.
- Splash erosion causes more damage to soil on sloped land than on a flat land.
- The bigger have more force or energy than smaller raindrops and therefore they cause more splashing.
- Splash erosion is also called raindrop erosion because it results from the effect of raindrops on the soil surface.



Sheet erosion.

- ✖ Sheet erosion refers to a thin and uniform layer of moving water.
- ✖ Sheet erosion occurs when a thin layer of soil is removed uniformly by surface runoff on a flat or gently sloping bare land.
- ✖ Sheet erosion occurs when there is heavy rainfall that falls for a short duration. In such a situation, soil is unable to absorb much of the rainwater which therefore starts flowing as surface runoff.
- ✖ The heavy raindrops splash soil particles while surface runoff carries the lighter fine particles carrying away most of the nutrients.
- ✖ It is not easy to notice sheet erosion because the topsoil is removed evenly.
- ✖ By the time sheet erosion is detected, most of the top soil will have been lost.
- ✖ Sheet erosion is very common on a recently cultivated land situated on smooth gentle slope.

Signs that indicate sheet erosion is taking place.

- Stones below the top soil are exposed.
- Roots of plants including crops, grass and trees are exposed.
- Eroded soil and crop remain are deposited at the lower areas of the slope.
- Crop yields reduce season after season because of declining soil fertility.



b. Rill erosion.

- ~ Rill erosion occurs in places where continuous sheet erosion has taken place.
- ~ In such places, the runoff carrying particles concentrates in small channels or rills down a slope.
- ~ Several small rills join to form a large rill.
- ~ As runoff flows along the rills, soil is eroded on the sides and the bottom of the rills.
- ~ The rills can reach a depth of up to 30 cm.
- ~ Rill erosion can be observed when a freshly cultivated land experiences heavy rainfall immediately after cultivation.
- ~ However, the rills can easily be removed during normal cultivation of land using farm tools such as hoes and jembes.
- ~ Rills can also be observed on over-grazed land as well as on paths created due to frequent movement by humans or animals.



Channels created by rill erosion

c. Gully erosion

- ⇒ Gullies are long deep ditches with steep sides.
- ⇒ They are mainly formed on steep slopes where rill erosion has taken place for a long time.
- ⇒ As the runoff flows down the slope, it widens and deepens the rills, thus creating deep ditches called gullies.
- ⇒ Unlike the rill, gullies are not easy to remove by means of normal cultivation using farm tools such as hoes and jembes because of their great depth.
- ⇒ However, farmers can use structures such as gabions built across the gullies which helps to slow down movement of water and its force and they also help to trap soil particles which remain behind as water passes slowly through them.

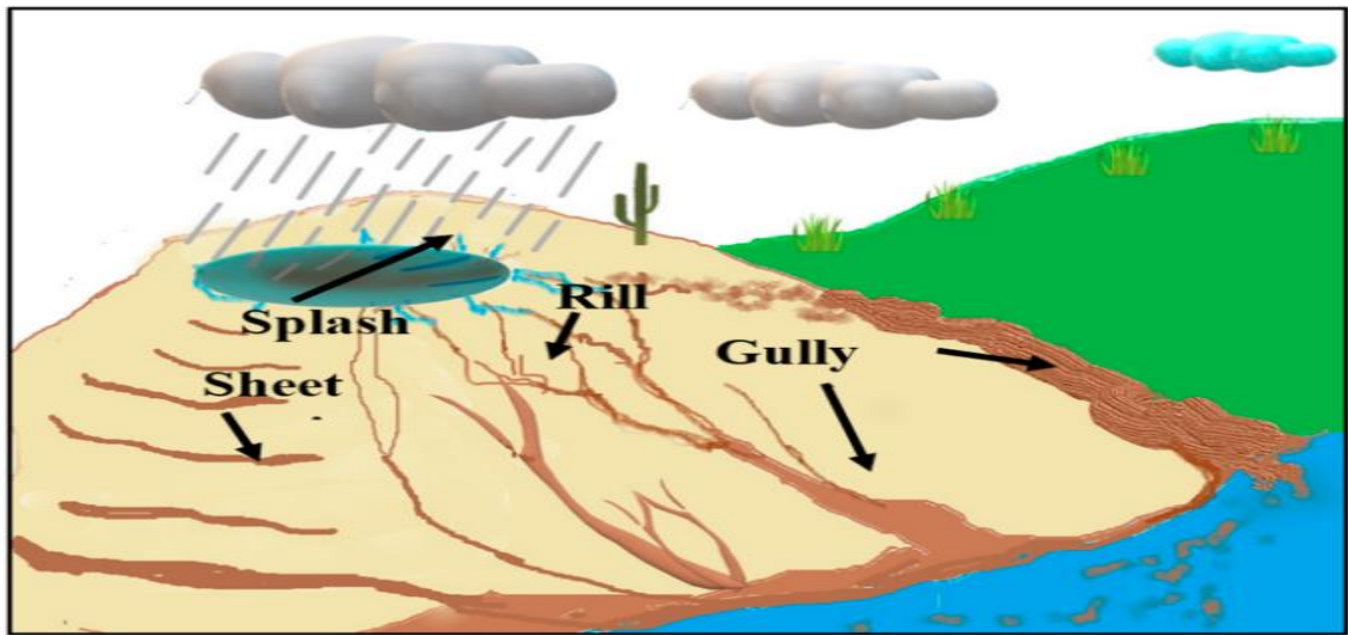


A gabion built across gully to trap soil particles



gully erosion.

Figure 1. The types of soil erosion by water.



Methods of Controlling Soil erosion.

Soil erosion can effectively be controlled using the following methods:

- ✓ **Establishing ground covers** which help to prevent splash erosion by preventing them from directly hitting the ground soil particles. Ground covers also reduces sheet erosion by reducing the speed of runoff hence allowing water to infiltrate into the soil. Examples of suitable ground covers include:
 - ✧ Planting cover crops.
 - ✧ Use of mulches.
 - ✧ Planting of trees.
 - ✧ Growing grass or vegetation on land & drainage channels.
- ✓ Tree roots protect soil from erosion by firmly holding the soil particles together.
- ✓ Trees also help to protect the soil against erosion by wind in various areas especially in arid and semi-arid areas.

- ✓ Gabions and check dams are constructed across gullies to trap the soil particles but allow water to pass through. After sometime, the land is restored to its original state after the gullies are filled with trapped soil.
- ✓ If gullies are small, check dams made of brushwood or stones can be used to trap the soil. After the soil has been trapped, some vegetation such as grass or sisal can be planted in the gully.
- ✓ Farmers can also use trash lines in their farms which helps to reduce speed of run off and helps to trap soil particles especially in sheet erosion.
- ✓ Use of stone lines which helps to filter out soil particles to prevent it from being carried away.

Method of controlling soil erosion	Photograph	How the method helps to control
Grassed drainage channels		→ Grasses planted in the drainage channels helps to trap and filter soil particles and also reduce the speed of runoff hence reducing power of moving water which reduces erosion.
Planting cover crops		→ Cover crops helps to cover land which prevents it from being exposed to raindrops which cause splash erosion.

**Planting tree.
(Afforestation)
and
Reforestation**



- Trees help to cover the ground reducing raindrop/splash erosion.
- They also have roots which bind the soil particles together. This helps to prevent soil from being carried away easily.
- Afforestation means planting trees where they had not been planted at all.
- Reforestation means planting trees in area where they have been cut down.

**Use of mulches
or mulching
materials.**



- Mulches prevent splash erosion by protecting the soil against splash erosion.
- Mulches also reduce speed of runoff in the farm.

Building gabions.		→ Gabions are structures made of stones and wire mesh. They are placed across a gabion to help in trapping soil particles out of moving water that passes through them
Use of stone lines.		→ Stone line slows the flow of water across the farm, which reduces the speed of runoff.
Use of trash line		→ They are crop remains that help to trap soil particles when washed away.
Check dams		→ They are built across a channel to reduce the speed of water and allow soil particles to settle down.

Terraces		→ Reduces surface flow of water and carry excess water that cannot be absorbed by the soil preventing it from flowing in the farmland.
Bunds.		→ These are heaps of soil along the contour on which grass may be planted on top to control erosion.

Importance of Soil conservation in our environment.

- ✓ To save the soil by preventing soil erosion from taking place.
- ✓ To maintain soil fertility hence availability of fertile soil.
- ✓ To preserve the environment.

1.2 Water Conservation.

- ~ Water conservation can be done through practices such as mulching, shading and cover cropping.
- ~ Water conservation can also be done by preparing seedbeds that reduce loss of moisture.

○ Sunken beds.

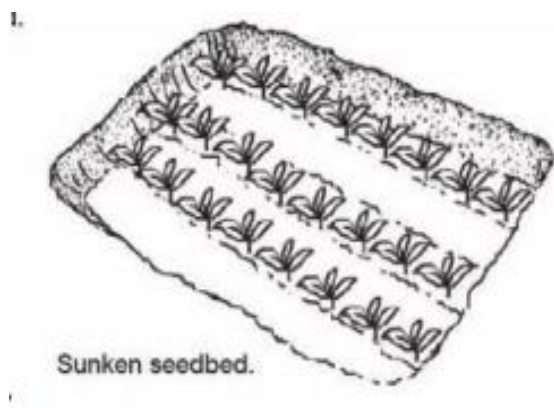
Preparation of a sunken bed.

Requirements.

- A tape measure.
- A panga or a slasher.
- A jembe.
- A shovel.
- A rake.
- Well decomposed manure or farmyard manure.

Procedure.

- Measure a plot of land such that it is 1 metre wide and any length that you may wish.
- Clear the vegetation on the measured plot.
- Dig out the top fertile soil and keep it aside.
- Dig out the subsoil and heap it on the edges to make an embankment or dyke.
- Mix the topsoil kept a side with some well rotten manure. For every one wheelbarrow of topsoil, add one wheelbarrow of manure.
- Return the mixture in the trench leaving a depression of about 10 centimetres.
- Water the seedbed to make the soil moist.
- The sunken bed is now ready to be used as a seedbed.



❖ NOTE

- ✓ Sunken beds can also be used as nursery bed to raise young vegetables seedlings before transplanting then to the seedbed.
- ✓ Several sunken beds can be made and a path of about 50cm wide left between adjacent beds for walking while taking care of your crops.

○ Shallow pits.

Preparation of shallow pits.

- Select a site in the school compound where you can prepare a shallow pit or zai pit.
- Dig a pit that is 60 centimetres long, 60 centimetres wide and 60 centimetre deep. Keep the topsoil aside and separate it from the subsoil.
- If you have enough space, you may dig several pits in a row. Ensure that you leave a space of about 60 centimetres between any two pits.
- Place light organic matter that can easily decompose at the bottom of each pit. Such materials may include dry grass and leaves collected in the school environment.
- Add a layer of topsoil mixed with well decomposed manure or other types of manure such as sheep manure, cattle manure and poultry manure. Do not return the subsoil into the pit.
- Leave a small depression of about 15cm to allow space for accumulation of water and to place mulching material.
- Where the land is slightly sloping, put the subsoil on the lower side to make a semicircle around the shallow pit. The soil will help to trap runoff and concentrate it into the shallow pit.

○ Importance of conserving moisture in a seedbed.

- Leads to better and more reliable crop yields.
- It saves money or reduces cost of farming.
- The water is used later during scarcity.

1.3-Conserving Wild animals: Using Physical Deterrents.

Wild animals can be kept off using smoke, noise, and certain smell substances.

The methods used to keep of wild animals should not kill or harm them because they are important natural resources in our environment.

Deterrents that can keep off crop and domestic animals.

A deterrent is a physical barriers or things that are made or constructed to discourage or keep off the animals from destroying crops and harming domestic animals.

They include:

- ✧ Meshed fences.
- ✧ Thorny fences.
- ✧ Use of safe traps.
- ✧ Use of innovative lights.
- ✧ Use of innovative sounds.
- ✧ Use of deflectors.

Use of fences to keep away wild animals.

- Fences are constructed to prevent wild animals and intruders from reaching livestock.
- Farmers can either plant crops which grow and become fences that protects livestock. Such kind of fences are called **live fences** because they involve growing plants.

- Fences also can be erected or constructed using materials such as metallic rods, barbed wires, concrete walls. These types of fences are called **dead fences**.
- Some farmers usually combine both live and dead fences to strengthen the fences for better security.

However, some live fences have advantages such as:

- They are cheap to establish.
- They provide shade and organic manure.
- They help in control of soil erosion.
- Some provide food to man and livestock such as fruits.

Live fences have disadvantages such as:

- ✓ They taking long to grow.
- ✓ They require maintenance like trimming and weeding.
- ✓ They can be home to dangerous pests.
- ✓ They can grow in a non-uniform manner which requires to do gapping.

Use of innovative light to control wild animals.

- Animals fear random sounds, deflecting lights and blinking or flashing lights.
- You can use the following materials to makes light scare animals away.

1. Snake light.	7. Hammer.
2. Rechargeable battery.	
3. Wires.	8. Nails.
4. Compact disk (CDs)	9. Saw.
5. Claw bar.	10.Panga.
6. Poles.	11.Garden Rope.

Importance of Deterrents in conserving wild animals.

- ☆ Wire mesh fences and thick bush fence help to keep some wild animals away from the crops and domestic animals.
- ☆ Safe traps can be used to trap some wild animals which should then be released back to the forest, game reserves or national park.
- ☆ Use of bulbs that flashes light in different colours can help to scare wild animals such as lions, leopards and elephants at night.
- ☆ During the day, birds can be kept away by hanging shiny, reflective CDs, DVDs, or reflective ribbons such as shiny party streamers near the garden. The light they reflect from the shiny surfaces of such objects distracts the vision of birds.
- ☆ You can also use scarecrows to scare birds away.
- ☆ Birds are also scared of sound that reflective ribbons make especially when it is windy.

These safe methods do not harm or kill the birds hence they are safe to use.



Topic 2

FOOD PRODUCTION PROCESSES

2.1 Rearing Small Domestic Animals.

Domestic animals are animals reared at home. They have various uses at home. They grow and some produce healthy products hence they need proper care and attention.

Identifying small domestic animals.

Small domestic animals kept include:

Rabbit



Chicken



Cat	
Dog	
Guinea pig	

- ⇒ Rearing small domestic animals requires small pieces of land compared to big domestic animals such as cattle, donkey and camels.
- ⇒ Small domestic animals can therefore be reared even in urban areas where space is limited.
- ⇒ In addition, small domestic animals multiply very fast hence provide a continuous source of income when they are sold.
- ⇒ They also require less labour to raise compared to the large domestic animals.

Routine practices in rearing of small domestic animals.

- The small domestic animals should be fed with adequate and nutritious feeds daily.

- They should also be provided with clean water to drink.
- Drinking equipment should be cleaned daily before putting fresh drink. This prevents contamination that can lead to diseases in animals.
- Places where animals stay should be cleaned regularly and disinfected to ensure they do not get parasites and diseases.
- The tools and equipment used in cleaning the animal houses and watering equipment should also be cleaned.
- To reduce overcrowding, the excess animals can be sold so as to earn some income. Some of the animals such as chicken and rabbits can also be eaten.
- If the animals get sick, they should be treated immediately by veterinarian or an animal health specialist.

Safe handling of small domestic animals.

Animals should be handled carefully when interacting with them in our surrounding.

Animals can be properly handled through:

- Proper vaccination.
- Practising good personal hygiene.
- Treat any illness signs.
- Approach the animals gently.

2.2 Preserving Crop Products: Fruits & Vegetables.

- ✧ A fruit is the sweet and fleshy product of a tree or plant that contains seeds and can be eaten as food.
- ✧ A vegetable is a plant or part of a plant that is fresh and is used as food, such as roots, stems or leaves.

Importance of preserving and storing fruits and vegetables.

- ✧ Fruits and vegetables are highly perishable. They go bad easily after a short period of time which leads to waste.
- ✧ It is important to preserve and store fruits and vegetable to increase their shelf life and ensure they are available when they are out of season.
- ✧ It is important to preserve fruits and vegetable because:
 - ☞ It makes them last longer.
 - ☞ It saves money.
 - ☞ It prevents them from getting spoilt.
 - ☞ It avoids wastage.
 - ☞ It makes seasonal fruits and vegetables available throughout the year.

Facilities used for preserving and storing fruits vegetables.

- ~ Fruits and vegetables lose texture and flavour and get spoilt within a short time, hence the need to preserve and store them appropriately.
- ~ Cool and dry conditions are the most ideal methods of preservation and storage of fruits and vegetables.
- ~ Use of appropriate preservation and storage facilities will help keep the fruits and vegetables fresh for longer.

Drying fruits and vegetables.

- ~ Sun drying is useful in preserving fruits and vegetables.
- ~ Apart from sun drying, fruits and vegetables can also be dried by use of machines known as dehydrators.
- ~ Removing water content from fruits and vegetables preserves them for longer compared to when they are fresh.
- ~ When sun drying both vegetables and fruits turning should be done to ensure uniform drying.

Hygiene practices to observe while preserving and storing fruits and vegetables.

Fruits can easily become contaminated with bacteria, viruses and pests at any point of handling.

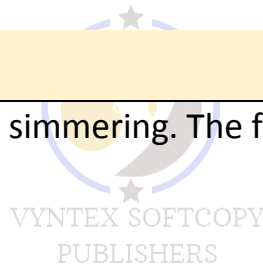
Always observe hygiene and safe while handling fruits and vegetables in order to avoid contamination which leads to food borne illness.

We should observe the following practices when preserving fruits and vegetables:

- ✓ Clean fruits and vegetables using clean water.
- ✓ Use clean storing equipment.
- ✓ Tightly cover the containers used to store dried fruits and vegetables to prevent dirt from entering.
- ✓ Wash your hands using soap and clean water before handling fruits and vegetables.

2.3 Stewing and Baking.

Stewing is a method of slow boiling or simmering. The food is served with the boiling liquid (stew).



Advantages of stewing.

- ☆ It is an easy method of cooking.
- ☆ This method requires little attention.
- ☆ Nutrients and flavour of food are preserved.
- ☆ Stewed food looks appetizing.

Requirements:

- ✕ Knife.
- ✕ Stew pot that has a lid.
- ✕ Cooking spoon.
- ✕ Plates.

- ✕ Cooking oil.
- ✕ Water holder.
- ✕ Source of heat.
- ✕ Beef.
- ✕ Tomatoes.
- ✕ Capsicum and salt.

Procedure:

- Clean the beef using clean water and cut into small pieces.
- Peel onions, clean them together with tomatoes and capsicum. Cut them into pieces.
- Put onions in sufuria, add a little oil, place sufuria on a source of heat.
- Fry the onion until golden brown.
- Add the meat to the onion and stir. Cover the sufuria and allow to cook under moderate heat for 15 – 20 minutes. stir occasionally to allow meat to cook evenly.
- Add the chopped tomatoes and capsicum to the meat.
- Cover sufuria. Let the tomato and capsicum cook until soft.
- Add water to be the same level with the meat. Cover the sufuria and leave to cook.
- Let the stew simmer for another 15 – 20 minutes.
- Add salt to taste 5 minutes before removing the stew from the heat source. This helps iodine in salt not to evaporate.
- Switch off the cooker. Serve the beef stew neatly on a clean plate with a starch and vegetable dish.

Improvising cooking equipment for stewing.

Improvising of cooking equipment needs one to be resourceful and creative on use of resources available in the locality at the time of cooking.

Serving stewed food.

- How food is served and presented improves the appearance and also enhances the appetite.
 - ✧ We should serve food on clean plates.
 - ✧ Serve food when it is hot. Hot food digests easily and tastes better.
 - ✧ Serve the right amount of food. Do not serve too little or too much.
 - ✧ Serve food neatly. While serving, avoid spilling food on the edges of the plate.
 - ✧ You can serve the food creatively to make it look appealing.
 - ✧ When the stew remains after serving, let it cool. Put it in a container, cover it and store it in a cool place.

Safety measures to practice when stewing food.

Observing safety when cooking foods helps to avoid accidents and injuries. Therefore, we are supposed to be careful and alert at all times when cooking.

- ✧ Hold sufuria using a holder.
- ✧ In case of fire, use damp towel or blanket or fire extinguishers to put it out.
- ✧ Do not leave that is cooking unattended.
- ✧ Switch off cooking equipment after use.
- ✧ Be careful when opening sufuria lids when cooking to avoid scalds.
- ✧ Wash your hands before cooking.
- ✧ Be careful when using knives.
- ✧ Cook in a well-lit and ventilated room.

Baking (rubbing in method)

Baking is a method of cooking food that uses dry heat, normally done in an oven.

Baking is appropriate for foods that have enough moisture such as potatoes and flour mixtures for cakes, bread and other food items

Foods that can be baked.

Baking as a method of cooking normally gives baked food items a characteristic flavour, aroma, texture and colour.

The followed type of food can be baked:

- ✧ Potatoes.
- ✧ Biscuits.
- ✧ Cakes.
- ✧ Breda.
- ✧ Cookies.
- ✧ Donuts.
- ✧ Pizza etc.



Equipment and material used for baking.

- Mixer.
- Spatula.
- Baking pans.
- Measuring jug.
- Mixing bowl.

STRAND 3 HYGIENE PRACTICES.

3.1 Body cleanliness.

Practices that enhance body cleanliness as habits.

- ☞ Managing sweat by cleaning yourself and change clothes in required time.
- ☞ frequent handwashing, facial cleanliness, and bathing with soap and water.
- ☞ Regular bathing and cleaning of cloths during menstruation periods.
- ☞ Brush teeth twice a day and after meals.
- ☞ Cleaning your bedding regularly.
- ☞ Trim your nails and wash your hair to keep it clean.

Importance of body cleanliness as a healthy habit.

- ✓ It stops spread of germs and getting sick.
- ✓ Body cleanliness ensure you remain smart and presentable.
- ✓ Prevents illness.



3.2 Laundry: stain removal.

Common stains on clothing and household items articles.

Laundry work is the process of removing dirt and strains from clothes in order to maintain their appearance.

It involves mending, washing, rinsing, drying, ironing, airing and storing clothes.

Strain removal.

Stain removal involves removing stubborn discolourisation from clothes.

A stain is a dirty mark on a cloth that cannot be removed easily by washing normally

Common stains on clothing and household articles include:

- ✧ Blood stains.
- ✧ Grass stains.
- ✧ Grease or oil stains.
- ✧ Stains from food materials such as coffee, chocolate.
- ✧ Chewing gum

Different ways of removing stains.

Use of disinfectants.

Washing with soap.

Using methylated spirit.

Boiling.

Sun drying.



STRAND 4-PRODUCTION TECHNIQUES.

4.1 Crocheting on PPEs

- ✧ Crocheting is the process of creating fabric by interlocking loops of yarn, thread or strands of other materials using a crocheting hook.

Tools and materials used in crocheting.

- ✧ It is important to select the right crocheting tools and materials to achieve intended results or outcome.
- ✧ The basic tools and materials used in crocheting are:
 - ☆ Crocheting hook.
 - ☆ Yarn (come in various sizes.)
 - ☆ Tape measure.
 - ☆ A pair of scissors.



 crocheting hook.	 Yarn.
 Tape measure	 Pair of scissors

Basic Crocheting Stitches.

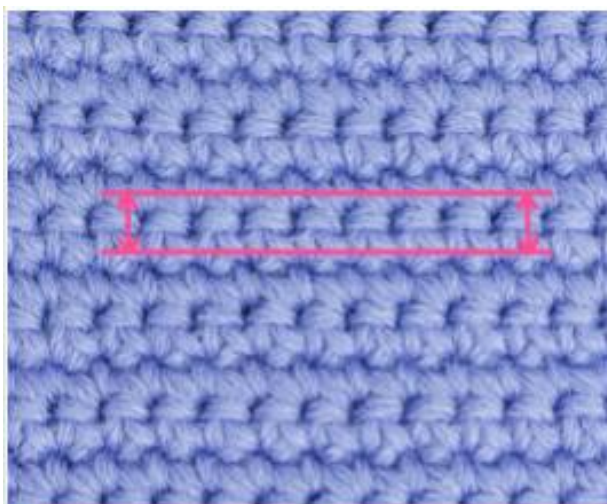
There are various crocheting stitches.

Each stitch produces a different pattern.

The basic crocheting stitch includes:

- ☞ **Single crochet.**
- ☞ **Double crotchet.**

Single stich crocheting



The length between one single crochet and the next is shorter.

Double stitch crocheting



The length between one double stitch to the next is longer.

Safety precautions to observe when crocheting.

We should observe safety precautions when crocheting so as to avoid injuries.

The following safety precautions cab be observed:

- ☞ Use suitable chair and desk or table for comfort. This will prevent back and neck pain.
- ☞ Work in a well-lit room to avoid eye strain.
- ☞ When cutting using a pair of scissors, keep your fingers away from the blades.
- ☞ Ensure there is enough space around you as you crochet to avoid injuring others.
- ☞ Store scissors and crocheting hook properly after use.

Caring for and storing crocheting tools and materials.

We should take care for and store properly crocheting tools and materials so as to prevent them from:

- ↗ Rusting.
- ↗ Getting lost.
- ↗ Getting damaged.
- ↗ Causing injury to people.

We can care and store crocheting tools and materials in the following ways:

Scissors-should be stored in a scissors case.

Crocheting hooks- to be stored in a crochet bag.

Crocheting yarn-wind neatly after and store in materials bag.



4.2 Constructing Moist Bed Gardens.

Moisture Bed Gardening.

VYNTEX SOFTCOPY
PUBLISHERS

A sunken moisture bed is an improvement of the ordinary sunken bed whose walls are lined with polythene sheet and the soil is wetted.



Sunken moisture beds

How to prepare a sunken moisture bed.

- i. Select a suitable site.
- ii. Using a tape measure, mark a plot of land such that the width is 1 metre wide and any desired length.
- iii. Mark the corners of the land by fixing short wooden pegs using a hummer or a mallet.
- iv. Using a jembe or a fork jembe and spade, dig a trench within the outlined area. Remove top 40cm layer of topsoil and keep it aside. Remove the next 20cm layer of subsoil and discard it.
- v. Lay a thick polythene sheet on the floor and walls of the trench.
- vi. Using a manure fork, mix the top soil kept aside with well decomposed manure such as compost manure. For every 2 wheelbarrows of soil, add one wheelbarrow of manure.
- vii. Return the mixture of soil and manure in the trench and leave a depression of about 10cm.
- viii. Water the seedbed until it is thoroughly wetted. Alternatively, allow rainwater to accumulate in the seedbed. That is what is called a moisture bed or moist bed.
- ix. The sunken moisture bed is now ready for planting arrowroots or other suitable crops.

Raised moisture beds.



How to prepare a Raised moisture bed.

Requirements.

- ✧ Top soil.
- ✧ Compost manure or farmyard manure.
- ✧ Dry grass.
- ✧ Kitchen waste.
- ✧ Hardcore or gravel.
- ✧ A fork jembe.
- ✧ Wooden pegs.
- ✧ Ten 90 cm long fitos (stake)
- ✧ A panga.
- ✧ A claw hammer.
- ✧ A thick polythene sheet.

- ⇒ Select a suitable site for your garden and clear any vegetation on it. The site should be away from shade.
- ⇒ Measure land on the ground so that it is 1m wide and any desired length.
- ⇒ Fix 90 cm long wooden stakes about 30cm below the ground along the edges of the marked area. Ensure all the stakes are on the same depth and that they are at the same height above the ground to ensure a uniform seedbed. The stakes will create a framework or structure for holding the raised seedbed.
- ⇒ Inside the framework created by the stakes, lay a thick polythene sheet on the ground and on the sides of the structure. Ensure the polythene sheet is secured firmly onto the stakes using pieces of binding wire or strings.
- ⇒ Lay a 30cm layer of hardcore or gravel carefully at the bottom. Start with large stones followed by a thin layer of small stones. Ensure that the hardcore does not tear the polythene sheet.
- ⇒ Place a 10cm layer of dry grass or kitchen waste such as fruit and vegetable peels on top of the hardcore. This layer will hold the soil and prevent it from sinking in the spaces between the hardcore.
- ⇒ Add a 20cm layer of topsoil mixed with compost manure. For 1 wheelbarrow of topsoil, add 1 wheelbarrow of manure. Ensure the mixture of soil and well rotten manure is uniformly spread.

⇒ Tour raised moisture seedbed is now ready for crop establishment.

Importance of Moisture bed cropping.

- It is possible to produce crops throughout the year.
- Soil is well enriched with organic manure and this improves its water retention ability.
- Many crop plants can be planted on a small area leading to high yields.
- It is possible to grow certain crops which would not normally do well in a given environment due to shortage of water.

