YARDO-SL

IKI INTERNATIONAL CLIMATE INITIATIVE

LIVELIHOOD SKILL TRAINING MANUAL

A Step by Step Guide

This training manual is aimed at assisting women in forest edged communities to transition from environmentally-damaging economic activities to environmentally-friendly and sustainable livelihood practices.

TABLE OF CONTENT

ABOUT THIS TRAINING MANUAL

Youth Action for Relentless Development Organization Sierra Leone (YARDO-SL) was established in 2014 as a youth led environmental focused NGO working across all the various regions in Sierra Leone.

In 2023, YARDO-SL was a recipient of the IKI Small Grants through GIZ to fund the project titled: *Strengthening Youths and Women's Action for the Sustainable Protection of the Guma Water Catchments*.

As a key component of the project, this training manual was developed to help train 50 women beneficiaries on alternative livelihood. It is hope that the training will help to empower community women to transition from forest damaging economic activities (such as charcoal production, quarry etc.) to a more economically and environmentally sustainable livelihood practice.

The training is broadly focused on four (4) livelihood skills:

- Vegetable Production
- Gara Tie Dying
- Soap Making
- Tailoring

While the training manual is very comprehensive, and made easier to understand (with photographs, list of needed items, etc.), it is good to note that the training manual is in Introductory Level. For best user experience, a trainer using this manual as guide must have a practical knowledge of the skill they intended to facilitate training on. Also, it is advised that a trainer make good use of time, use local dialect to explain and enforces safety standards for the trainees.

We wish to extend our outmost gratitude to our implementing partners; the National Protected Area Authority (NPAA) and the National Water Resource Management Agency (NWRMA) for their immense contribution in consultation for the development of this training manual. Finally, very special thank you to Abdul Q Turay for working together with the YARDO-SL Team (myself, Alpha Dumbuya, and David Moiba) to develop this manual.

A day at a time, we are working to protect our environment whilst creating sustainable livelihoods for communities,

Ahmid C Jalloh

Executive Director

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MODULE 1

VEGETABLE PRODUCTION

Definition

A Vegetable can be defined as a plant or part of a plant used as food, such as a tomato, potato, maize or bean.

Learning Objectives

By end of this training, it is hoped that the trainee will be equipped with the practical skill to grow vegetables for commercial purposes

Required Equipment:

Flip chart/TV screen, and planting tools, seeds etc.

Use and Health Benefits:

Vegetable are very delicious food supplement, eaten raw or cooked for Following purposes:

- Fight inflammation. ...
- Improve blood pressure. ...
- Up your fiber. ...
- Help your eyes. ...
- Improve your skin. ...
- Reduce risk of heart disease. ...
- Benefit for blood sugar. ...
- Reduce risk of cancer.

Types of Vegetables

There are many types of vegetables, but the list below is the most common:

- leafy green – lettuce, spinach and silverbeet.
- cruciferous – cabbage, cauliflower, Brussels sprouts and broccoli.
- marrow – pumpkin, cucumber and zucchini.
- root – potato, sweet potato and yam.
- edible plant stem – celery and asparagus.
- allium – onion, garlic and shallot.

TEN (10) STEPS TO MAKING A FRUITFUL VEGETABLE GARDEN

1. Choose locally adapted varieties. Not all vegetable varieties grow well in all areas. Ask your local nursery or cooperative extension office which varieties are best for where you live. There may be varieties that resist diseases specific to your area, or that produce better crops under your climate conditions.

2. Plant at the right time of year. Seed packets generally state the proper time to plant. However, ensure the vegetables have good access to sunlight for maximum growth. Your local cooperative or extension officer is the best source for local planting dates.

3. Prepare the soil properly before planting. Work in generous amounts of organic matter such as compost or composted manure. If you don't use composted manure, which already contains nitrogen, also work in a complete fertilizer.

4. Plant properly. Sow seed at the proper depth and space, following directions on seed packets. Vegetables planted too closely together will produce poorly. If you're planting transplants, take care not to set them too deeply or the stems may rot – use your trowel to dig a hole just deep enough so that the top of the root ball is level with the surface of the ground.

5. Water consistently. Maintain even soil moisture so plants do not dry out, but don't over-water. Water deeply, then give the soil time to dry partially before watering again. Inconsistent watering will reduce yields in most vegetables, and make others – like cucumbers and lettuce – taste bitter. Installing a drip irrigation system connected to an automatic timer is your best bet. Otherwise make the garden close to a water source!

6. Fertilize regularly. Maintaining vigorous growth is very important with almost all vegetables. Most should be fed with a nitrogen fertilizer at least every 4 to 6 weeks. However, be careful not to over-fertilize, which can cause some vegetables, especially tomatoes, to produce less.

7. Mulch. A 2- to 3-inch layer of organic matter applied over the roots of your vegetable plants will cool the soil, reduce weeds, and help prevent soil moisture fluctuations that ruin quality.

8. Eliminate weeds. Weeds compete with vegetables for water, nutrients and sunlight, thus reducing yields. Pull weeds by hand and cultivate the soil frequently to keep them to a minimum.

9. Harvest often. Many vegetables, especially beans, squash, peppers and cucumbers, will stop producing if not harvested frequently. Pick every few days. If you can't eat all you gather, share with friends or neighbors.

10. Control insect pests. Many insects enjoy fresh vegetables as much as you do. Always keep an eye open for insect damage, and protect your plants with a solution labeled for use on vegetables.

And finally, **protect your garden by fencing** to keep animals away.

COMMON VEGETABLES IN SIERRA LEONE

Features	Maize	Potato	Cabbage
1. Climatic Requirement A. Soil	Well drained loamy soil with a pH of 5-7	Loamy and sandy loam soils, rich in organic matter with good drainage and aeration. pH of 5.2-6.4	well-drained yet moisture-retentive, fertile soil with a pH of 6 to 7
B. Temperature	Warm temperature 15-30 degree	15-25 degrees	15-25 degrees
C. Rainfall	Medium/high. 700-2500mm	High Above 1500mm	Medium 500-1000mm
2. Planting Time And life span	Start of raining season (May) Depends on variety (3-6 months)	January-March Depends on variety (3-4 months)	February-April Depends on variety (3-4 months)
3. Required Spacing	75x30cm	8x15cm	12x2 feet
4. Common Pests	Stalk Borer Cutworms African bollworm Use pesticides	black and yellow-striped "potato bug use pesticides	Diamondback moth. Cabbage head borer. Cabbage leaf webber. Cabbage aphid Use pesticides

Tools for Vegetable Gardening

Shovel, Seed tray

Hoe, Watering can

Cutlass, Hand gloves

Rake etc.

REFERENCES FOR FURTHER READING

https://extension.umn.edu/news/factors-consider-ensure-good-vegetable-stand-establish

GARA TIE DYING

Tie-dyed gara made from brillion (damask) cloth tied in the cow yaie (cow's eye) pattern and immersed in indigo gara dye. Gara is the generic name given in Sierra Leone to fabrics produced by the techniques of wax-resist block-stamping and tie-dyeing.

Get ready a mixture of Hot water, Color, Hydrosulphite, and Caustic soda for tie and dye!

EIGHT (8) STEPS IN COMPLETE A GARA TIE DYE

Step 1 Gather the Materials

- 100% Cotton Polo, Tshirt etc
- Soda Ash
- Rubber bands
- Rack (to dye on)
- Plastic bin (to catch the dye)
- Fiber reactive dye
- Zip ties
- Ziploc bags
- Sharpie marker
- Rubber bowl
- Water etc.

Step 2 Prepare the T-shirt

When beginning the tie-dye process, it's best to start with a freshly laundered garment to remove any oils and adhesive residue. If dying with a lot of students, make sure students write their name on the tag or collar with a Sharpie marker. It's very important that your garment is the right material. Using a 100% cotton material is best, but other fabrics, like rayon, will work as well. Any material containing polyester will not yield desired results. Before any tying can occur, the shirt must be damp. This can be done by simply filling up a sink with water and having students submerge the shirts. Have students ring out their shirt before tying

Step 3 Tie the T-shirt

If you or your students are new to tie-dye, it's best to keep it simple. I like to give my beginning students two design options. This allows for choice without overloading them with information.

Spiral Tie Dye Pattern-

To achieve the spiral pattern, simply start by pinching your thumb and index fingers on the shirt and twisting. Twist until the folds in the shirt form a circle. Use rubber bands to hold the design in place. Make sure your rubber bands are not too tight. If the circle becomes too taut and the folds become

uneven, the results may not be as expected. Another option, when working with older students, is to use twine to hold the design in place.

V-Shape Accordion Tie Dye

The V-shape fold design is one of my favorites, and students love it too! When my students see this design they think it is going to be very complicated, but it really isn't. I always reassure my students by telling them if they can make a paper fan they can easily achieve this design. To begin this design, start by folding the shirt in half. Using a washable marker, pencil, or piece of chalk draw a diagonal line from the top of the shirt to the fold. Create accordion folds on the line, doing your best to keep the line straight as it will result in a more defined v-pattern. When folds are completed it is very important to not lift up the shirt. I've found that using rubber bands to hold this design is challenging for my students. Instead, we use zip ties which don't disrupt the pattern and hold everything in place!

Step 4: Soak Shirt in Soda Ash

Before you apply the dye, take the tied shirt and soak it in soda ash for 5-15 minutes. Use one cup of soda ash per gallon of warm water. This mixture can be reused multiple times, but it is very important to wear gloves as soda ash can irritate the skin. This is a crucial step in the dying process as the soda ash changes the pH of the dye and allows it to react with the garment fibers. This allows the garment to have more brilliant colors.

Step 5: Apply the Dye

When tie-dying with students, I recommend using a fiber reactive dye like Procion dye or even a tie-dye kit found at a craft supply store. Although using an all-purpose dye like Rit may be cost effective, the results will not nearly be the same.

Step 6: Let the Shirt Sit

Before placing the shirt into a plastic bag, let any remaining dye drip from the rack. Once the dye is done dripping, place the shirt in the bag and let sit for at least 24 hours. The longer you let it sit, the brighter the colors will be. However, I would not recommend letting it sit for longer than 2-3 days

Step 7: Rinse and Wash

Before washing the shirts in the washing machine, rinse them out. I typically take them outside and hose them off with the rubber bands or zip ties on first. Then, cut the bands and ties and hose them off again. Placing no more than 10 shirts at a time in the washing machine, begin washing them in

hot water. Regular detergent can be used, but for best results I recommend using a synthrapol detergent. Once washed, shirts can be dried and worn!

Step 8. Wear and Enjoy

When all of these steps are completed, your students will have some beautiful, wearable pieces of art!

The tie-dye process does take some planning and can be a mess, but when done correctly it will be a process your students will never forget! They'll be proud of their success. As they wear their tie-dyed shirt to school, they become a walking piece of art!

REFERENCE FOR FURTHER READINGS

https://theartofeducation.edu/2016/06/step-step-guide-tie-dye-classroom/

MODULE 3

SOAP MAKING

WHAT YOU WILL NEED

There are a few essential things you'll need in order to embark on your first hot processing journey. For this training, we will be covering hot process soap made in a crock pot. You'll need the following equipment:

- A crock pot
- A plastic, glass or stainless steel container to measure odium hydroxide or caustic soda (do not use aluminum or tin: the lye will react negatively with it)
- A heavy duty plastic, glass or stainless steel container for mixing the sodium hydroxide or caustic soda and water
- A scale (a kitchen scale or postage scale will work nicely)
- Spatulas (wooden or silicone/rubber)
- A stick blender (a stainless steel shaft will make for easy cleanup)
- Safety goggles
- An apron
- Gloves
- A well ventilated work space
- Water
- Sodium hydroxide or caustic soda
- Palm oil

STEPS BY STEPS PROCESS OF SOAP MAKING

Step 1: Measure and prepare

Measuring your ingredients and preparing your mold first will drastically streamline your hot process soap-making experience.

Measure your oils (both solid and liquid, but keep them separate for now), caustic soda, water, fragrance and colorants. Prepare your mold.

Step 2: Melt your oils

Now that you've got everything all measured and prepared, set your crockpot on low and add your solid oils. Once added, they will take a bit to melt; while you're waiting, move on to Step 3 to mix your caustic soda water.

Step 3: Mix up your caustic soda solution

This can be the most intimidating step for new soap-makers. When handled properly, caustic soda is perfectly safe. With your apron, goggles and gloves firmly in place, mix your caustic soda into your water; never, ever pour your water into your caustic soda: this may cause a negative and dangerous reaction. Stir the water with your chosen wood or silicone spatula as you are sprinkling the caustic soda in to keep it well mixed. Stir slowly, being careful not to splash, until the caustic soda is fully dissolved. Note that it will get hot - this is the chemical reaction taking place. You will also notice that combining the caustic soda and water will produce fumes; this is perfectly normal. Do your best not to breathe in these fumes.

Step 4: Combine melted and liquid oils

Once you have mixed your caustic soda solution, check on your oils. If the solid oils/fats are melted and if you have recipe also calls for liquid oils you can add the liquid oils to the crock pot.

Make sure your oils are melted completely before continuing.

When all your oils are liquified and heated to around 120-130 degrees, then you can add your caustic soda solutions. Your oils should not be over 180 degrees when adding the caustic soda water, or a negative reaction may occur.

Step 5: Time to Make the Soap!

Alright! You've checked your oils and they are at a balmy 120-130ºF, and your caustic soda water has cooled for about 15-20 minutes. Time to combine the two and make beautiful, beautiful soap!

Since your lye solution is caustic, you want to make sure that you don't spatter or splash when mixing the caustic soda solution into the oils.

TIP: Lay your stick blender on the side of the crock pot. Slowly and gently pour the caustic soda down the shaft into the oils. By using the shaft of the stick blender as a means of diffusing the lye solution, you will drastically reduce the risk of being splashed.

Lay your blender against the side of your crock pot; slowly pouring the caustic soda water down the shaft will help to prevent splashing.

Once you have poured in all of your caustic soda, stir for a few moments with the bell of your stick blender to begin incorporating the lye water into your oils. Then, pulse your stick blender on low and slowly circle around the pot, keeping the bell of the blender immersed in the batter; this will help to eliminate air bubbles.

Periodically, hold your stick blender upright and while the bell is seated flat on the bottom of the crock pot, tap it up and down to get rid of unwanted bubbles.

Stir, stir, stir! Alternate between pulsing your stick blender and using it to stir for about 10-15 minutes to emulsify your mixture, and reach what is called trace. You'll know you've reached trace when you pull your stick blender out of the batter between pulses, and ridges of liquid are visible on top of the mixture (see below).

The trails in the soap indicate that trace has been reached.

Step 4: Cook it!

During the cook process your soap is going to change form quite a bit. You may notice that the edges start to bubble; this is normal. Once the bubbles rise, you can do one of two things; either you can stir it down gently (recommended if it starts to bubble a lot) or you can leave it to cook. Be sure to scrape the sides of your crock pot while the soap is still in the cook process; if you scrape down while it's hot, you'll cut down on the amount of dried soap on the sides before you mold.

After awhile, your mix will start to look like Vaseline; it will have a glossy, almost iridescent appearance and will be wax-like to the touch. Depending on your recipe, this can take anywhere from a half hour to an hour. Once you've reached this consistency, it's time for the next step.

Step 5: Craft your masterpiece

Now that your soap has cooked, turn off the heat in your crock pot. If you are adding fragrance, let the batter to cool for a bit first. Adding fragrance at very high temperatures may cause some of the fragrance to dissipate, leaving you with a faintly scented product. Adding the fragrance under 180ºF will help to keep it in your soap instead of in the air around you. You can also add your colorants at this point. If this is your first time making hot process soap, I would recommend using one color and fragrance until you get use to how the soap behaves when it is cooling.

You've scented, you've colored; now it's time to mold! Grab your prepared mold and plop your soap batter in; you can use your spatula to smooth it out, but try to work quickly. If your batter cools down too much, it will be difficult to work with. Once you've filled your mold, pick it up and tap it a few times on your workspace counter surface to help work out any air bubbles. If you are using any decorations like lavender buds or glitter on the top, add it now! Decorations will be much easier to place and will stay on better if your soap is still nice and warm when they are added.

Measurements should be demonstrated by the facilitator

REFERENCES

https://www.soapguild.org/tools-and-resources/resource-center/71/hot-process-soap-beginners/

MODULE 4

TAILORING

Definition

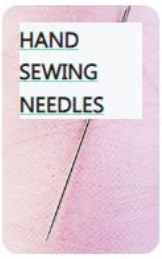
Tailoring is the art of designing, cutting, fitting, and finishing clothes. The word tailor comes from the French tailler, to cut, and appears in the English language during the fourteenth century.

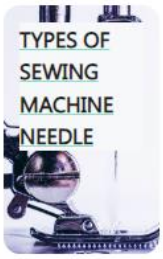
There are different types of tailoring, including bespoke tailoring, made-to-measure tailoring, and ready-to-wear. Bespoke tailoring is the most costly in both time and money. It involves creating a garment from scratch to fit an individual's exact measurements.

Sewing on the other hand, is the craft of fastening or attaching objects using stitches made with a sewing needle and thread. Sewing is one of the oldest of the textile arts, arising in the Paleolithic era.

Hand stitching, machine sewing, serging, and overlocking are the four primary forms of sewing. The most fundamental sort of sewing is hand sewing, which is accomplished with a needle and thread. It is frequently employed for little tasks like buttoning clothing or making repairs.

TOOLS FOR SEWING



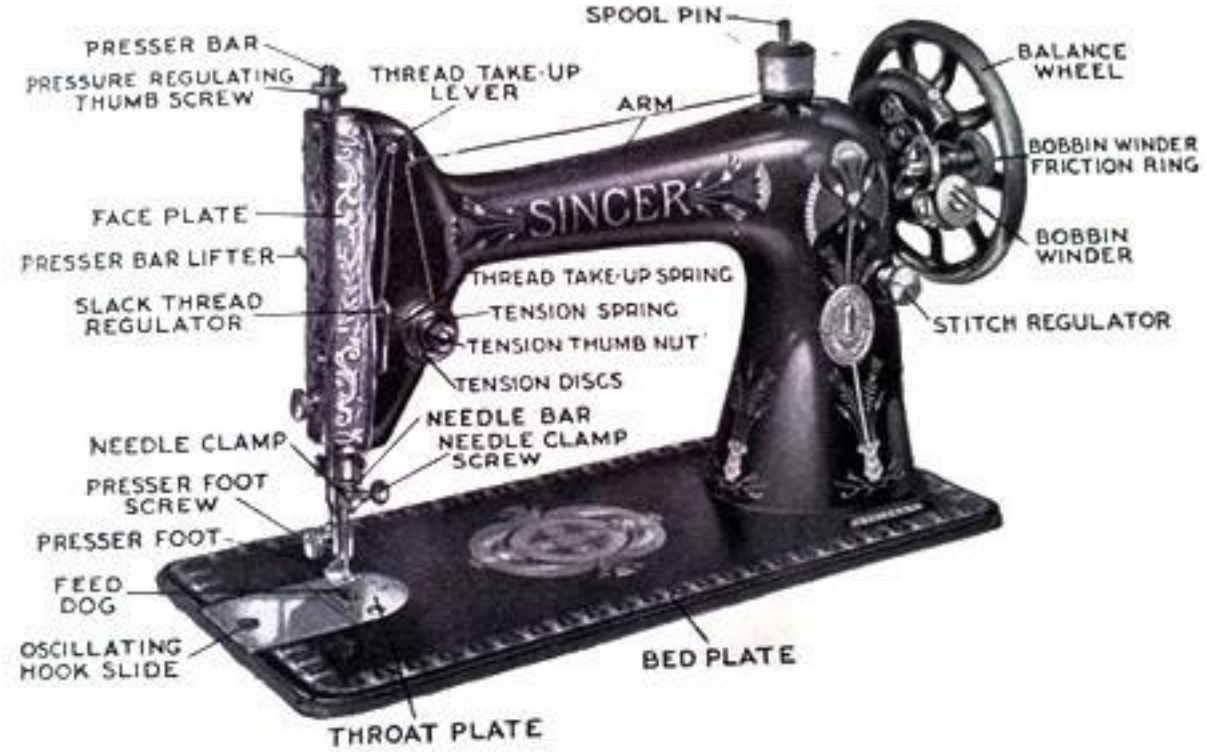


There are five different classifications of sewing equipment: Measuring, Cutting, Marking, Stitching And Pressing.

FACTORS TO CONSIDER BEFORE STARTING SEWING

1. Ensure the machine works well
2. Get all equipment ready
3. Choose fabric to work on
4. Decide on the style you wish to design
5. Get the size measurement accurate
6. If possible, have a sketch or drawing of the style
7. Cut accordingly

PARTS OF A SEWING MACHINE



The facilitator should point out each part; name them and list their function

TYPES OF SEWING MACHINES

There are 3 main types of sewing machines:

Mechanical/Domestic Sewing Machines (most common in Sierra Leone)

Electronic Sewing Machine.

Computerised Sewing Machines

CUTTING

Fabric cutting is the first phase in the garment production process; it is the process of breaking a spread into garment sections that are the exact size and shape of the pattern pieces on a marker.

Cutting can be broadly divided into two methods: 1. rolling, where the workpiece is restrained while the tools turn, and 2. turning, where the workpiece is turned instead.

In the garments industry, there are 3 available cutting methods:

1. Manual Fabric Cutting Method. Hand scissors are used for cutting fabric plies manually. ...
2. Semi - Automatic Cutting. 2.1 Straight knife of Cutting Machine. ...
3. Fully automatic cutting machine method

SEWING

6 Basic Steps of Sewing

1. Decide, What You Want To Make #1

- Going through some pictures in fashion magazines or may be online,
- Your favorite ready to wear dress you bought for special occasion and you desperately wish a similar dress, or
- May be your own creative sketches, your imagination on paper and your fusion styles.

2. Check Your Measurements #2

  - Use the hard chip side of measuring tape for lengthwise & 1/2" wide metal side of measuring tape for width wise (wrapping) measurements.
  - Follow Top to Bottom measuring step wise. That means start taking measurements lengthwise starting from top and coming down to crosswise bottom.

Suppose – You are making a Top. Then start with Full Length of the top.

Likewise, if you are making a skirt then start measuring from waist till required length.

- Preferably measure standing in front of a mirror
- Take help from somebody (optional)
- If in doubt, double check by measuring again.
- If still in doubt, measure your well fitted dress.

This Ready to Use Chart for Armhole and Sleeve Cutting is for everyone, who wants a ready guide while cutting a dress for anybody.

This Ready to Use Chart for Body Measurement includes Standard Measurement Chart, Sewing Pattern Formulas, and Division Charts also

3. Use Sewing Patterns #3

- You may use ready-made patterns if available. Follow the instructions given on the pattern.
- Or, make your drafting on paper or you may mark directly on fabric.
- For simple dresses, it's okay to mark directly on fabric but for complex and elaborate designs it's always advisable to make a paper pattern yourself.
- Making a pattern or drafting is simple just you have to keep some standard steps in check.

4. Mark Directly On Fabric #4
Mark on the fabric.
Make notches.
Use tracing wheel to get marks on the bottom layer of the fabric.
Leave 1/2" to 2" margins on the sides.
1" to 2.5" for fold at the bottom depending on machine stitch or hem. Machine stitch required less fold and for hemming you may need 2 to 2.5" for fold.

5. Sewing, Designing and Decorating with Trimmings #5

- Get your sewing machine well oiled, in good working condition.
- Keep your scissors, chalk, pins, thread pools and other required items near your right hand side so you are not distracted for lack of things.
- Hang the measuring tape on your neck to make it handy and keep measuring your dress at every stage, if in doubt. It'll save you precious time later in alterations.
- Use all pins or basting stitch to keep parts together, at least in the beginning phase of your stitching ventures.
- Beautify with buttons,laces,studs,ribbons etc.(Using zippers, laces etc.is intertwined with stitching process most of the times).

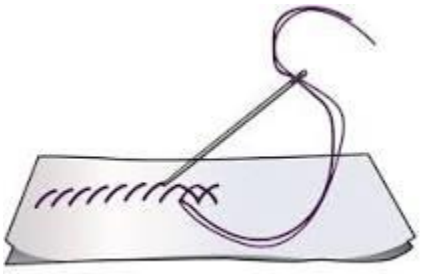
6. Finishing the Dress #6

Give your dress final pampering by over locking, ironing/pressing, dry cleaning (if required) etc.

Dress making is easy. Just like anything else we have to keep a few steps in mind and follow through. We can bend the rules as we wish but the blueprint of principles does not change.

Stitches

- Cross-stitch. Commonly used for decorative purposes, the cross-stitch is X-shaped and arrayed like tiles.
- Whipstitch. The thread spirals around the edge of one or both pieces of fabric. ...
- Running stitch. ...
- Ladder stitch. ...
- Backstitch



Trainees must continue the training beyond the project scope to master the sewing art properly

REFERENCES

https://sewguide.com/learn-to-sew-beginners/

https://www.thecreativecurator.com/how-to-sew-clothes-sewing-guide/

https://stitchingmall.com/what-are-the-basic-steps-of-sewing/

THANK YOU