Hand Embroiderer

(Job Role)

Qualification Pack: Ref. Id. AMH/Q1001
Sector: Apparel, Made-ups and Home Furnishing

Textbook for Class IX

विद्यया ऽमृतमश्नुते
एन सी ई आर टी
NCERT
राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
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Foreword

The National Curriculum Framework–2005 (NCF–2005) recommends bringing work and education into the domain of the curricular, infusing it in all areas of learning while giving it an identity of its own at relevant stages. It explains that work transforms knowledge into experience and generates important personal and social values such as self-reliance, creativity and cooperation. Through work one learns to find one's place in the society. It is an educational activity with an inherent potential for inclusion. Therefore, an experience of involvement in productive work in an educational setting should make one appreciate the worth of social life and what is valued and appreciated in society. Work involves interaction with material or other people (mostly both), thus creating a deeper comprehension and increased practical knowledge of natural substances and social relationships.

Through work and education, school knowledge can be easily linked to learners' life outside the school. This also makes a departure from the legacy of bookish learning and bridges the gap between the school, home, community and the workplace. The NCF–2005 also emphasises on Vocational Education and Training (VET) for all those children who wish to acquire additional skills and/or seek livelihood through vocational education after either discontinuing or completing their school education. VET is expected to provide a 'preferred and dignified' choice rather than a terminal or 'last-resort' option.

As a follow-up of this, NCERT has attempted to infuse work across the subject areas and also contributed in the development of the National Skill Qualification Framework (NSQF) for the country, which was notified on 27 December 2013. It is a quality assurance framework that organises all qualifications according to levels of knowledge, skills and attitude. These levels, graded from one to ten, are defined in terms of learning outcomes, which the learner must possess regardless of whether they are obtained through formal, non-formal or informal learning. The NSQF sets

common principles and guidelines for a nationally recognised qualification system covering Schools, Vocational Education and Training Institutions, Technical Education Institutions, Colleges and Universities.

It is under this backdrop that Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), Bhopal, a constituent of NCERT has developed learning outcomes based modular curricula for the vocational subjects from Classes IX to XII. This has been developed under the Centrally Sponsored Scheme of Vocationalisation of Secondary and Higher Secondary Education of the Ministry of Human Resource Development.

This textbook has been developed as per the learning outcomes based curriculum, keeping in view the National Occupational Standards (NOSs) for the job role and to promote experiential learning related to the vocation. This will enable the students to acquire necessary skills, knowledge and attitude.

I acknowledge the contribution of the development team, reviewers and all the institutions and organisations, which have supported in the development of this textbook.

NCERT would welcome suggestions from students, teachers and parents, which would help us to further improve the quality of the material in subsequent editions.

Hrushikesh Senapaty
Director
National Council of Educational
Research and Training

New Delhi
July 2018

About the Textbook

Apparel, Made-ups and Home Furnishing sector is amongst the fastest growing sectors in our country. It covers a great number of activities from the transformation of raw material into fibres, yarns and fabrics to produce end products. This sector includes activities related to designing, making, cutting, stitching, finishing and decoration of apparel, made-ups and home furnishing items. It also includes assessing their quality, merchandising and export. A very important area of this sector is hand embroidery. It is famously recognised as the needle art of fabric decoration for apparels, home furnishing and other items of utility. Hand embroidery is considered as one of the most popular techniques to decorate apparel and other items. Hence, there is huge demand of trained personnel of hand embroidery.

The student textbook for the job role of Hand Embroiderer has been developed to impart knowledge and skills through hands-on-learning experience, which forms a part of the experiential learning. Experiential learning focusses on the learning process for the individual. Therefore, the learning activities are student-centred rather than teacher-centred.

The student textbook has been developed with the contribution of the expertise from the subject and industry experts and academicians for making it a useful and inspiring teaching-learning resource material for the students of vocational education. Adequate care has been taken to align the content of the textbook with the National Occupational Standards (NOSs) for the job role so that the students acquire necessary knowledge and skills as per the performance criteria mentioned in the respective NOSs of the Qualification Pack (QP). The textbook has been reviewed by experts so as to make sure that the content is not only aligned with the NOSs, but is also of good quality.

The NOSs for the job role of Hand Embroiderer covered through this textbook are as follows:

1. AMH/N 1001 Carry out different types of embroidery stitches—flat, loop and knotted stitches
2. AMH/N 1002 Embroider decorative designs using a combination of stitches and work styles
3. AMH/N 1003 Contribute to achieve quality in embroidery work
4. AMH/N 1004 Maintaining work premises and tools
5. AMH/N 0103 Maintain health safety and security at workplace

Unit 1 of this textbook explains the basics of hand embroidery, including common embroidery related terms, designs and tracing methods. Unit 2 emphasises the tools and materials used for embroidery and different embroidery stitches to embroider. Unit 3 emphasises the defects of embroidery and its remedies. Unit 4 will help the student learn about organisational rules and personal hygiene. Unit 5 deals with the organisational hazards, safety measures, cleaning and maintenance at workplace. A compilation of suggested stitches in floral and geometrical designs is also given at the end of the book for the purpose of reference, for students.

I hope this textbook will be useful for students and teachers who will opt for this job role. I shall be grateful to receive suggestions and observations from readers which would help in bringing out a revised and improved version of this textbook.

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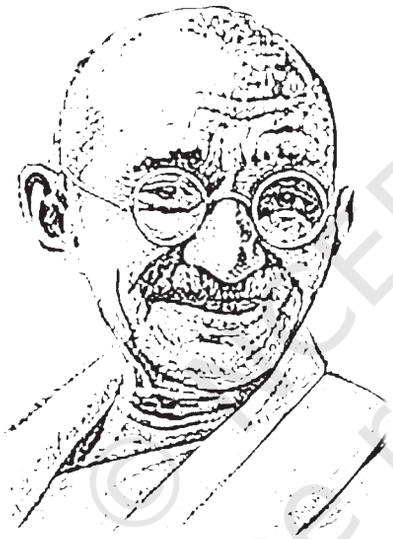


.....Ahimsa is the very definition of woman and there is no place for untruth in her heart. If she is true to herself she is no longer Abala – the weak, but she is Sabala – the strong.....

Unit 1

Basics of Hand Embroidery

Introduction

Embroidery is done for making a fabric beautiful with colourful designs with the help of needle and threads. It may be used to embellish almost everything, from the smallest handkerchief to big home furnishing like even curtains or bedcovers. Different types of garments including that of children, furnishings, such as bed sheets, pillow covers, table cloth, wall hangings, etc. are embroidered to give a rich look. It is an art to express the creativity using different types of techniques, like beadwork, metal thread work, appliqué work, decorative thread work, cutwork, patchwork, zardozi work, etc. Embroidery is also known as 'a painting with needle'.

Embroidery can also be done with other materials, such as pearls, beads, quills, sequins, shells, precious and semi-precious stones, seeds, etc. The art of embroidery is practised on different kinds of pliable materials, like cotton, linen, silk, wool and leather, which can be pierced with the sharp needle. Gold, silver, silk, cotton wool and many synthetic threads have been used to produce fine and rich looking embroidered products.

Hand embroidery is done by holding the fabric in hand with or without a circular frame, which holds the fabric in a stretched form, or the fabric stretched on a horizontal frame known as *adda*. Some embroidery

designs are stitched on the top part of the garment while some others are stitched throughout the garments or items. The design location in embroidery plays an important role to give it an attractive and appealing look. Selection of colours of the thread or material used for embroidery plays an important role in the overall look of the finished product. We shall learn in detail about the colour selection and combinations in Class X. However, it is considered that hints for colour combination can be taken from the nature.

In this Unit, the students will learn a brief history of hand embroidery; the terms related to it; types of designs, which can be used for embroidery; practise drawing of all types of design; select them to be transferred on fabric which needs to be embroidered and selection of the tracing method.

All these are the fundamentals of hand embroidery that are important to start the process of embroidery.

SESSION 1: HISTORY AND EMBROIDERY TERMINOLOGY

Embroidery is being used from centuries, there are traces of embroidery work from ancient times from all over the world, more so from the eastern countries. These design inspirations include natural, floral, geometric, abstract, nursery designs, tribal, mythological, architectural designs, etc.

Actually, the designs or motifs used for embroidery reflect the culture, tradition and the way of life of people. Embroidery usually takes the inspiration from surroundings, nature and environment where it is practised. It can be observed that the embroidery of Kashmir, India shows its flora in the form of leaves of chinar (maple leaf) and flowers of saffron, etc., the embroidery of the southern region of India shows a rich heritage of gateways and arches of temples, mythological animals and lotus flowers, etc. The colours, fabric, theme and style of embroidery reflect its uniqueness in terms of region, occasion, type of wearers, etc. These days, embroidery is commonly seen on people's garments—on hats, coats, blankets, denim, etc. It is commonly used to decorate furnishings, such as bed

sheets, table cloths, pillow covers, table runners, table mats, curtains, kitchen aprons, etc.

It is an art of self-expression, done with patience and hard work. Embroidery enhances the beauty and style of the object even in the articles of everyday use. The common hand embroidery stitches are chain stitch, buttonhole or blanket stitch, running stitch, satin stitch, stem stitch, French knot, bullion stitch, cross stitch, etc. All types of fabrics such as cotton, silk, linen, crepe, chiffon, georgette, satin, velvet, canvas, etc., are used for embroidery. Embroidery can be done on cut fabric pieces as well as on ready garments or ready furnishing items.

History

It is the rich, worldwide tradition of embroidery which makes it such a fascinating craft. People have been decorating fabrics with 'stitches' for centuries which reiterates that embroidery is perhaps one of the most ancient needle crafts. Many of the embroidery designs have their roots in styles popular over the last few centuries. The ancient civilisations and their history, sculptures, paintings and vases depict thread work embroidery and its use on clothing. Mostly, embroidered clothing, religious crafts and household textiles have been a mark of luxury and status in many cultures including ancient Persia, India, China, Japan, and Europe. In many different cultures, traditional folk methods of embroidery were passed from generation to generation. Some themes and designs have remained the same for centuries. Many embroidery tools like needles have been found in excavations*. Floral, animal, geometric and natural designs are the common designs used for embroidery. Every embroidery type has a historic background and style through the years of its development. The origin of embroidery can be dated back to 30,000 B.C. Archaeologists, have been finding evidences of embroidery like fossil remains of heavily hand stitched and decorated clothing, boots and hats.

On comparing the art of hand embroidery practised in the early centuries to the present work of embroidery, it

* As per newspaper reports (2016), a bone needle has been found in Siberia in the Denisovan Cave—a site in the Altai mountains.

is observed that the embroidery form has seen only a few change of materials or techniques which can be inferred as advancement in the craft. In earlier times, pure gold and silver threads were made by wrapping an extremely fine strip of gold or silver spirally round a silk thread. These pure threads were laid on the fabric and stitched on very fine stitches. Fine metal strips threaded in a needle, like a normal thread were also used. These days, a wide range of colours, for example red, blue, green, yellow are available in all tints and shades, artificially made bright gold, dull gold, bright silver, antique silver and copper colour threads are used.

Coloured stones, pearl and beads have been used to adorn the embroideries since early times. At times, a single colour thread is used while changing the direction of the stitches, such as vertical, horizontal and diagonal, to create an impression of several shades of the same colour by the use of light on the embroidered part.

The selection of designs mainly depends on the type of fabric, size of the product, repetition of design, etc. The area where the trace is needed is first marked, different tracing methods are used to transfer the design. These methods are also discussed in this unit, like using carbon paper, light source, heat transfer method, stencils; and prick and pounce method.

Embroidery terms

Some common embroidery terms are given below:

A

Aari

It is a type of needle with a hook at its tip to do the embroidery. This needle is used while working on *adda*. Because of its name *aari*, the embroidery done by it is called *aari* work.

Adda

A wooden adjustable frame with four wooden bars used to stretch the fabric for embroidery is called *adda*. The fabric is attached to the *adda* for doing embroidery.

Appliqué

It is a fabric cut-out attached to the surface of a larger piece of fabric. There are various ways in which an appliqué or cut-out can be attached to the fabric surface. Embroidery stitches such as buttonhole, satin, couching, running and machine stitching can be used to attach the appliqués. This adds colour and texture to the fabric surface.

B

Backing

This term is used for the material used to give support to the fabric being embroidered. Woven or non-woven materials are used to provide support and stability to the fabric being embroidered. As the name suggests, backing is put on the back side of the fabric. It is occasionally referred to as a stabiliser in the hand embroidery. It can be large enough to be lined with the item being embroidered. Various weights and types of materials are available in the market that can be either in rolls or in pre-cut sheets.
Backings can also be cutaway, tearaway, or size and/ or shape-specific.

Blanket Stitch

It is an ornamental stitch mainly used to finish an un-hemmed blanket or any thick fabric. The stitch can be visible from both sides.

C

Chain stitch

It is a very common stitch of hand embroidery. It is made by making loop stitches. Chain stitch is used mostly to embroider straight lines and big curves. It is a stitch that looks like a chain link created with one thread from the bottom side of the fabric. It is done on a manual or computerised machine with a hook that performs like a needle.

Combing

It is the act of smoothening and making uniform the sliver of a yarn (Sliver refers to a piece of loose, untwisted textile fibre).

Couched

It is a method of embroidering in which a thread laid upon the fabric's surface is caught down at intervals, by stitches taken with another thread through the material.

Counted thread embroidery

It is an embroidery in which the fabric threads are counted by the embroiderer before inserting the needle into the fabric.

D

Design

In embroidery, the term design is used for a motif(s), which is decorated with the different stitches of embroidery.

Design catalogue

A collection of different types of designs, which may be used for various types of embroidery. Many times, a design catalogue also gives details of colour combination, types of stitches and threads for the designs.

E

Embroidery

It is an art, using thread and needle to adorn fabric/ garment. In embroidery, different types of stitches are made on fabrics and other flexible material. Embroidery is mainly done by hand or machines.

Embroidery machines

These machines are specialised for different types of embroidery. They are manually or motor operated. These

days, embroidery is done on computerised embroidery machines also.

Even weave fabric

It is a fabric that has the same number of threads, vertically as well as horizontally. Such fabrics are described by the number of threads or blocks per inch, usually known as the count. This count will determine the finished size of the design.

F

Filling stitches

Long and short, satin, close herring bone, fishbone are considered as filling stitches in embroidery. Filling stitches cover large areas and they generally have a flat look.

Finishing

This process is performed after embroidery work is completed. This includes trimming loose threads, removing stains, cutting or tearing away excess backing, pressing or steaming to remove wrinkles, etc.

Frame

It is a device which holds the fabric to be embroidered. It provides firmness and tightness to the fabric during the process of embroidery. This grips the fabric tightly between an inner and outer ring. Embroidery frames of different sizes and material (plastic, metal, or wood) are available in the market. Wooden frames are very popular for embroidery.

Framing

It refers to fixing of a fabric, tightly in an embroidery frame.

Fusing paper

It is a base which is coated on one side with a thermoplastic adhesive resin which can be bonded with fabric or other material by the controlled application of heat and pressure.

G

Gapping

In embroidery, the term gapping is used for the spaces (fabrics) between the stitches in design. It is seen through the embroidery design either in the middle of the design or on its edges.

Gota

It is a narrow ribbon or strip, woven with gold or silver thread used for decorating the fabrics. These days synthetic threads are also used in *gota*.

GSM

It is a metric measurement meaning grams per square metre—it is how much 1 square metre of fabric weighs. The higher the GSM number, the denser the fabric will be.

H

Heavy weight fabric

It is a fabric that is approximately above 350 GSM (grams per square metre).

Hoop

Embroidery frames are also called hoops.

Hooping

It is also known as 'framing'. In this method, the fabric is fixed in a hoop.

L

Lacing

It is a cord or string for holding or drawing together, as when passed through holes in opposite edges.

Lettering

When embroidery is done for making beautiful letters or expressions of words, it is often called 'keyboard lettering'.

Lightweight fabric

It is a fabric that is approximately between 30–150 GSM (grams per square metre).

Locking stitch

It refers to a series of three to four very short stitches done on the back to lock the stitch. It is used to prevent the stitching from unravelling after the embroidery is completed.

M

Marking

It is done on the instruction sheet to help the embroiderer initiate embroidery work on the given design. It is mainly done to instruct the embroiderer regarding the materials and stitches.

Medium weight fabric

It is a fabric that is approximately between 150–350 GSM (grams per square metre).

Monogram

A design composed of one or more letters, often intertwined, used as an identified mark of an individual or institution. Monograms are very attractively developed by embroidery.

N

Nap

It is a layer of fibre ends raised from the ground weave of the fabric. In nap, a fuzzy, fur-like feel is created when fibre ends extend from the basic fabric structure to the fabric surface. The fabric can be napped on either one or both sides.

Needle

It is the stitch forming device that carries the thread through the fabric. Needles vary in thickness, length,

size of eye, sharpness and shape of point. Needles of different numbers are available in the market; the higher the number, the finer the needle.

P

Pencil rub

It is a low-cost method to transfer the design. Place a piece of tracing paper on a projected or embossed sample design and then lightly rub with pencil. The design will appear on the tracing paper. The term pencil rub is used for this process.

Pile

A surface effect on a fabric formed by upright yarns, cut or loops of yarn that stand up from the body of the fabric.

Pinking shears

It is useful in finishing raw edges of fabric or to produce a decorative edge. Pinking shears produce a notched cutting line (zigzag) which gives a neat look to the edges to prevent ravelling (i.e. a bit of fibre that has become separated from the woven fabric).

Puckering

It results when the fabric is being gathered by the stitches. It is caused due to incorrect density of stitches, blunt point needle, loose hooping, insufficient backing, and incorrect thread tensions.

R

Repeat

It occurs when a line, shape, space, etc., is used more than once in fabrics or materials at different intervals. In fabrics, motifs or designs are repeated in many different ways producing different end results.

Ruche

It is a strip of fabric which has been pleated.

Running stitch

It is made up of short even stitches. It is mostly worked in straight lines for seams, or in curves for linear motifs and lettering.

S

Satin stitch

This is a stitch in which every stitch is closely worked parallel to another. Satin stitches are popular for filling motifs and fancy monograms. It can be laid down at any angle and with varying stitch lengths.

Scale

In embroidery, the term scale is used to enlarge or minimise the size of the design without changing the elements of design.

Snagging

It refers to a break, pull, or tear in the fabric.

SPI

Abbreviation for Stitch/Stitches Per Inch. It refers to the number of stitches in 1". Mostly, this term is used for machine stitching, but the term is used in embroidery also.

Stitch density

It refers to the number of stitches used to give proper coverage of the design without creating a thick, hard area in the embroidery that may be uncomfortable to the consumer. This term is mainly used for machine stitching but is used for embroidery also.

Strand

It is a filament or fibre that is plaited, twisted, or laid parallel to make a unit for further twisting or plaiting into thread, yarn or rope.

Surface Embroidery

It is a form of embroidery in which the design is worked using decorative stitches and laid threads on the fabric rather than through the fabric.

T

Tacking

It refers to fastening pieces of fabric together, mostly temporarily, with stitches.

Thread

It is a slender, strong strand, especially designed for sewing or other needle work. Most threads are made by plying and twisting yarns.

Thread clippers

Small spring loaded scissors designed to operate with just the thumb and forefinger. These thread clippers are mainly used to cut the threads.

Tilla

It is a simple, flat metal wire, used for embroidery.

Trimmings

Decorating a garment/article using decorative and functional accessories or details is referred to as trimming. The trim is added to a garment to make it look embellished and attractive. Beautiful trims can be prepared through embroidery.

Twill weave

It is a type of textile weave with a pattern of diagonal parallel ribs. It can be identified by looking at the presence of diagonal lines that run along the width of the fabric.

W

Warp

It is the lengthwise yarns used in the weaving operation. This forms the basic structure of the fabric. Warp yarns generally have more twist than weft yarns because they are subjected to more strain in the weaving process and therefore require more strength.

Warp-faced

A textile that has predominantly vertical yarns (warp yarns) on its face.

Weft

The crosswise yarn that interlaces with warp in weaving is known as weft or filling yarn. Weft yarns are carried over and under the warp. Filling yarns, generally have less twist than warp yarns because they are subjected to less strain in the weaving process and therefore require less strength.

Wrapped stitches

It is a series of a single or several loops of thread or yarn around the hand sewing needle, to create ornate embroidery on the surface of the fabric.

Z

Zardozi

The term is used for silver and gold metal embroidery.

Practical Exercise

Activity 1:

Prepare a chart of any 10 embroidery terms.

Material Required

1. Chart sheet
2. Colourful pens/ sketch pens

3. Ruler
4. Pencil
5. Eraser

Procedure

1. Cut the chart sheet in A3 size.
2. Write any 10 embroidery terms on the chart.
3. Decorate the sheet.
4. Attach the sheet on the drawing board of your classroom.

Check Your Progress

A. Fill in the blanks

1. The full form of SPI is _____ _____.
2. Backing is used for_____ and_____to the fabric being embroidered.
3. When fabric is seen through the embroidery design, it is called _____.
4. When fabric is gathered by stitches, it is called _____.
5. Embroidery is an art described as _____.
6. _____is also called as framing.
7. _____is the stitch forming device.

B. Write short answers to the following

1. What do you understand by embroidery? Write the names of five embroidery stitches that you know.
2. What can be said as regards the progress made in the field of embroidery from the ancient times to modern times?
3. Explain the following embroidery terms—
   (a) Backing
   (b) Frame
   (c) Puckering

Session 2: Designs and Tracing Methods

Design relates more to imagination, intuition, innovation and creativity. What inspires a person or designer to be creative and imaginative? Most of

the inspiration comes from learning and experiences of life and nature. A design is therefore the outcome of all the inspirations. A design for embroidery is drawn using lines and shapes. The selection of an embroidery design decides how the final output of the embroidery work would look. The appropriate selection of stitches, fabric, colour and thread type are crucial for a particular design.

Types of design

The inspiration for design has mostly been nature—flowers, leaves, trees, animals, paisley, human figure, birds. The national ecology of India seeps into most embroidery patterns. Infact most regions have their respective unique patterns and colour schemes.

Different types of designs are explained in this session.

(a) Natural designs

Any design inspired from nature, like birds, trees, even human figures, animals, flowers, scenery, etc., are natural designs. Natural compositions may include floral patterns too.

Fig.1.1(a) Natural design embroidered on a fabric

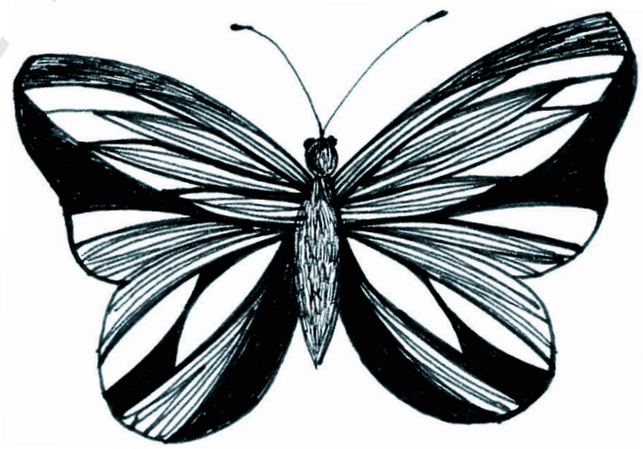


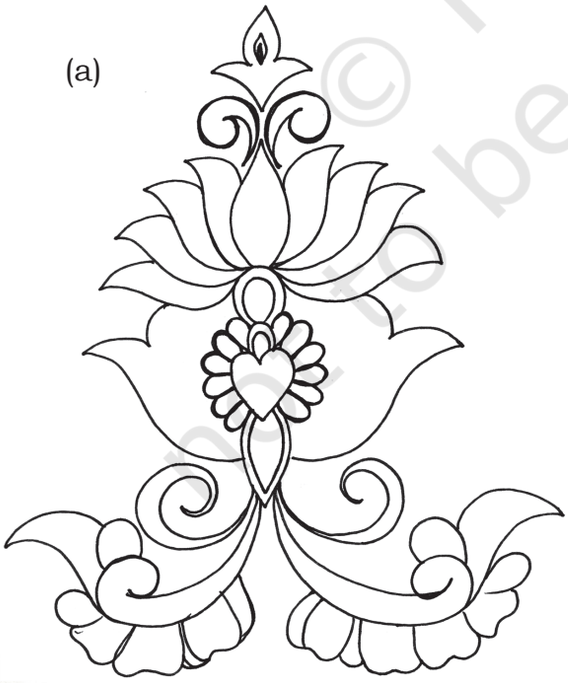
Fig.1.1(b) Natural design

Fig.1.1(c) Natural design

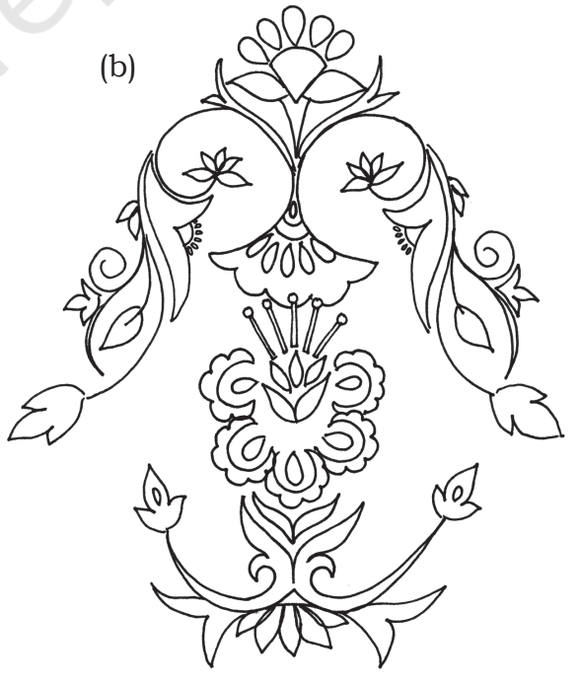
(b) Floral designs

Natural designs having flowers, leaves, stems and their combination, come under this group.

(a)



(b)



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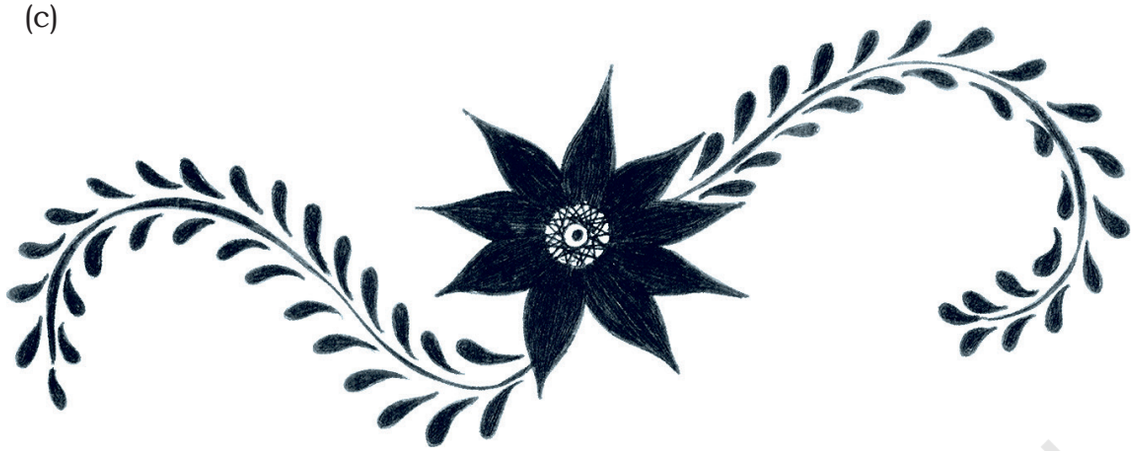


Fig.1.2(a,b,c) Floral design

(c) Geometric designs

These include designs made of geometric shapes, like square, circle, oval, diamond, triangle, rectangle, etc., or any combination of them.

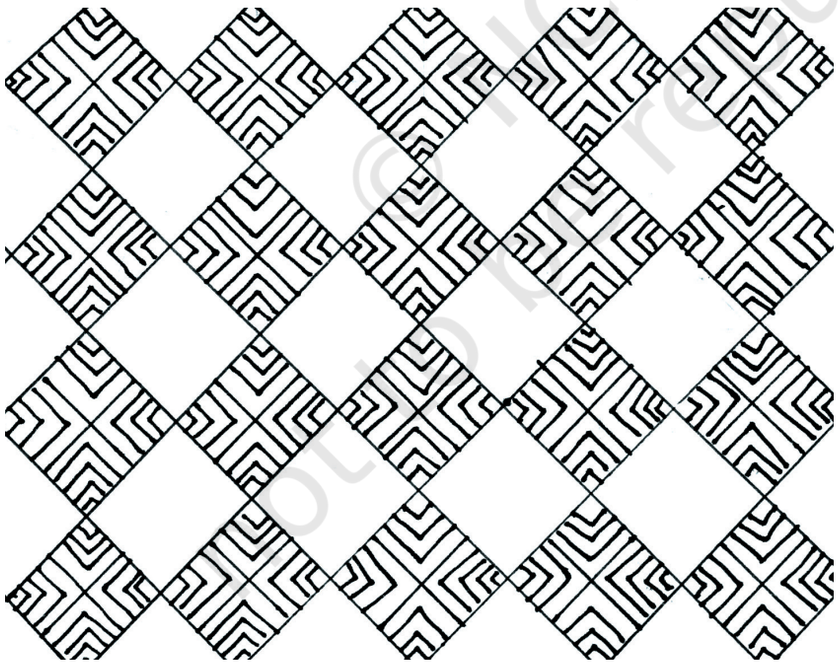


Fig.1.3(a) Geometric design embroidered on a fabric

Fig.1.3(b) Geometric design embroidered on a neckline

(d) Abstract designs

Abstraction indicates a departure from the reality in the depiction of imagery form in art. It is away from what appears in real. It is a kind of modern art design with a combination of embroidery designs and stitches.

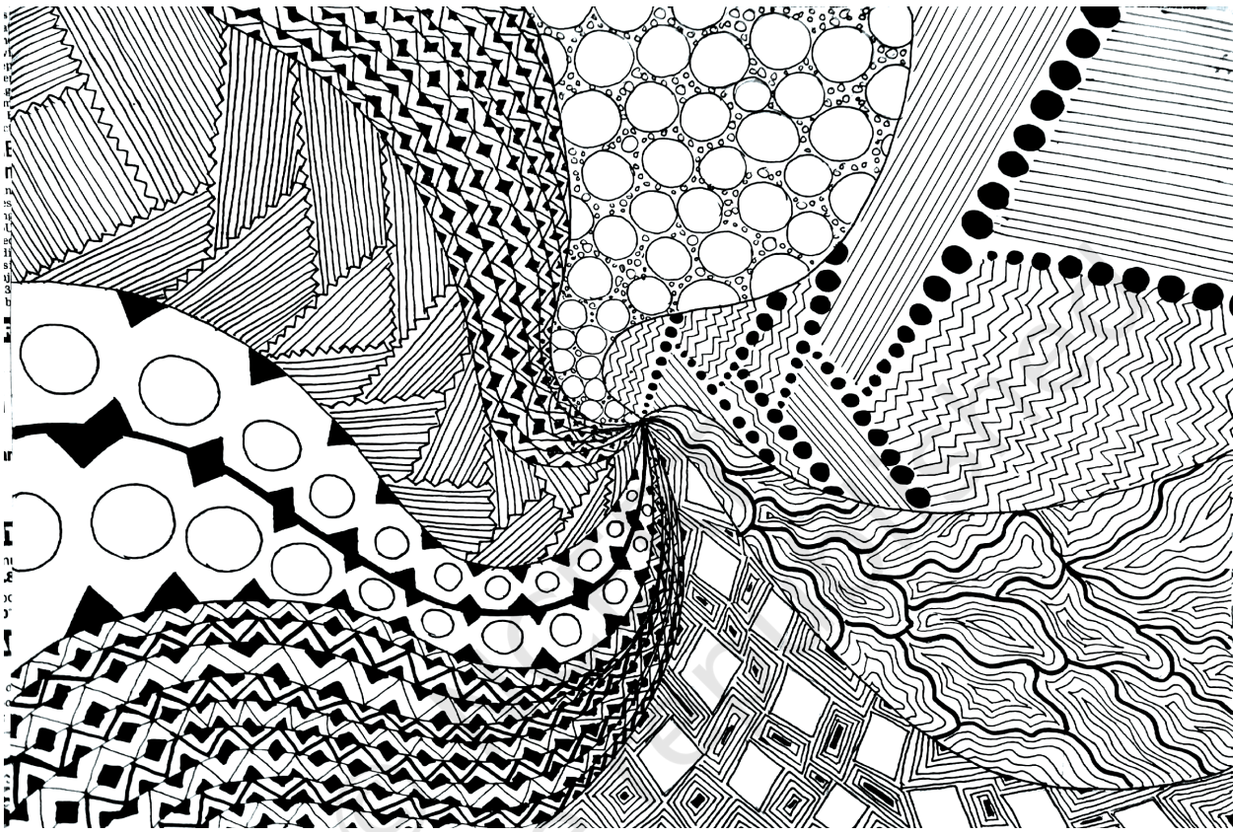


Fig.1.4 Abstract design embroidered on a fabric

Fig.1.5 Architectural design

(e) Mythological designs

These include scenes or designs from mythological epics, or mythology symbols.

(f) Architectural designs

These include ancient historic monument designs and any architectural designs including palaces, buildings, etc.

(g) Tribal designs

Designs depicting typical characters of any tribe are included in this category, like tribal wall paintings, *Mandana*, *Warli* art designs, etc.

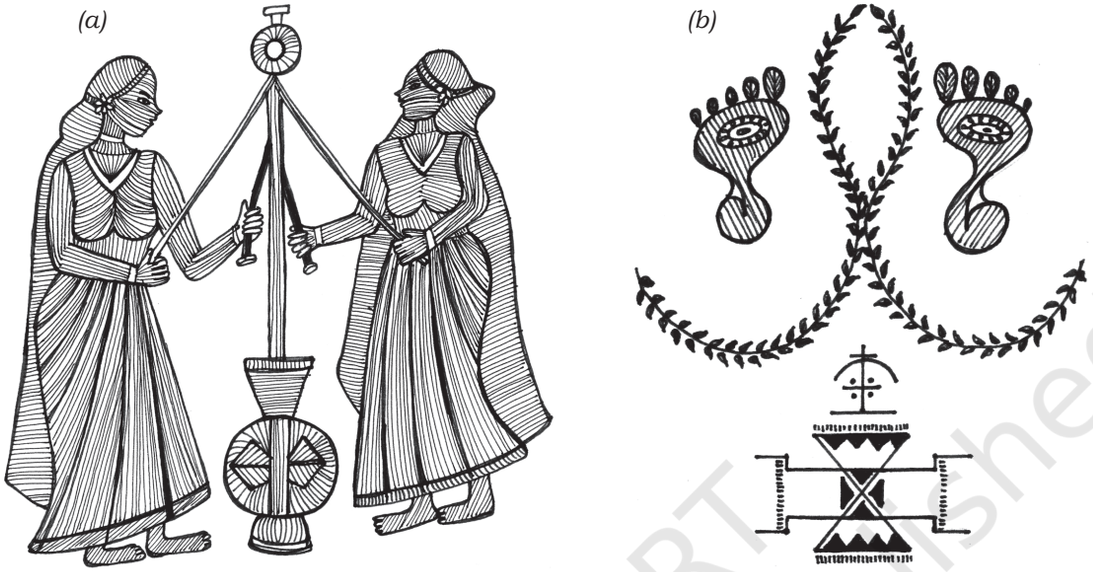


Fig. 1.6 (a, b) Tribal design

(h) Stylised designs

These include the modern styles of design, like asymmetrical designs, or a combination of designs or depiction of designs in different ways by stylising them.

Fig.1.7(a) Stylised design on a neckline

Fig.1.7(b) Stylised design on a motif

Fig.1.8 Nursery designs

(i) Nursery designs

Designs mainly for children wear are known as nursery designs. They include designs, like cartoons, toys, teddy, animals, fruits, fairies, etc.

Note

All the above designs can be used to develop different patterns, which can be made on different pieces of fabrics, garments or linen. These designs are set on a garment by using various placements like alternate, repeat, drop arrangements, etc.

Fig.1.9 (a) Different designs for placement

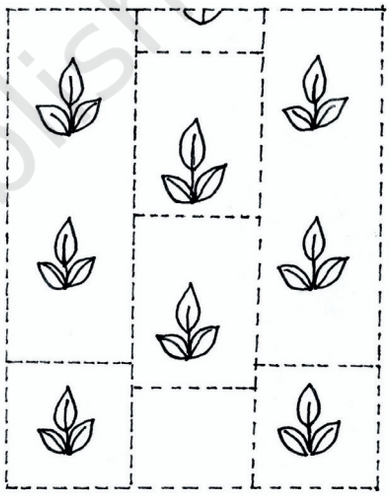


Fig.1.9 (b) Design arrangement

Fig.1.9 (c) Border design on a hemline

Fig.1.9 (d) Border designs

Tracing materials and methods

Various materials and methods are used to transfer the design onto the product or the fabric—
The tracing materials include—
(a) Embroidery design
(b) Tracing paper
(c) Pen or pencil
(d) Carbon paper
(e) Iron
(f) Piece of glass and lightbox
(g) Needle
(h) Chalk powder or Indigo (*neel*)
(i) Kerosene oil
(j) Dress maker pins or beaded pins
(k) Stencils of selected designs
(l) Design transfer sheet or paper

Those who are good at drawing designs can draw directly on the fabric by free hand method with the help of a pencil. On lightweight and fine or thin fabric, designs can be drawn with a pencil, keeping the fabric tight in the embroidery frame. Direct method of tracing can be used very easily on fabrics like georgette, lawn, voile, organdie, etc.

Some common methods of tracing are—

Method 1: Transferring design with heat

A common way to transfer images is with heat using design transfer sheet or paper, found in almost any craft or sewing store in the market. A sheet of design, an iron and a pressing cloth is required for tracing the design. Designs can be traced directly if the design is printable on a transfer paper or sheet. To print the design on the fabric, place the fabric face down and tracing sheet on it then heat it with an iron for an appropriate time to transfer the design on the fabric. A transfer paper or sheet of printable design is available in the market with detailed instructions, including time period for heating, on how to transfer the design. The design will transfer to the fabric or garment perhaps in a few seconds.

NOTES

Method 2: Transferring design using light

In this method, an embroidery pattern is transferred, by using light. It allows tracing each line of the design. Both daylight as well as a lightbox can be used. To use daylight, find a bright window that receives a good amount of sunlight. Now tape the design on to the glass of the window and tape the fabric over it as the sunlight shines through the fabric. Now the design can easily be copied by way of tracing on to the fabric. Or else, a lightbox can also be used. A lightbox is a box with a transparent glass on top and a light source (usually a bulb or small tubelight) attached under it. When using a lightbox, the design is put on the glass top of the lightbox and the fabric is taped over it. The light will expose the design and it can be traced and transferred to the fabric easily with the help of an appropriate light shaded pencil so the design is not smudged.

Fig.1.10 Transferring design using lightbox

Method 3: Transferring design using carbon paper

The simplest method of transferring design is by using carbon paper. Carbon papers of different colours (light and dark) are available in the market. They may be selected according to the colour of the fabric on which the design is to be traced. Place the coloured side of the carbon paper on the face of the fabric, and then put the design sheet on the top of the carbon paper. Then, draw all the lines of the design with a pointed pencil or pen. Care should be taken to trace only on the lines of the design, otherwise the carbon will smudge the fabric. The fabric is placed on a hard surface, otherwise the

Fig.1.11 Transferring design using carbon paper

design will not be traced properly. Do not press hard on the carbon paper, else the colour from the carbon paper itself may get transferred on to the fabric, which might be difficult to remove.

Method 4: Transferring design with prick and pounce

The design is first traced on a tracing sheet and holes are made evenly along the outline of the design including the intricate lines, using a needle. Holes should be made evenly and close to each other, so the design can be traced clearly and neatly. For tracing the design, the fabric is placed on a hard surface, with tracing paper of perforated designs placed on it. A solution of kerosene and indigo (*neel*) is rubbed with a piece of sponge or cotton on the transferring sheet to transfer the design on the fabric. This rubbing or dabbing is known as pouncing. Remove the tracing paper to get the final design traced on the fabric. The tracing paper should be removed very carefully so the solution does not spread on the design. The pattern pricked on the transparent sheet of paper, that is pinned to the fabric is called *khaka*.

Fig.1.12 Pricked design for transferring

Method 5: Transferring design with stencils

A stencil is a cut-out of a design pattern to help make an identical copy of it on another surface, accurately. Stencils are extremely useful for repeat designs, mixing and matching for a unique style. It works on light and medium weight fabrics, like cotton, rayon, linen, silk, and many synthetic blends or mixed fabrics. First of all, select the stencil for the transfer of design and place it on the

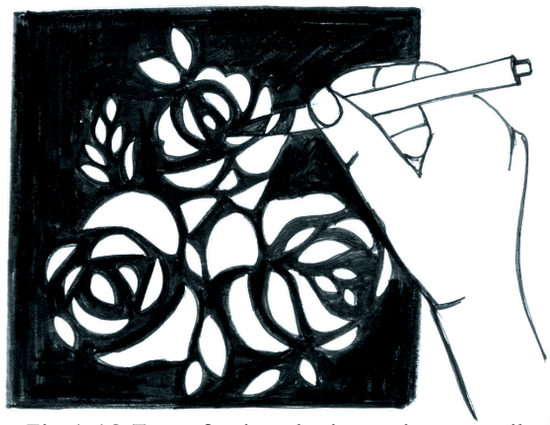


Fig.1.13 Transferring design using stencil

right side of fabric. Then, use a transfer pencil or pen to trace the design in the cutout areas of the stencil. Stencils of different designs and sizes are available in the market. They are made of different materials like metal, plastic, thick paper, etc. Stencils may be selected according to the requirement of the embroiderer.

Suggestion

To get the best results, use any of these transfer methods according to the fabrics or items. It should be taken care that the fabric should be clean, starch-free, stain-free or protective coating-free, because these coatings can interfere with the ink or chalk transferring to the fabric.

Note

1. Heat transfer methods make a stable image. It should be completely covered by the stitches of the embroidery, so that the pencil or markings are not visible. Design transfer through hot iron, create a reverse image of the design. It means that the design is required to be transferred in reverse.
2. Use headed pins wherever required to fix the fabric, sheet, etc.

Practical Exercises

Activity 1

Prepare a chart of the different types of designs.

Material Required

1. Pencil
2. Chart sheet
3. Ruler
4. Eraser
5. Coloured pencils to decorate

Procedure

1. Select designs of different types.
2. Draw the designs on the chart sheet.
3. Decorate them with coloured pencils.
4. Label the types of designs.
5. Place the chart in your classroom.

Activity 2

Trace different designs on a fabric sample.

Material Required

1. Tracing paper
2. Carbon paper
3. Pencil
4. Chart sheet
5. Fabric sample(8”x8”)

Procedure

1. Draw two natural or geometrical designs of size 6”x6” on a sheet.
2. Trace the design on the tracing paper.
3. Using the transfer method through carbon paper, trace the design on the fabric sample
   (Follow the instructions as given above in the session).
4. Attach the sample on a chart sheet and keep in your practical file.

Note: Activity for all the tracing methods may be performed.

Check Your Progress

A. Fill in the blanks

1. The designs used mainly in kids’ wear are called _____.
2. _____ are extremely useful for repeat patterns, mixing and matching for a unique style.
3. _____ designs are away from what appears in real.
4. Holes on the sheet of design are made in the method of transferring design with _____ and _____.

B. Write short answers to the following

1. Explain any three types of designs with examples.
2. Explain any two methods of transferring designs.
3. Draw any two of the following designs:
   (a) Abstract design (b) Stylised design (c) Nursery design

Unit 2

Tools, Materials and Stitches for Hand Embroidery

Introduction

In the previous Unit, we got acquainted with some technical terms used in the world of embroidery. We also learnt a few methods of tracing the design on the desired material. Now, we will learn about the various tools used by an hand embroiderer; and how to identify and appropriately select them for hand embroidery. Students will also be able to select suitable fabrics, needles, threads, frame, thimble, scissors, etc. by the end of this unit.

They should also be able to embroider the design using various stitches such as stem stitch, running stitch, chain stitch, French knot, bullion stitch, satin stitch, long and short stitch, etc. So the final output of the embroiderer in the form of embroidered cut fabrics, garments or any item would be beautiful and suitable as per the end use of the product.

Session 1: Tools and Materials

To carry out embroidery, identification, selection and handling of embroidery tools and materials is important.

(a) Different types of fabric

Fabric is used to make garments and home furnishing items. Most fabrics are made from yarns, but the

basic component of textile fabrics is fibre. These may be natural fibres, like wool, linen, cotton, silk, etc., or synthetic fibres, like acrylic, polyester, acetate, etc., Fabric is formed using a variety of techniques, like weaving, knitting, felting and netting (the four basic ways of constructing fabric). Mostly, natural fibres (with the exception of silk) are short and are called **staples**. The long continuous strands of silk and man-made fibre are called **filaments**. These staple and filament lengths are then twisted into yarns. The appearance and durability of the yarn is affected by the degree of twist. Gently twisted yarns are suitable for napped fabrics which are soft and rather weak. Tightly twisted yarns are used for smooth fabrics such as gabardine. In general, the tighter the twist, the smoother and the stronger would be the yarns.

***Note*:** Nap and pile are often used interchangeably, but it is advised that both the terms be used differently to avoid confusion.

Weaving is the most common method of forming fabric whereby two sets of yarn are worked at right angles to each other. The knitting method uses machines to produce a fabric of interlocking loops. In felting method, moisture, heat and pressure are applied to short fibres to produce a matted layer. Felts do not fray but they do tend to tear when they are damp. In netting, the yarns are held together by knots wherever they intersect. It can be as heavy as the fish net or as light as lace, depending on the fibre used.

Embroidery is practised on all kinds of pliable material which can be pierced with a needle and thread. The quality of embroidery depends not only on the workmanship, but also the quality of the fabric, threads, the intricacy of the design, the closeness of the stitches, and the colour combinations. Almost all types of fabric can be used for hand embroidery. However, the commonly used fabrics for hand embroidery are linen, satin, cotton, silk, crepes, georgette, chiffon, velvet, terri-cot, polyester, etc.

Counted thread embroidery (in which the fabric threads are counted by the embroiderer before inserting

the needle into the fabric) requires an even weave fabric, meaning, a fabric that has the same number of threads vertically as well as horizontally. Such fabrics are described by the number of threads or blocks per inch, usually known as the count. This count will determine the finished size of the design. A wide variety of even weave fabrics like matty for cross stitch, is available in the market for counted needlework.

Embroidery will enhance the beauty of the fabric only when it is done on a suitable fabric using appropriate design, needle, thread, backing and other materials. The fabric should be chosen according to the use of the end product, for example, for garments, medium or lightweight fabrics are suitable, such as cotton, silk, georgette, terry-cot, chiffon, satin, organdy, etc. Fabrics used for home furnishings are heavier than the fabrics used for garments, such as cambric, glazed cotton, raw silk, jute, velvet, etc. The stitches of embroideries are used according to the weight and thickness of the fabric. Mostly, running stitch, stem or satin stitch, lazy-daisy, etc., are used on medium-weight fabrics, while herringbone, chain stitch, *jaali* work, etc., are used on lightweight and thin fabrics. Button-hole stitch, blanket stitch, cross stitch, running stitch (long stitches), etc., are mostly used on heavy fabrics. There is no rigid rule to select the stitches according to the fabric but the hand embroiderer should select the fabric according to the end use of the fabric, design and stitches of the embroidery, construction of the fabric, thickness, crispness, softness, and weight of the fabric.

Following are the fabrics commonly used for hand embroidery:

(i) Linen

It is a fabric made from natural fibres, like from vegetables or animals and insects like silkworm. It is relatively soft, smooth, lustrous and is very strong textured. It is used for shirts, safari suits, kurtas, kurtis, and children's wear. It is also used for aprons, bags, upholstery and many home furnishing items.

(ii) Cotton

It is a fabric made from cotton which is obtained from the cotton plant. It is soft, smooth and absorbent. Cotton is suitable for garments worn close to the skin to keep the body cool in summers, since it aids air circulation. A large variety of kurti, lehenga-choli, saree, salwar-suit, shirt, kurta-pyjama, jackets, safari suit, trousers and children's clothes are made of cotton, and decorated by hand embroidery. It is also used for home furnishings like bed sheets, pillow covers, table cloths, table runners, curtains, etc. Cotton is suitable for embroidery as it is easy to pull a needle and thread through it. When the weave is loose, it is easy to pass the needle with the thread, but when the weave of the fabric is tighter, it will be difficult or even painful for the fingers of the embroiderer while pulling the needle and thread through. The weave of the medium-to-heavy weight coarsely woven cotton is a little loose, hence making it easy to pull the needle and thread through the fabric.

(iii) Crepe

It is a light-to-medium weight fine fabric and is used for making flowing garments since it drapes very well. It has crinkled surface due to the high-twist silk yarn or chemicals. This look can also be given by a special weave called the crepe weave. Crepe fabric was originally made using only silk, but nowadays different kind of fabrics, such as chiffon, cotton, and rayon, etc., are commonly used to create crepe fabric. Fur, silk and original leather, blended silk, crepe, linen, chiffon, etc. are being liked and used in the fashion industry. Among the contemporary fabrics, crepe is well-liked by customers and designers. Mostly, crepe has a creased or grain surface that has very small folds or ridges. It can be embroidered, embellished with different designs to create a more ethnic, traditional look for the end product. Different types of crepe include Moroccan crepe, wool crepe, plisse crepe, crepe de Chine and crepe georgette.

(iv) Satin

It is a fabric woven in warp-faced stain weave and has a smooth and shiny surface. Satin is a smooth, delicate and medium-weight fabric. It falls gently down the surface it has been draped on enhancing the natural shape of the surface. It has a lot of shine, which makes it suitable for use as garments as well as home furnishing. Because of its gentle shine and draping qualities, satin is mostly used for evening wear, bridal wear and party wear. Even though most embroidery stitches can be easily done on satin, special care needs to be taken while fixing the frame. Because of its delicate and slippery nature, it's very easy to damage the cloth or the embroidery while putting the frame.

(v) Velvet

It is a medium-weight, mostly silk or synthetic filament yarn fabric with a cotton backing. It has a short, soft, thick warp pile surface that stands up vertically. There are various varieties of velvet fabric differing in their weight. Velvet is a type of woven and tufted fabric. In velvet, the cut thread fibres are evenly distributed over the surface, with a short and very dense pile weave which gives it a unique and lustrous feel. Velvet can be made from synthetic or natural fibres. Velvet's nap (the layer of fibre ends raised from the ground weave of the fabric) gets damaged when pressure is applied on it. An embroidery frame can damage its delicate surface, so velvet is not framed. Embroidery designs with complete filled areas and a filling stitch work show the best on velvet. Running stitches and narrow satin columns will sink into the velvet's pile, so they should be avoided. Velvet is used for making evening wear. It is also used for home furnishing.

(vi) Silk

The strength, lustre and softness of silk makes it the most attractive textile. Silk fibre is considered to be the perfect natural substance in all respects for yarn making. Silk is the longest of all natural fibres and is very smooth. It is said to be the most lavish, lustrous

and rich fabric. Silk is one of the most popular fabrics for designer party wear because of its rich look. It is soft and comfortable, hence suitable for draping. It is also lustrous and luxurious. The embroidery on silk is mostly done with silk threads.

(vii) Gabardine

It is a twill-weave fabric made of a variety of natural and synthetic fibres. It is a medium-weight fabric made of fine yarns. Gabardine is commonly used for making garments, such as coats, jackets, skirts and trousers, due to its nature of holding a steady crease. Even though it is thick and stiffer than materials described earlier, it is comfortable and soft to wear.

(viii) Georgette

This fabric is a thin, transparent, lightweight fabric and is mainly made of highly twisted silk yarns. The twisted yarns are used in both warp and weft directions. Like silk and satin, this also has a soft feel and drape well.

(ix) Jean

It is a durable cotton fabric. It is made of fine cotton yarn in twill weave. It is mainly used for making trousers, skirts, jackets and shirts, etc.

Note: The term jean here refers to the fabric while popularly 'jeans' refer to the trouser-like garment made of denim fabric.

(x) Organdy

It is a thin, light and transparent cotton fabric in plain weave with a stiff finish. It is made from good quality combed spun yarns. The yarn is made from long staple cotton and is spun with many twists. This, along with the finishing process, produces its characteristics of transparency and crispness. Its sheerness and crispness are the result of an acid finish given to lawn fabric in gray state. It is used for making saree, kurtis, tops, and other children's garments. This fabric is mostly used for summer and evening wear.

(xi) Poplin

It is a fine and tightly woven cotton fabric of plain weave. It is the fabric with fine cross-ribs created by finer warp yarns and heavy weft yarns. Poplin is mainly used for making shirts, kurtis and children's garments. Many times, it is used for home furnishing items also.

(xii) Rubia

It is a thin muslin, slightly thicker than the voile fabric. It is always made of ply yarns in a yarn count of 150–200s constructed with plain-weave. It is used for making blouses, kurtis and other dress material.

(xiii) Chiffon

It is a lightweight, sheer, shiny, and plain-weave fabric. It is made from highly twisted yarns. It has good drape and is used for making evening wear and party wear garments.

(xiv) Cambric

It is a closely woven plain-weave cotton fabric which is finished with a little gloss on one side. It is a medium-weight fabric. It is used mainly for making children's and adult garments. It is thicker than rubia.

(xv) Voile

It is a sheer, transparent, soft, lightweight, plain-weave fabric. It is made of highly twisted spun yarns. It is used for making children's wear, blouses and dupattas, turbans and sarees.

(b) Different types of needle

The most essential tool without which hand embroidery is not possible is the needle. It has three parts, namely the eye, shaft and point. Needles are available in different thickness, length, size of eye, sharpness and shape of point. The number indicates the size of the needle—the higher the number, the finer would be the needle. Different brands of needles some time offer different numbers to the needles. Mostly, embroidery needles are available in assortment packages. For example, an

embroiderer can purchase different types of needles in packages of assorted sizes 1–5, 3–9 and 5–10, etc., to have a variety of sizes available while embroidering. The selection of the size of the needle is done based on the weight or thickness of the material, the required fineness of the embroidery and the kind of thread to be used, e.g., if silk thread is being used on chiffon or silk-like soft material, a very fine and high numbered needle would be required.

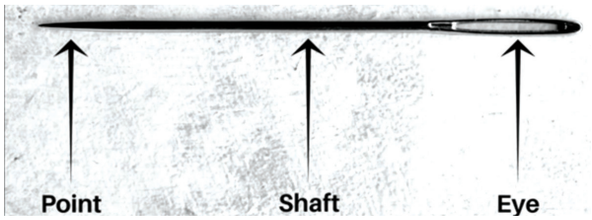


Fig. 2.1(a) Parts of a needle

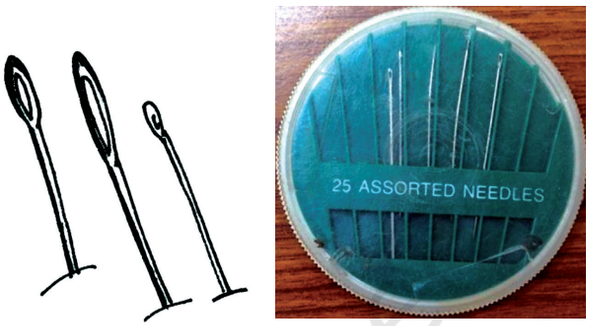


Fig. 2.1(b, c) Types of needle

(i) Crewel needle

It is the basic embroidery needle most often used for hand embroidery. They are sometimes also known as embroidery needles. Except for its long slender eye, it does not differ materially from the sewing needle in shape, and it comes in the same size numbers. For embroidery, crewels should be used unless some other kind of needle is specified. The long eye helps inserting and accommodating embroidery threads easily. The sharp tip of the needle helps the needle pierce the tightly woven fabrics more easily. Crewel needles come in different sizes but most popular sizes to embroider are size 7 and 9.


Fig.2.2 Crewel needle

(ii) Tapestry needle

It is very useful for wools, matty and open weave fabrics. It enables the embroiderer to avoid the splitting of threads. This needle's rounded point allows it to slip between the threads of the materials rather than through them. Tapestry needle point is blunt and it has a large eye; it is inserted between the threads of the fabric without piercing them. These needles are commonly used in counted thread work such as cross stitch, pulled and drawn thread work, and lacing on composite stitches. Tapestry needle has a shorter shaft than a crewel needle but it has a much longer eye, which is slightly larger than the shaft. Due to the open holes in the weave of the fabric, even the blunt tip can pierce through it easily. Tapestry needles are the most

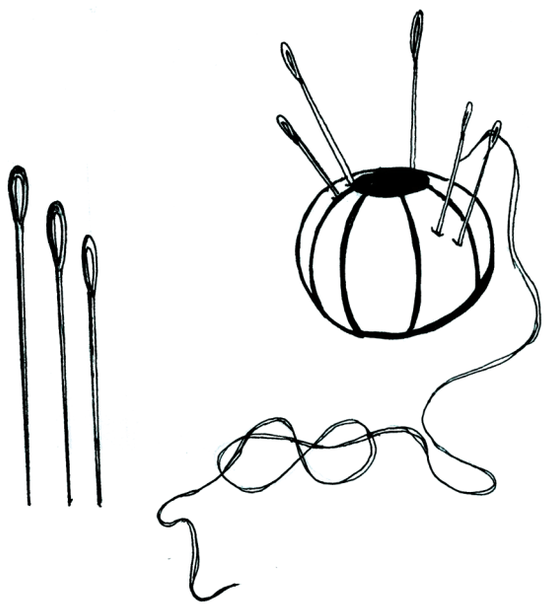


Fig. 2.3 Tapestry needles

Fig. 2.4 Milliner needles

appropriate tool for any type of stitch that involves lacing for surface embroidery. The blunt tip of the needle prevents it from snagging other stitches on the fabric. Tapestry needles are available in the local market in different sizes mainly from 13 to 28, with 13 being the largest and 28 being very fine.

(iii) Milliner needle

This is also called a straw needle. The milliner needle has a shorter, almost round eye. It has very long shaft and a sharp tip. The eye and the shaft on a milliner needle are the same size, which makes these needles appropriate for working any wrapped stitches such as bullion knot, French knots, etc. They are also used for pleating and creating fancy stitches. In bullion knots and French knots, the shaft and the eye of the needle are of the same size, making it easy to pull the milliner needle through the wraps and make the knots on the fabric. It makes these wrap stitches so easy to work and the stitch comes out looking neat.

(iv) Chenille needle

This is a big needle with a long thin eye and a sharp point used for thick threads. This needle is appropriate for stem stitches, lazy-daisy stitches, straight stitches, mirror work, etc. It is also useful for tacking couched threads to the back of the fabric.

(v) Sharp needle

It is mainly used as a sewing needle and has a small eye. It may also be used for embroidery.

(vi) Between needle

It is same as the sharp needle, but shorter.

(vii) Beading needle

It is a long, very fine needle with a tiny eye for small beads.

So far, you have read about the different kinds of fabrics suitable for different end products and kinds of needles to be used for the desired style of embroidery. Let us now read about the kinds of threads that can be used with different fabrics and suitable for styles of embroidery.

(c) Different types of thread

Like the selection of fabric, needle and style of design, it is important to learn about the selection of thread used for embroidering a particular design. The factors to keep in mind while selecting a thread are colour, texture, length, thickness and suitability to the final effect of the embroidery pattern.

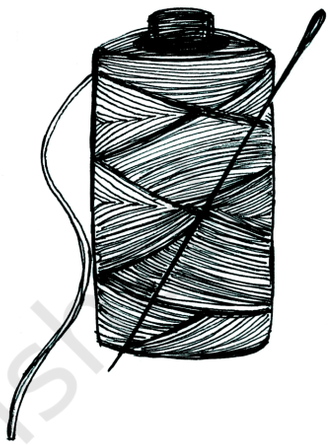


Fig. 2.5 Embroidery thread

Threads are one of the basic materials needed for embroidery. The most commonly used threads are stranded cotton threads. These threads have mostly six separate strands which can be used together, or separated and used singly or in groups. These threads, often referred to as 'stranded silk' though they are actually mercerised cotton, are lustrous and suitable for most types of embroidery. The benefit of stranded cotton thread is that the strands can be separated and recombined in any number to achieve differing thickness and effects. Sometimes, different brands offer different numbers to the thread. The embroiderer can select the threads according to his/her requirements. Wonderful effects can be achieved by using different threads, like pearl cotton, silk threads, metallic thread, fine wool thread, and viscose rayon thread—the list is endless.

(i) Pearl cotton

This type of thread is very commonly used for hand embroidery. It is a highly mercerised and twisted thread. It is a smooth, single ply embroidery thread with a shiny and lustrous look. Pearl cotton threads are available in skein or a ball with differing thickness, colour and shade. They are available in different weights. The higher the number, the finer would be the thread.

Fig. 2.6 Pearl cotton

(ii) Metallic threads

This category of threads is an innovation in embroidery work. The use of metallic threads adds shine and glamour to the embroidery work. These are available in the market in colours like gold, silver, platinum, copper and antique or aged versions. Metallic threads are quite durable and require less care.

Fig. 2.7 Metallic thread

Fig. 2.8(a) Satin thread

Fig. 2.8(b) Rayon thread

(iii) Satin and rayon threads

It is a term used for synthetic threads which give a brighter and shimmery look in the embroidery. These threads have a satin-like shine and are usually packaged as floss that can be separated in different ply.

Fig. 2.9 Overdyed threads

(iv) Overdyed threads

These are shaded threads. These threads have more than one colour in a single strand. They can be hand dyed or mass produced in cotton or silk embroidery floss. These threads are available in different weights. Using these overdyed threads gives the embroidery pattern a totally different look because of changes of colour at short intervals.

(v) Wool threads

These are used in some special embroidery forms where a thick woollen look is required in the embroidery. These threads are available in a variety of weights and colours. These threads are most commonly used in counted thread work.

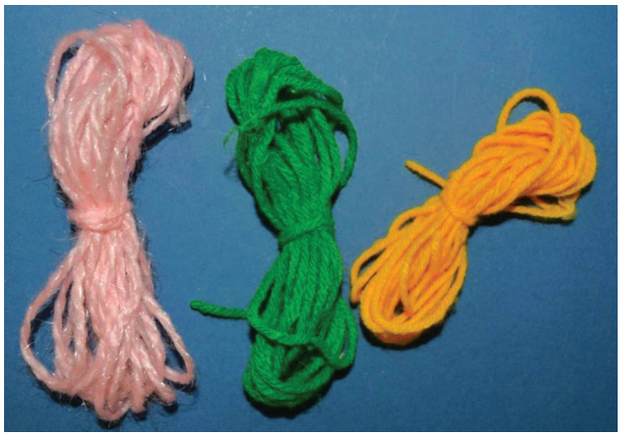


Fig. 2.10 Wool threads

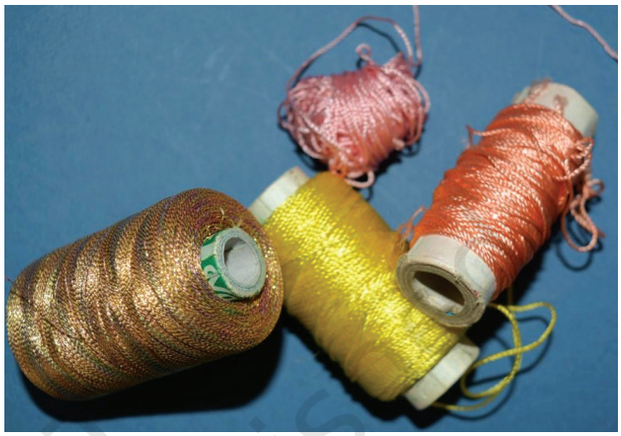


Fig. 2.11 Novelty threads

(vi) Novelty threads

These include a wide range of styles, textures and material. Novelty threads can be fuzzy, metallic textured, leather, plastic, etc. They are used to give the embroidery pattern a special look.

(vii) Pure silk sewing thread

Embroidering on fine fabrics such as silk, a silk sewing thread can be used for fine embroidery such as faggoting, pin stitch and hem stitch, etc.

Many other types of threads with special characteristics are available in the market with different brand names. These threads can be selected according to the suitability of the fabric, design, liking of the user, etc.

Now, we are almost set for starting embroidering. We have even read the about threads now. Let us see how we can hold all these material together for a neat outcome.

Fig. 2.12 Pure silk sewing threads

Fig. 2.13(a) Embroidery hoop (frame)

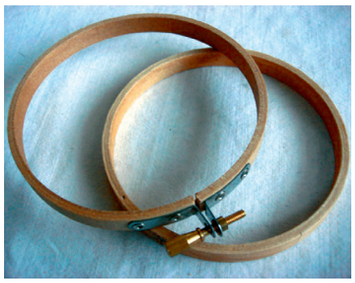


Fig. 2.13(b) Two rings of an embroidery hoop (frame)

(d) Embroidery hoop or frame

This tool is required to hold and stretch the fabric to a desired firmness and tightness while doing embroidery. A frame is a set of two rings; each ring fits inside each other, so that the material placed between them is held firmly and the fabric surface becomes tight and smooth to embroider. The most common type of frame for hand embroidery is the ring frame. It is always advisable to use a frame or hoop while doing embroidery to give the embroidery pattern a beautiful, neat and finished look. These frames are made of wood, plastic or metal and are easily available in the market in different sizes. Their size is measured by diameter, mostly ranging from 7.5–30 cm (3–12 inches) they are suitable for doing embroidery on small designs. The hoop usually has a nut and a bolt for tightening of the fabric between the two rings of the frame. While stretching the fabric on the frame, it should be kept in mind that unnecessary tightening by the nut bolt can damage the fabric. When embroidery is to be repeated on different parts of the fabric, the frame may be fixed on different parts of the fabric according to the placement of the embroidery design. When embroidery is to be done on a large design, an *adda* (a big adjustable frame using mostly wooden bars) may be used. Plastic frame is a good option for embroidery work, because it is durable and it doesn't stain the fabric. Many times, metallic frame stains the fabric because of the rusting. Wooden frames may draw the yarns of the fabric, hence damage the fabric or the embroidered pattern. Sometimes when the surface of the wooden frame is not smooth, fine wooden strands may be pricked in the fingers of the embroiderer.

Other materials used for embroidery

Needle threader

It is a small handy tool with a wire loop to thread the needle. It is very helpful for those who have difficulty in threading needles.

Fabric glue

This kind of glue is used only for fabrics and does not damage it. It is used to attach beads, sequins, pearls or different decorative material on the fabric.

Seam ripper

It is a small tool to open or unsew the stitches in case of faulty stitches.

Fig. 2.14 Seam ripper

Thimble

It is used to protect the fingers from getting pierced or discoloured during embroidery. Metal, rubber and plastic thimbles may be available in the market. The embroiderer must take care of his/her hands and use thimble while doing hand embroidery. Thimbles can be worn in any of the fingers or the thumb of the hand. Mostly, it is worn in the index or middle finger which holds the needle. It must be comfortable and should be light in weight. It is used to push the needle to the fabric painlessly without harming the finger.

Fig. 2.15 Thimble

Ruler

A simple ruler of 6 or 12 inches may be used to measure the accuracy of embroidery as per the motif and design whenever it is required. Wooden, plastic and metallic rulers are available in the market.

Trimming materials

These are used to decorate the embroidered patterns made on any fabric, sample or garment. They may be selected according to the embroidery design, type of fabric, end use of the product or material, liking of the user, etc. Different variety of trimming materials such as stones, mirrors, *gota patti*, beads, *dori*, etc., are available in the market. The embroiderer can select them according to his/her requirement.

Scissors for hand embroidery

Small scissors of a 3–5 inch length, are mostly used by the hand embroiderer to cut the threads, edges of the fabric, etc. Mostly, scissors with metallic or plastic

handles are available in the market. The embroiderer can use it according to his/her comfort or requirement. It is advisable to use sharp scissors of stainless steel. Handle the scissors carefully to avoid any accident.

Micro-tip scissors

It is a sharp tip pointed small scissor, mainly used to cut fine threads very near to the embroidery pattern.

Pinking shears

These have blades which give a zigzag edge to the fabric. It is used to cut the fabric to prevent fabric edges from unravelling.

Embroidery designs

The embroiderer can select the design according to his/her requirement. Designs may be taken from the catalogue, Internet, magazines, etc.

Practical Exercises

Activity 1

Collect samples of different types of fabrics and threads.

Material Required

1. A3 size sheet or practical file
2. Coloured pens and pencils
3. Ruler
4. Pencil
5. Eraser
6. Samples of fabric and thread

Procedure

1. Search and collect samples of different types of fabric and thread.
2. Attach the fabric on a sheet or in your practical file.
3. Put the samples of thread in transparent pouches.
4. Attach the pouches on the sheet or in the practical file.
5. Label the name of the fabrics and threads.

Activity 2

Collect samples of different types of trimming used in hand embroidery.

Material Required

1. A3 size sheet or practical file
2. Coloured pens and pencils
3. Ruler
4. Pencil
5. Eraser
6. Samples of different types of trimming

Procedure

1. Search and collect different types of trimming.
2. Put the samples of trimming in transparent pouches.
3. Attach the pouches on the sheet or in the practical file.
4. Label the names of the trimming.
5. Decorate the sheet or practical file using coloured pens or pencils.

Activity 3

Make a chart of the tools and raw materials used for the hand embroidery process.

Material Required

1. Chart paper
2. Coloured pens and pencils
3. Ruler
4. Pencil
5. Eraser
6. Pictures of different tools and raw materials used for hand embroidery

Procedure

1. Search and collect pictures of different types of tool and raw material used for hand embroidery.
2. Draw the figure of the tools if a picture is not available.
3. Label the tools and raw materials.
4. Make a chart depicting the tools and material that you think may be required for the hand embroidery process.
5. Display the chart in the classroom or the laboratory.

Check Your Progress

A. Fill in the blanks

1. _____ is the basic needle most often used for hand embroidery.
2. Tapestry needle point is _____ with large eye.

3. The stranded embroidery thread has mostly _____ strands.
4. A _____ is a set of two rings, each ring fits inside another so as to hold the fabric tightly while doing embroidery.
5. _____ is used to protect fingers while doing hand embroidery.
6. _____ _____ is a small tool to open or unsew the stitches in case of faulty stitches.

B. Questions

1. Different fabrics are used for different uses. Explain by giving two examples.
2. Why are different types of thread used for hand embroidery?
3. Which kind of needle can be used to embroider on silk or crepe fabrics?
4. Write two lines each on—
   (a) Thimble
   (b) Trimming materials
   (c) Scissors

Session 2: Embroidery Stitches

The skill of the hand embroiderer lies in the right selection of the design, embroidery stitches, threads and colours which would result in a product of beauty and grace. The stitches are used to form the outlines and/or to fill the surface of the embroidery pattern on the fabric. The basic embroidery stitches used in India and elsewhere have a similarity. There are different types of hand embroidery stitches, some very similar, others so different that all they have in common is that they are handwork. Often, two or more stitches can be embroidered in a single design to give an attractive look. Sometimes, the stitches of hand embroidery are divided into the following categories: outline and surface work, knot stitches, edging and hem stitches, flower stitches, satin stitch, buttonhole and eyelet stitches, cross and shadow stitches, etc. There are a number of hand embroidery stitches and their variations. Different decorative materials can also be used to enrich the beauty of the embroidered products.

In this session, some flat and loop stitches are considered for the learning of students. These are the stitches which students should learn in the initial stages. With time and practice, students can learn more hand embroidery stitches and their variations. Students should follow the tips for hand embroidery, given in Unit III of this book.

General steps to be taken by the embroiderer

The following basic steps need to be followed while doing any kind of embroidering and can be used for both flat as well as loop stitches. Once the embroiderer has prepared herself/himself by following these steps, s/he may follow the specific steps of a particular style of embroidery.

(i) The fabric of the traced embroidery design should be firmly fixed in the frame. Fix the fabric in such a way that the design is in the centre of the embroidery frame or hoop. Gently fix the fabric between the two rings of the hoop and tighten with the screw of the hoop or frame.

(ii) Collect all the appropriate tools and materials required for doing embroidery work.

(iii) Thread the needle with required strands of the thread.

(iv) Pull the thread on the upper side of the fabric at the initial point of the design from the back side of the fabric. Attach the end of the thread by a very small knot, or hiding the end with the stitches on the back side of the fabric.

(v) Make sure your hands are clean and washed so as not to leave stains on the fabric or the thread.

Hand embroidery stitches

(a) Flat stitches

It is a group or type of simple embroidery stitches in which stitches are made without looping the thread. They are also called straight stitches. These stitches are mostly used to embroider straight or curved outlines but sometimes used for filling also, depending upon the type of design. Some of the common flat stitches are

running stitch, stem stitch, back stitch, herringbone stitch, cross stitch, etc.

(i) Running stitch

It is the basic stitch to start learning the embroidery and also useful for making base for other embroidery stitches. It is made up of small evenly placed stitches, used on both straight and curved designs, like petals of flowers, letters and any other geometrical or curved design. The size of the stitches will be determined by the texture or thickness of the fabric—the finer the fabric, the smaller the stitches, while the coarser the fabric, the bigger the stitches. The length of stitches is also determined by the type of design, end use of the material, liking of the user, etc. While working on this stitch, care must be taken that all the stitches should pass through the total thickness of the material, not from the superficial or upper layer of the material. This stitch is used in the finishing process of a fabric, any stitched item or garment, etc. It can be used for outlining, for spirals, and as the base for other combination stitches. The needle should be passed through the fabric in such a way that the upper stitches should be of equal length, as should the under stitches, but the under stitches should be half the length of the top stitches.

After following the general steps for embroidering given above, follow the steps for making a running stitch.

1. Take several very small stitches (length of the stitches may be as per choice of the embroiderer and design) onto the point of the needle before drawing the thread through the fabric.
2. Pass the needle above and below the fabric at equal distances.

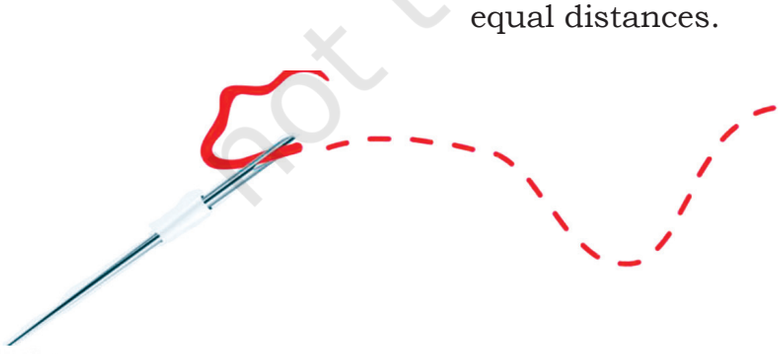


Fig. 2.16(a) Running stitch

Fig. 2.16(b) Running stitch—final look

3. Take the thread on the backside the fabric to close the stitch.
4. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.

(ii) Back stitch

It forms the base line for decorative stitches. It is necessary to keep the line of the back stitch straight and uniform. It is excellent for finishing the outlines of the design. In hand embroidery, this stitch is taken from the backside of the needle and is thus called the 'back stitch'. There are no spaces between the back stitches. The reverse side of this stitch appears like a stem stitch. In back stitch, the embroidery is done from right to left. If the stitches overlap one another, the design becomes stiff and the shape gets spoiled. Back stitch embroidery looks flat and painted.

Fig. 2.17(a) Back stitch

After following the general steps for embroidering, follow the steps for making a back stitch.

1. The needle must be moved a step backwards before a step is taken forward along the stitch line.
2. Bring the needle out at 1. Insert at 2 and remove at 3; distance between 3-1 and 1-2 should be equal. Repeat the sequence for the next stitch.
3. Continue in a similar manner and keep the length of the back stitches consistent.
4. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.

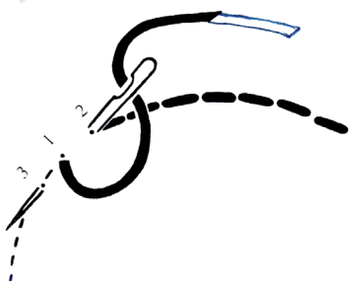


Fig. 2.17(b) Back stitch—final look

(iii) Split stitch

This stitch makes a solid thick outline with an added texture or effect to it. This stitch is used in outlining as well as in filling some areas. When it is stitched, the needle moves ahead by splitting each stitch. The name of this stitch is derived from the fact that the embroidery thread is split as each stitch is made. Split stitch is a variation of stem stitch in which the needle passes through the thread of the previous stitch, splitting the previous stitch.

After following the general steps for embroidering, follow the steps for making the split stitch.

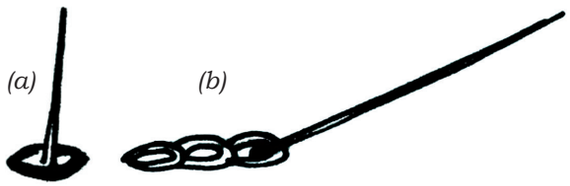


Fig. 2.18(a) and (b) Split stitch

1. Bring the needle through the fabric, hold the thread down, and take a stitch back through the thread, thus splitting it.
2. Take another small stitch about ⅛–¼ inches long on the marked line of the design, splitting the thread again.
3. Continue in this way until the desired number of stitches has been made.
4. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.

Fig. 2.18(c) Split stitch—final look

(iv) Stem stitch

It is a fine outlining stitch which can be seen as a row of oblique even-sized stitches. The needle is first brought to the front side of the fabric, an oblique stitch is made. The needle is then pushed towards the back side of the fabric. On the back side, the needle moves a short distance before being taken out from the front side, beside the previous stitch. To make the stem stitch, the work should be begun at the end of the line nearest to the embroiderer and pointing the needle towards him/her, progress away to make the stitches. Keep the thread on the same side of the needle all the time. If you want a very smooth, unbroken effect, throw a twisted thread in the direction of the twist of the thread, usually to the left. By throwing it to the right, you work in opposition to the twist of the thread to get a rougher effect, which is sometimes liked by the users. It is also used in combination with other embroidery stitches. This stitch is used for flowers, stems, outlining and solid line that is required in a design. This is one of the easiest and most durable embroidery stitches. It is made with any kind of thread, the size varying with the effect sought. The finished embroidery will look like a thin line on the front side, whereas at the back side it will look like a back stitch. The stem stitch is used to embroider mostly small designs on bibs, baby frocks and handkerchiefs. In addition to that, this stitch is also used to embroider saree borders and delicate tendrils.

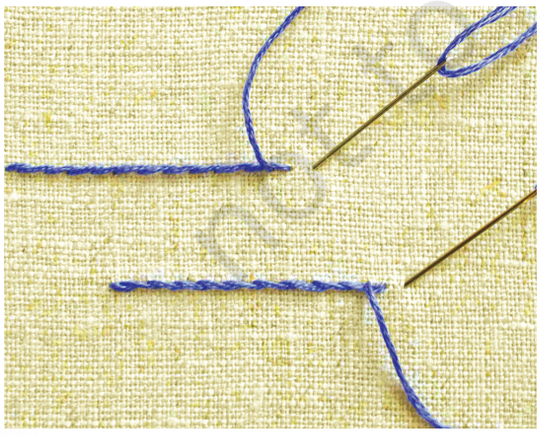


Fig. 2.19(a) Stem stitch

After following the general steps for embroidering, follow the steps for making the stem stitch.

Fig. 2.19(b) Stem stitch—final look

1. Insert at some distance and exit a half stitch length backwards. (In every case, the needle must be moved a step backward before a step is taken forward.)
2. Keep the length of the stitches equal.
3. Till the design is complete, the thread should be kept either on the left side or on the right side.
4. Proceed in this way, keeping the stitches even in length.
5. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.

(v) Cross stitch

It is formed by two crossing arms. In this, a single diagonal stitch is taken first in one direction and then in another to cross the first at right angles. These crosses are worked in groups to form mostly letters and numerals, geometrical designs, etc., cross stitches are worked in rows of even slanted stitches, first from the left to the right, laying down half the crosses, and back from the right to the left to complete them. A blunt tapestry needle is used for this stitch. The most suitable fabric for a cross stitch is an even weave fabric. Matty, gingham, casement, khadi, jute and other checked fabrics are mostly used for cross stitch embroidery. While making a cross stitch on a matty fabric, the squares of the matty fabric can be counted easily and the stitches may be made according to the design on the matty. The cross stitch is used for embroidering saree borders, dresses, including that of children, and home furnishing items such as telephone mats, dining table mats, bed covers, pillow covers, etc.

After following the general steps for embroidering, follow the steps for making a cross stitch:

1. The designs are made using small cross stitches, such as geometrical, floral, animal, bird, numerals, etc.

2. Bring the needle upwards and take cross stitches from the left to the right. Repeat the same from the right to the left to complete the cross.
3. In this way, the whole cross stitch design will be made. Change the shade of the thread according to the design and complete it.
4. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.

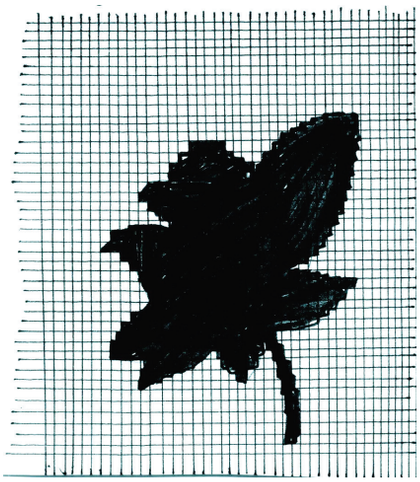


Fig. 2.20(a) Cross stitch design on a graph

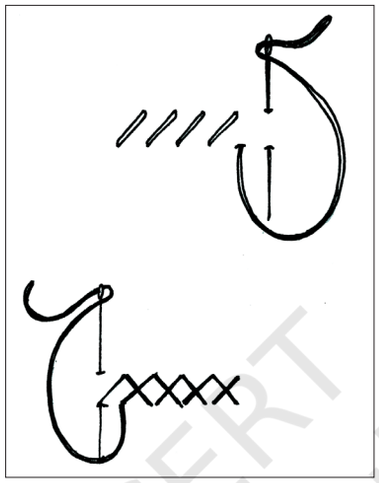


Fig. 2.20(b) Cross stitch steps

Fig. 2.20(c) Cross stitch sample

(vi) Herringbone stitch

This stitch is a variation of cross stitch. In herringbone stitch, the cross is made at the top and bottom instead of in the centre as in the cross stitch. On the back of the fabric, the stitch is visible as parallel rows of running stitch. The stitches can be worked closed together by working two rows of stitches over each other so that the stitches intersect in different style to form a variety of design of greater or lesser intricacy. Embroidered with a slight gap between two lines, when worked closely it is called close herringbone. When the close herringbone stitch is worked on a semi-transparent fabric, the reverse is used as the face of the embroidery; it is called shadow work. To maintain the shape of the design, herringbone stitches are taken close together. These stitches are well suited for floral designs and to neaten the edges of materials. This stitch should have the small stitches equally spaced alternately at the top and bottom. The

herringbone stitch is used mostly to embroider saree borders, kurtis, blouses, children's garments, etc. It is also used to embroider home furnishing items.

After following the general steps for embroidering, follow the steps for making the herringbone stitch:

1. To maintain the shape of the design, take a small stitch in the opposite lines of the design on the fabric.
2. Take out the needle behind the previous stitch and slightly in front of the thread. Work from right to left and left to right.
3. Continue in the similar way to complete the line.
4. When the design is in the double lines, take the first stitch on the upper line and the next on the lower line in front of each other. This gives a cross stitch look. While embroidering floral designs, take the stitches very close together. This makes the design clear, prominent and attractive. If embroidering with two colours, take the stitches with the some gap in between both the lines. And if embroidering with single colour, then take the stitches close together in both the lines.
5. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.

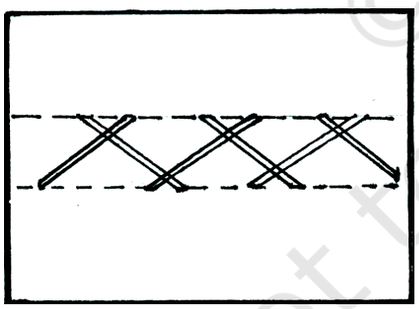


Fig. 2.21(a) Herringbone stitch

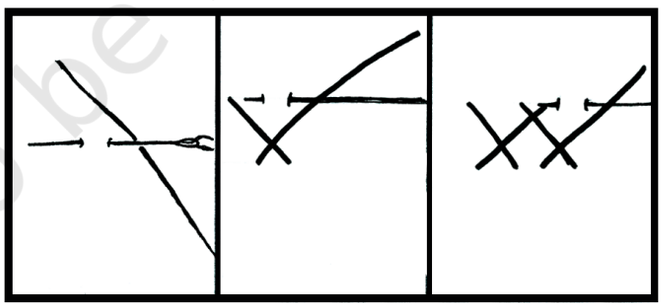


Fig. 2.21(b, c, d) Herringbone stitch steps

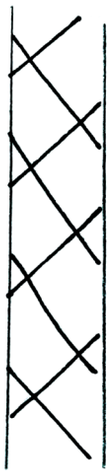
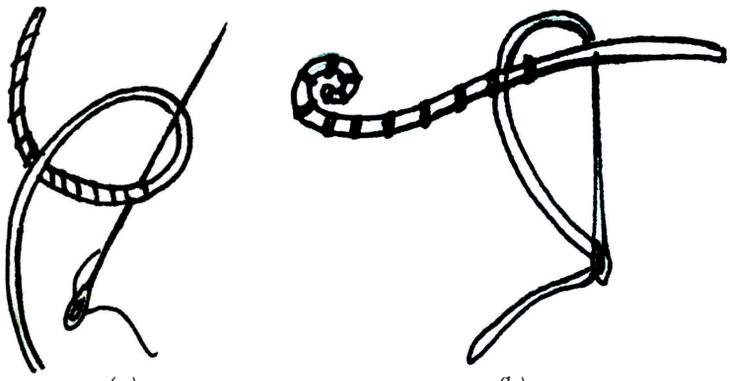


Fig. 2.21(e) Herringbone stitch—final look

(vii) Couching stitch

In this stitch, single or multiple threads, wires and decorative materials are laid on the fabric and held in place by sewing with a thread in diagonal stitches. It is helpful in creating thick and thin outlines in single and



(a) (b)

Fig. 2.22(a, b) Couching stitch

dual colours. The stitches can be placed close together or wide apart. The sewing thread can either match the laid material or be different, as per the required effect. The couching stitch can be worked on outlines or to fill the areas by laying the material side by side, covering the whole area to be embroidered. To achieve the raised effect, a soft and thick cotton thread is laid and secured as the foundation. Then, the material for couching is taken and is couched all through the motif by the stitches passing through the material. This stitch is mostly used on dresses and jackets, kurtas and sherwanis, etc.

After following the general steps for embroidering, follow the steps for making a couching stitch:

1. Place one thread along the design outline.
2. Place a stitch with the contrast or same coloured thread over the first thread.
3. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.

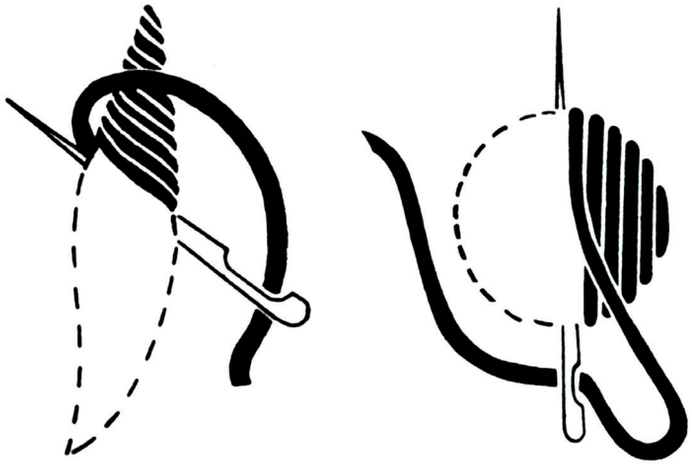
(viii) Satin stitch

This is made by working parallel or radiating stitches close together to completely cover the design, from the front and back side of the fabric. Satin stitch looks similar on both the sides of the fabric. Narrow and small-sized floral designs are mainly suitable for this stitch. To make a neat and clear embroidered pattern of this stitch, the design is outlined with running stitches. To give an embossed look to the letters of the monogram, lining is used beneath the embroidery. Satin stitch is used to mostly embroider monograms. It is used on handkerchiefs, bags, pillow covers, sofa backs, children's garments, sarees, etc.

After following the general steps for embroidering, follow the steps for making a satin stitch:

1. Make an outline of the design with the running stitch or stem stitch to be embroidered.

2. Bring the needle from below, upwards, at the beginning of the design.
3. Insert the needle from above, downwards, at the other end of the line of the design.
4. Repeat the same process for it. Take the stitches close to one another pulling the thread gently.
5. Go on embroidering carefully to avoid puckering.
6. Take care that the thread does not overlap at curves.
7. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.



(a) (b)

Fig. 2.23(a, b) Satin stitch

(ix) Long and short stitch

As long and short stitches are taken one after another, therefore, the name of this type of stitch is the 'long and short stitch'. The long and short embroidery is done in floral designs, and in patterns depicting birds and animals. Two different shades of a colour or sometimes, even three shades of a colour are selected for the design. The embroidery is done from the upper part of the design. In the beginning, an outline is done with the running stitch with a light coloured thread. In this stitch, the light shade of a colour is used on the upper part and a dark shade is used on the lower or the inner part of the design. This stitch seems similar on both the sides of a fabric. The fabric is kept tight in the embroidery frame. This avoids puckering. Long and short stitches are mostly used for embroidering logos, children's garments, photo frames, wall pieces, sarees, table covers, bed sheets, pillow covers, sofa backs, handkerchiefs, woollen shawls, etc.

After following the general steps for embroidering, follow the steps for making the long and short stitch:

1. Make an outline of the design with a running stitch. Refer to the steps in (i).

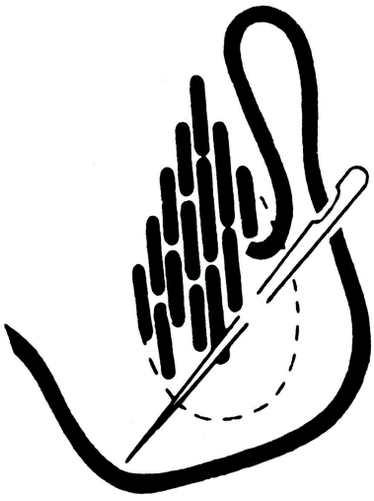


Fig. 2.24(a) Long and short stitch

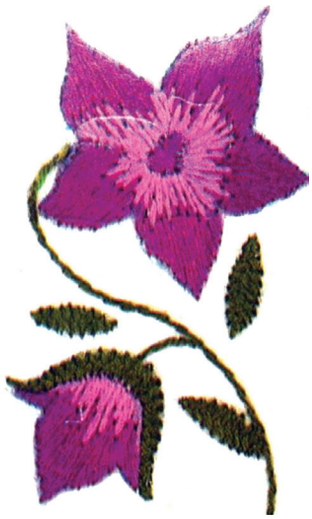


Fig. 2.24(b) Long and short stitch—final look

2. Make the design by making one stitch long and the next one short. Carry this out using a single coloured thread.
3. The other shade of the colour should be used in such a way so that it intermingles correctly with the previous shade of the same colour. There should be no gaps remaining between the two colours of stitches.
4. Continue embroidering the design in this way.
5. Take stitches very close to one another so that they intermingle.
6. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.

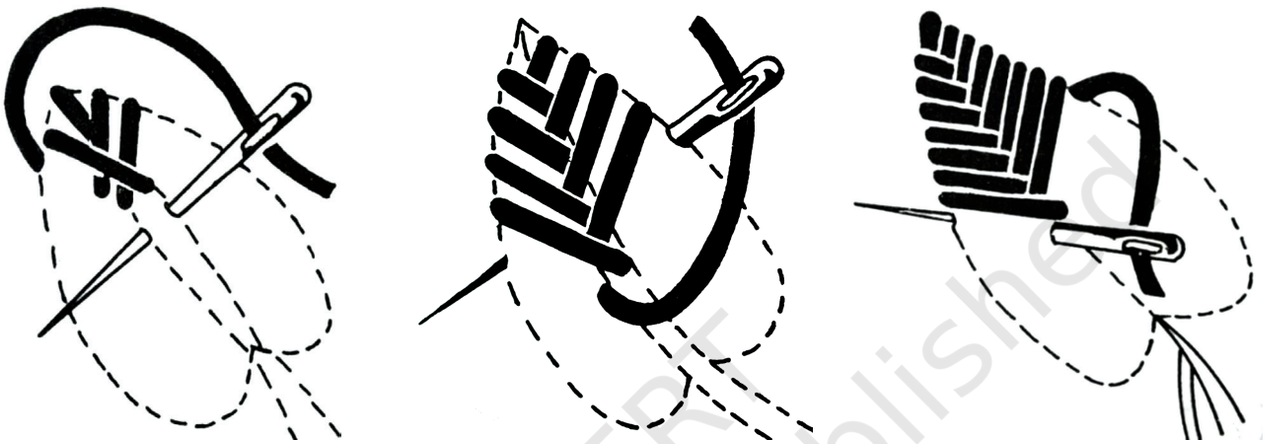
(x) Fishbone stitch

This stitch resembles the backbone of a fish, therefore it is called fishbone stitch. This is a type of filling and flat stitch, which is suitable for making leaves or feathers. The vein of the leaf is used as the centre and the stitches are taken alternately to its left and right. Usually oval and narrow shaped designs are selected for the fishbone stitch. Two shades of the same colour are used in the design to make it more attractive. The fishbone stitch is mainly used to embroider children's garments such as bibs, frocks, yokes, etc. It is also used to embroider handkerchiefs, home furnishing items, etc.

After following the general steps for embroidering, follow the steps for making a fishbone stitch:

1. Begin the work from the upper part of the vein of the leaf, petal of the flower or according to the design.
2. Bring the needle from the backside to the front side and make a small stitch.
3. According to the size of the leaf, make a stitch about 1–2 cm long from the upper part of the vein.
4. Now take one stitch to the right of the vein upward from below.

5. In the same way, take a stitch to the left of the vein from the upward to the downward direction.
6. Then bring out the needle from the left side of the vein upwards.
7. Similarly, insert the needle to the right side of the vein and continue embroidering.
8. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.



(a) (b) (c)

Fig. 2.25(a, b, c) Fishbone stitch

(b) Loop stitches

It is a type of embroidery stitch in which loops are formed from the embroidery thread. Chain stitch is the most common type of loop stitch. Some other loop stitches are buttonhole stitch, blanket stitch, French knot, bullion stitch, fly stitch, etc.

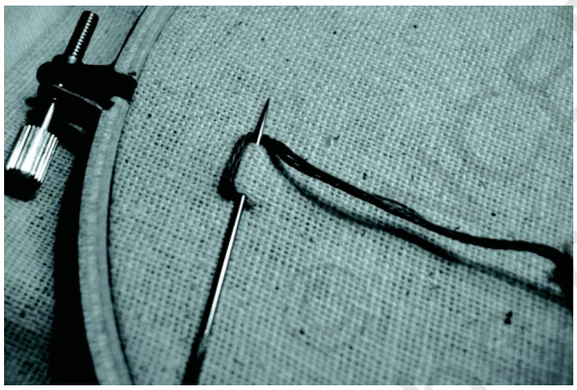
(i) Chain stitch

It looks like a loop formed by passing the thread over the point of the needle, as the needle is pushed to the front side from the back side and securing it by the following stitch. It is used mostly to embroider straight lines. But it can be used to embroider floral designs, birds and animals, etc. In case of floral designs, the chains are made very close to each other for filling effect. It can also be used in rows or in spirals. A single thread is more effective than a number of strands. While embroidering this stitch, the distance between the two stitches should be kept equal. To make a broad outline, the needle is

passed across in a slanting way with loop thread under the needle. Bring the thread out at the beginning of the line, hold the thread down with the left thumb while the needle is reinserted into the same spot and brought out again a short distance away. Draw it through, over the loop of thread under the thumb. The needle always goes down again into the same hole. The stitches should be kept even in length. They should never be drawn very tight; because that destroys the effect of their being linked in a chain. The chain stitch is used to embroider adult and children's garments. It is also a very common stitch for embroidering home furnishing items, etc.

After following the general steps for embroidering, follow the steps for making a chain stitch:

1. Bring the needle from below, upwards.
2. The needle is inserted back into the same hole and taken out at some distance above it.
3. The working thread is carried under the needle point.



(a)

(b)

Fig. 2.26(a, b) Steps for making a chain stitch

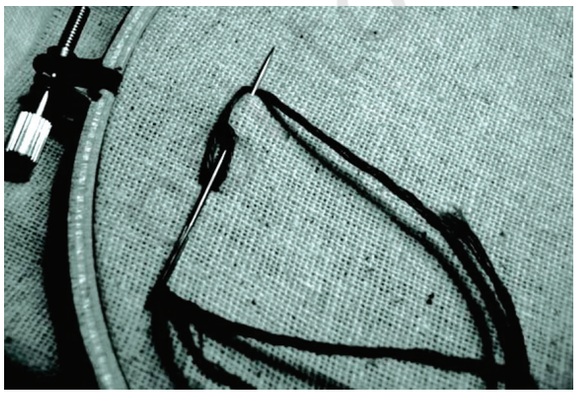


Fig. 2.26(c) Steps for making a chain stitch

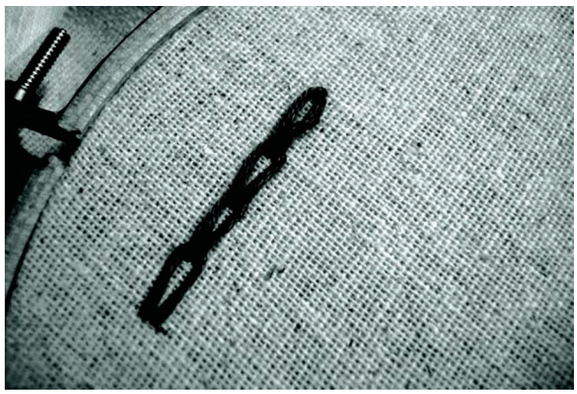


Fig. 2.26(d) Chain stitch—final look

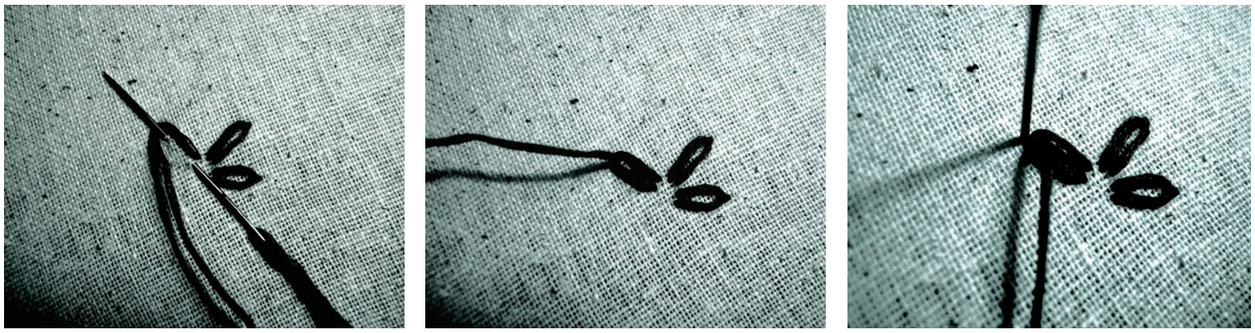
4. Now, pull the needle very gently, so the chain loop is made.
5. Carry out the next stitch the same way, always inserting the needle into the hole made by the emerging thread. Continue in this way for the entire line or the design.
6. Work a chain stitch holding the thread which is being stitched firmly with the thumb. Adjust the loose thread and then adjust the chain stitch just made.
7. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.

(ii) Lazy-daisy

This stitch is mostly used to embroider small petals and leaves. It is a small loop stitch. At the end of the loop, create a small stitch which looks like a daisy petal. Space out the next loop or use the stitch to create a daisy by making five or more petal shapes to create a flower shape. The lazy-daisy stitch is a variation of the chain stitch. The size of the thread must be chosen to correspond with the size of the petal: medium-fine thread (or two or three strands of six strand thread) for small petals; very heavy rope thread (or the full number of strands of six-strand thread) for large petals. Two colour schemes make it more attractive.

After following the general steps for embroidering, follow the steps for making the lazy-daisy stitch:

1. It is worked by taking out the needle from below, upwards, at the base of the petal or the flower.
2. The needle is inserted back into the same hole and taken out at some distance above it. Carry the thread under the needle point.
3. Press the loop thread firmly under the thumb and pull out the needle gently. Insert the needle just over a chain loop.
4. To avoid twist in the thread, take out the needle from the nearest petal.
5. Proper shape and distance should be maintained while embroidering small petals of a flower or leaves.



(a) *(b)* *(c)*

Fig. 2.27(a, b, c) Lazy-daisy stitch

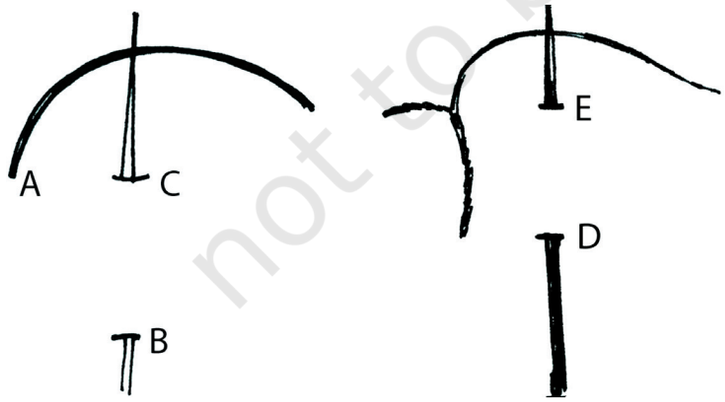
6. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.

(iii) Blanket stitch

It is similar to the buttonhole stitch and is mainly used to finish the blanket's edges. It is one of the simplest ways of decorating or holding a garment's hem or edge. This stitch can be worked in straight or diagonal lines. Variations of blanket stitch can produce some attractive effects.

After following the general steps for embroidering, follow the steps for making a blanket stitch:

1. Slant the needle to the left for the first stitch and then insert it in the same place for the second, but slant it to the right.
2. Two rows of blanket stitch, one straight and one slanting are worked to get a coloured binding on the edge of the fabric.



(a) *(b)*

Fig. 2.28(a, b) Making a blanket stitch

Fig. 2.28(c) Blanket stitch—final look

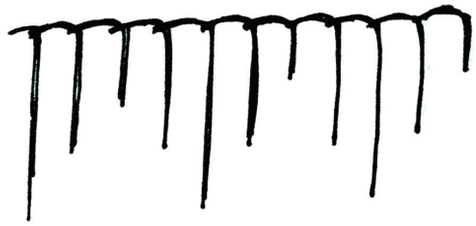


Fig. 2.28(d) Blanket stitch variation

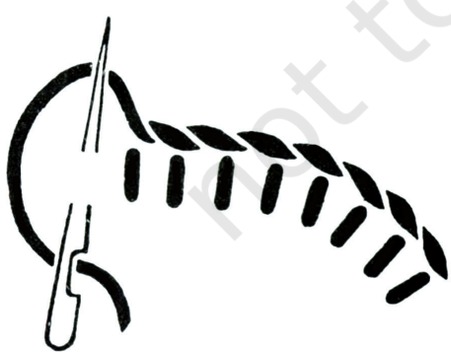
3. The straight stitches are only half the width of the binding.
4. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.

(iv) Buttonhole stitch

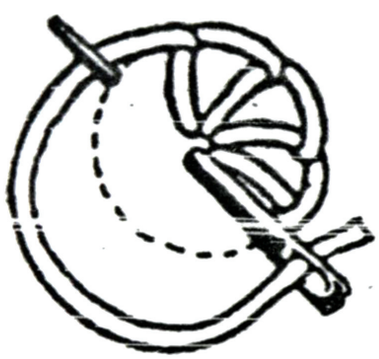
This stitch is used to finish buttonholes; thus, the name 'buttonhole stitch'. This stitch is to create an outline, finish the edges or attach appliqués. It is also used for attaching mirrors in embroidery patterns. Though the buttonhole stitch can be used in any type of design, it is mostly used for doing floral designs. These stitches are placed very close together to form a firm edge. At times, this stitch is used in the centre of a motif. The needle enters the same hole in the centre each time, making a hole in the centre while the wheel around it is filled completely. The buttonhole stitch is used for outlining and attaching mirrors in embroidery, for example, most of the mirror work in Gujarat and Rajasthan uses this stitch. It is used to make the corners of table covers, bed sheets, sofa covers, chair covers, saree borders, etc.

After following the general steps for embroidering, follow the steps for making the buttonhole stitch:

1. Bring the needle out from below upwards, on the design line.
2. Based on the width of the stitch, insert the needle at one edge and take out from the other.
3. Before pulling the needle through the fabric, carry the thread under the needle point.
4. Embroider carefully to keep the width of the stitch even and work all the stitches very close together to keep the continuity.



(a)



(b)

Fig. 2.29(a, b) Buttonhole stitch

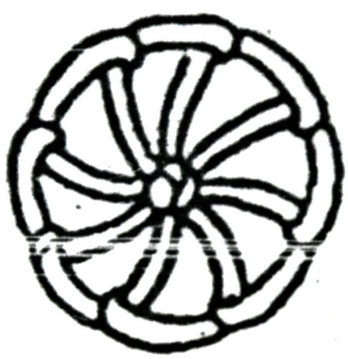


Fig. 2.29(c) Buttonhole stitch—final look

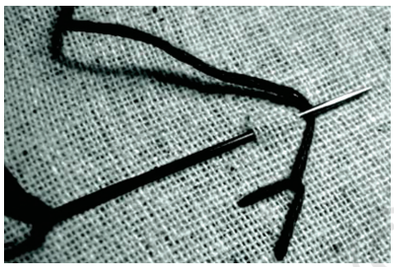
5. In case of groups in the buttonhole stitch, even space should be maintained after each group.
6. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.

(v) Feather stitch

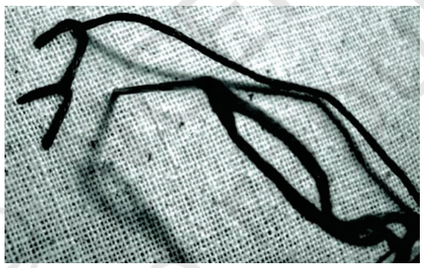
It is used differently in double line and floral designs. In the double line designs, the stitches are taken with some gaps in between. In the floral designs, the stitches are taken close to each other as well as small in size. In this stitch, each loop is formed first to the right hand side and then on the left hand side of the embroiderer. All stitches should follow the same direction and should be equally spaced. This stitch is mainly used in embroidering handkerchiefs, bibs, saree borders, neck and sleeve borders, etc.

After following the general steps for embroidering, follow the steps for making a feather stitch:

1. The needle is brought from the backside to the front side on the line of the design.
2. Work stitches from the top to the bottom.



(a)



(b)

Fig. 2.30(a, b) Making the feather stitch

Fig. 2.30(c) Feather stitch—final look

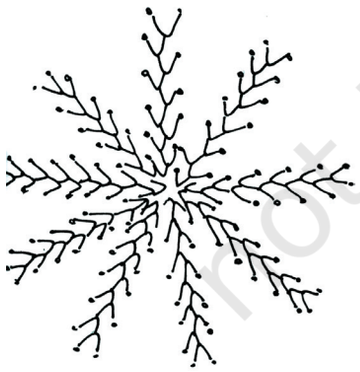


Fig. 2.30(d) Feather stitch sample

3. A feather-like look comes from their being open, looped stitches taken alternatively to the right and the left from a central core.
4. Every time the needle is pulled very gently, press the stitch under the thumb.
5. Because of the back-and-front movement of the needle, care should be taken to keep the stitches even on both sides of the central line.
6. It is advisable to draw guidelines lightly for the central line as well as for the side lines before starting the work.
7. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.

(vi) Fly stitch

It is also a type of loop stitch. The formed stitch resembles the wings of a fly, and is therefore known as fly stitch. Its variation can be made by adjusting the lengths of the loop. It involves making a single loop with the thread and then tacking it down. It helps in forming designs like small plants, birds and grass, etc.

After following the general steps for embroidering, follow the steps for making a fly stitch:

1. Bring the thread out from underneath the material, letting the thread hang in the form of a semicircle.
2. Take out the needle from the opposite side, a little farther from the first stitch, and take a stitch till it forms a V-shape by keeping the thread under the needle.
3. Insert the point of needle below the looped thread, thus forming the couching stitch required to hold the loop in place.
4. Continue from step one to complete the design.
5. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.

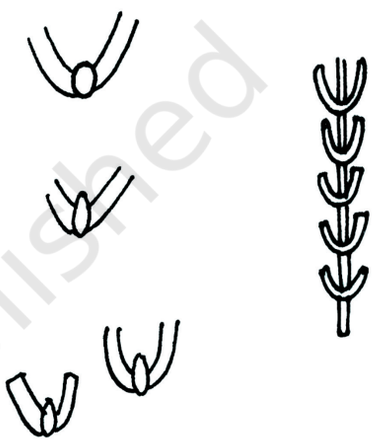


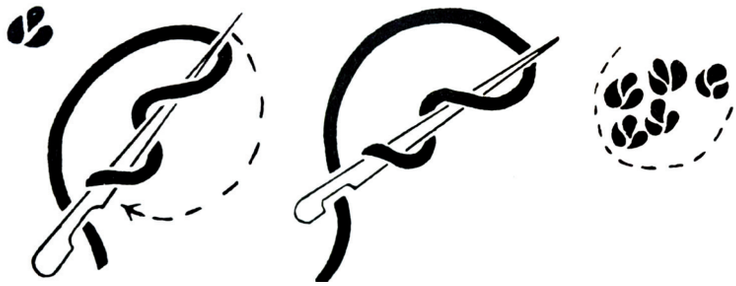
Fig. 2.31 Fly stitch—final look

(vii) French knot

It is a favourite with embroiderers because of its rounded, raised look that makes the design look elevated. It is mostly used to create the centre of a flower and the eyes in an embroidered figure. Figures with outlines, birds, animals, flowers and leaves are selected for the French knot. Outlines of animals and birds can be made more delicate by using only one strand of the thread. The method to embroider the French knot and the bullion stitch is almost the same. Thus, sometimes they can be used to substitute each other. French knots are used in garments like bibs, frocks, skirts, etc. It is also made on handkerchiefs, pillow covers, bed sheets, etc.

After following the general steps for embroidering, follow the steps for making the French knot stitch.

1. Bring out the needle from below upwards, at a point where the French knot is to be made.
2. Hold the thread tight with the left hand.
3. Wrap the thread around the needle once or twice (clockwise/anti-clockwise).
4. Gently pull the thread so that the twists are tightened against the needle.



(a) (b) (c)

Fig. 2.32(a, b) French knot

Fig. 2.32(a) French knot — final look

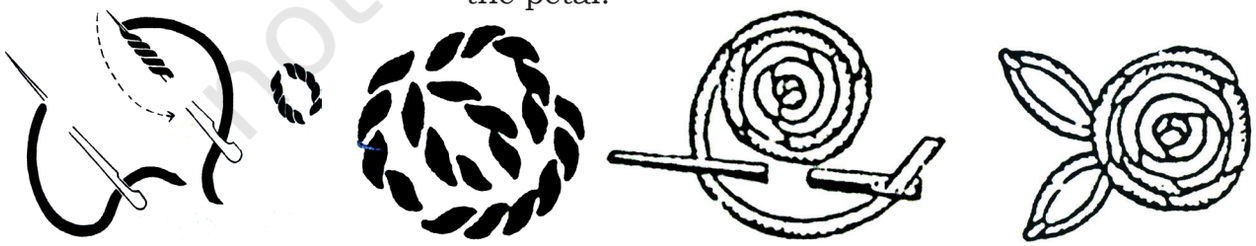
5. Carefully insert the needle near the first point and pull it through; be sure that the thread end is still held taut.
6. A continuous line of knots is made to outline the embroidery. For floral designs, take the knots close to one another.
7. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.

(viii) Bullion stitch

It takes its name from its resemblance to the heavy twisted gold bullion used in fringes, tassles and ornate embroidery. It is used mainly for embroidering small roses. It creates a very realistic effect, especially when two or more shades are used in a rose. The floral design, when embroidered with shaded thread gives the effect of a beautiful rose. For making leaves, the thread is twisted according to the length of the leaf. The bullion stitch looks beautiful on frocks, saree borders, necks of kurtis, handkerchiefs. It can be made on home furnishings also.

After following the general steps for embroidering, follow the steps for making bullion stitch:

1. Take out the needle from the backside to the front in such a way that three fourths of the needle is above the fabric. Hold the eye of the needle with the left hand.
2. Coil the thread around the needle according to the size of the petals of the design (clockwise/ anticlockwise).
3. Hold the coiled thread with the left hand so that the twists are tightened against the needle.
4. Now arrange them on one side of the petal and insert the needle.
5. Repeat the same process for the other side of the petal.



(a) (b) (c)

Fig. 2.33(a, b, c) Bullion stitch

Fig. 2.33(d) Bullion stitch—final look

6. In this way, a complete pattern will be made.
7. For the inner portion of the flower, five twists are sufficient and for the outer layer of the flower, 6–12 twists should be made.
8. By following this order, beautiful flowers can be made through the bullion stitch.
9. Make a loop and pull the thread from the loop to end the stitch on the backside of the fabric.

Practical Exercises

Activity 1

Prepare samples of different types of flat stitches.

Materials Required

1. A3-sized sheet or practical file
2. Tracing paper
3. Carbon paper
4. Fabric sample of size 9" × 9"
5. Ruler
6. Pencil
7. Eraser
8. Embroidery threads of different colours
9. Embroidery needles
10. Hoop
11. Scissors
12. Glue or any adhesive

Procedure

1. Trace the design on the fabric sample using tracing or carbon paper. Students can also draw the design freehand on the fabric sample.
2. Fix the fabric sample firmly in the frame.
3. Embroider the design of the sample using loop stitches. (Follow the instructions to perform flat stitches as given in the session)
4. Finish the sample edges using hemming or using pinking shears.
5. Attach the sample on the sheet or in the practical file.

Note: The student should make samples of all flat stitches.

Tip: All bright coloured threads will show better on light coloured fabric and all light shades of threads will look prominent on dark coloured fabrics.

Activity 2

Prepare samples of different types of loop stitches.

Materials Required

1. A3-sized sheet or practical file.

2. Tracing paper
3. Carbon paper
4. Fabric sample of size 9” × 9”
5. Ruler
6. Pencil
7. Eraser
8. Embroidery threads of different colours
9. Embroidery needles
10. Hoop
11. Scissors
12. Glue or any adhesive

Procedure

1. Trace the design on the fabric sample using a tracing or carbon paper. Students can also draw the design freehand on the fabric sample.
2. Fix the fabric sample firmly in the frame.
3. Embroider the design of the sample using loop stitches. (Follow the instructions to perform loop stitches as given in the session)
4. Finish the sample edges using hemming or using pinking shears.
5. Attach the sample on the sheet or in the practical file.

Note: The student should make samples of all loop stitches.

Check Your Progress

Fill in the blanks

1. It is necessary to keep the line of the back stitch _____ and _____.
2. Cross stitch is formed by two _____ _____.
3. Herringbone stitch is a variation of _____ stitch.
4. _____ stitches resemble the backbone of a fish.
5. Lazy-daisy stitch is a variation of _____ stitch.
6. Blanket stitch is mainly used to finish _____ _____.

Questions

1. What is the difference between flat stitches and loop stitches. Write steps to make any one of them.
2. Draw step-wise, the method of making chain stitch.
3. Which cloth is most appropriate to use cross stich? Draw a pattern on a graph paper to be used for cross stitch.
4. Write short notes on
   (a) Herringbone stitch (b) Fishbone stitch

Unit 3

Embroidery Defects and Finishing

Introduction

While doing embroidery work or even after its completion, some defects might arise, which a good hand embroiderer should be able to recognise and rectify properly. These defects may occur because of improper stitch lengths or by inserting the needle at the same place multiple times, which damages the fabric; incorrect way of using the backing; incorrect use of thread and needle; or by pulling the stitches hard. Lack of finishing while doing embroidery may also cause certain defects.

All these defects should be rectified neatly and properly without any damage to the fabric and embroidery work. The embroiderer should be careful while handling the fabric, needle and thread. A lot of patience and hard work is required to keep a check on these defects while doing any embroidery type. This unit deals with all these aspects in detail.

Session 1: Embroidery Defects and their Rectification

Embroidery defects

These arise because of faults and problems in the stitches, or fabrics or design, or in all. Some of the basic embroidery defects are—

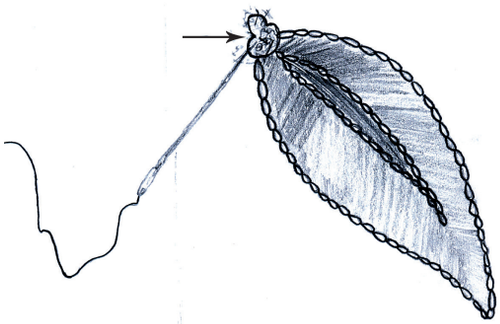


Fig. 3.1 Fabric damage

(a) Fabric damage or needle holes

These are caused because of the following reasons:

(i) the use of incorrect type and size of needle
(ii) adding a lot of stitches on the same spot
(iii) not tearing the backing properly
(iv) the fabric getting damaged when the stitches are pulled out and
(v) the damage caused on the fabric because of recurring needle piercing, especially around the corners of the embroidery.

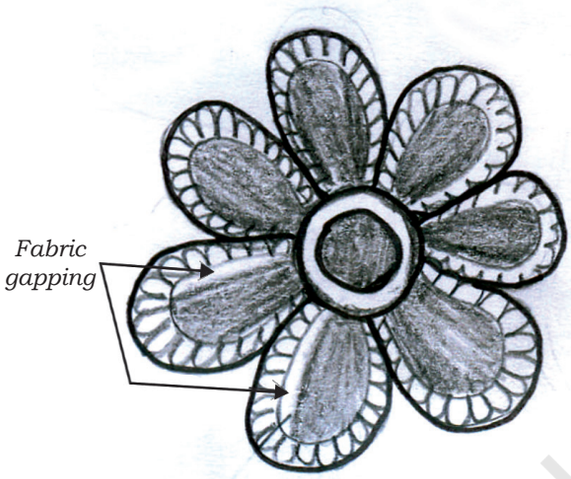


Fig.3.2 Fabric Gapping

(b) Fabric gapping

This defect occurs when the fabric gaps are visible through the embroidery design in the background, either in the middle part of the design or on the edges.

(c) Missed trims

When threads are left on the front side in the embroidery design between the designs, it is called missed trims.

Fig. 3.3 Missed trims

(d) Improper placement of embroidery design

This is a result of the incorrect tracing of the design.

(e) Poor registration of design

When the embroidery design and stitches are not arranged correctly, then this defect can be seen.

(f) Bunching at the corners

When the corners of the embroidery design are not crisp because of gathering up of the thread at a point, it is known as bunching.

(g) Thick embroidery

This defect can be seen when the embroidery is very dense or thick in some places.

Fig. 3.4 Thick embroidery

(h) Poor stitch density

When the stitch is not dense and done quite apart, the base fabric is visible in the embroidery and is called as poor stitch density.

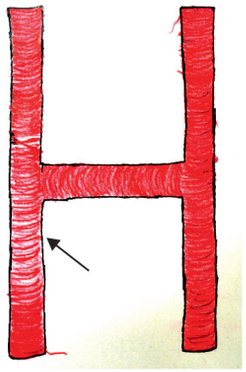


Fig. 3.5 Poor stitch density

(i) Poor hooping

Due to poor hooping, the fabric around the embroidery gets hazy or wrinkled, and thus, stops to lay flat on a fabric surface.

Fig. 3.6 Poor hooping

Rectifying mistakes

(i) Sometimes, the spacing does not look correct or some area of the embroidery is unacceptable. Generally, it does not work to reverse the needle out or take the needle out on the backside. If just some stitches are involved, remove the needle and use the blunt end of it to lift out the thread from the offending stitches.

(ii) Rethread the needle and retry. Check the hoop and its tension, keep it firm to avoid fabric ruches and use proper backing, like fusing paper, before starting the embroidery.

(iii) Wherever the larger area of stitching of beads is involved, the most time-efficient way to repair the damage is to remove the beads. This is done by cutting the threads in several locations.

(iv) Hoop should not be stretched too much; otherwise, it will damage the fabric. Hoop marks should always be ironed after completion of embroidery work.

(v) Thread thickness should be chosen as per the base embroidery fabric to avoid fabric damage. Threads should also be selected according to the designs.

(vi) Use scissors carefully to cut the trims and extra loops. The leftover threads can be trimmed or glued at the wrong side of the completed embroidery product.

(vii) After understanding the defects, like fabric damage, gapping, thick embroidery, etc., the students can rectify them by doing embroidery stitches correctly.

Ensuring the quality of embroidery near perfection in the final product is essential for the overall look of the garment or product.

Important tips for good embroidery work

(i) Before starting embroidery work, wash hands with soap so that the fabric or the material used remains as clean as new.

(ii) Ensure that the embroidery hoop (ring or frame) is fitted properly before starting the embroidery work. For holding the fabric tight and stretched, wrap a ribbon around the inner ring, if the outer ring is loose.

(iii) The thread should not be very long (i.e. not more than 17 inches). A very long thread pulled too often through the fabric tends to coil or fray towards the end.

(iv) Avoid using a knot when starting or ending an embroidery thread. Bring the needle straight up and start the embroidery, holding the thread on the wrong side of the fabric and hiding it under the working stitches. Remember that it should not be pulled so as to avoid damaging the stitches. The finished embroidery work should be neat and even, on the wrong as well as the right side. Students in the learning stage can make knots while doing embroidery.

(v) Make the embroidery in a way that the shape of the design is maintained properly. It should be done gently and the working thread should not be pulled too much. Use small scissors to cut the threads.

(vi) Avoid putting pressure over the fabric, otherwise it may become loose.

(vii) Keep all the embroidery tools and supplies handy in a box.
(viii) Wrap the remains of the yarn and the thread on a piece of cardboard so that they can be reused.
(ix) Keep the embroidery ring in a plastic bag so it doesn't get dirty.
(x) Cover the incomplete embroidery on the frame with a clean cloth to keep safe and clean.
(xi) Do not use very hot iron over the embroidered portion to avoid damaging it.
(xii) Do not dry embroidered fabric in sunlight; otherwise the colours will fade away.
(xiii) Place the samples of the embroidery over the canvas. Attach in the file to preserve them.
(xiv) Keep *zari* work (silver or golden) thread away from perfumes or fragrance; otherwise, they become discoloured.
(xv) Practise embroidery continuously to become more efficient and to be able to do a more intricate embroidery work in less time.
(xvi) Carry out embroidery, preferably in the daylight, to avoid strain on the eyes.
(xvii) Use fast coloured threads for embroidery; otherwise, it will spoil both the embroidery as well as the fabric.
(xviii) Use lining material or backing as per the nature of the fabric to be embroidered in order to give it strength, stability and durability.
(xix) Use needles of appropriate number to embroider.
1. Chenille i.e., a sharp, pointed needle with thin and long eye is appropriate for stem stitches, lazy daisy stitches, straight stitches, mirror work, etc.
2. Crewel i.e., a sharp, pointed needle with round eye is used for French knot, bullion knot, etc. A round eye needle is convenient to slip the yarn wrapped around it.
3. Tapestry needles are blunt at their point or tip. They are used for matty cloth with cross stitch, open work embroidery, wool embroidery, etc. As the point of the needle is blunt, it does not draw or stretch the thread from the fabric.

Precautionary measures while doing embroidery

(a) Use of thimble

It is a lightweight and small hard-pitted cup worn on the finger or thumb for its safety and protection. It is useful while hand sewing not only to protect the fingers but also to direct the needle through the fabric. These are made of metal, rubber as well as plastic.

There are two main types of thimbles—open-ended thimble, used mainly by tailors, and close-ended thimble, also called dressmaker thimble.

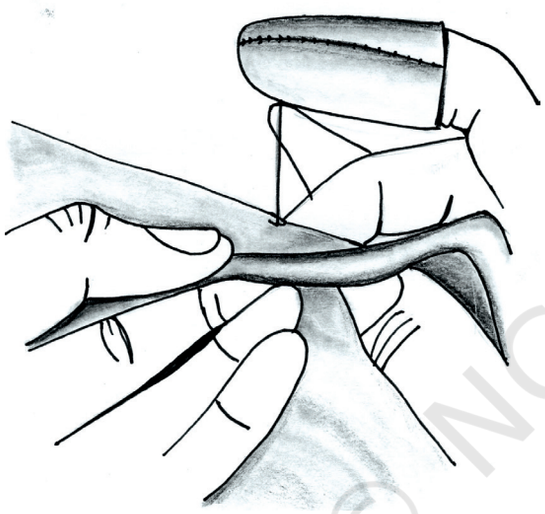


Fig. 3.7(a) Working by wearing a rubber thimble

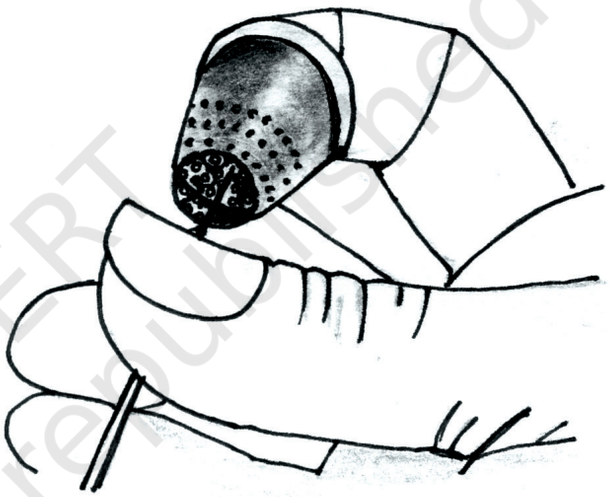


Fig. 3.7(b) Working by wearing a metal thimble

(b) Use of first aid kit

Learning about first aid is the moral duty of every citizen. Emergencies can occur at any time and place, and a delay of just a few minutes to treat it may even cause death. When emergencies occur, one should know the action plan to manage the situation.

First-aid refers to the instant care given to the victim of an accident or a sudden illness before medical help can reach him/her.

The aims of providing first aid are to preserve life, prevent illness or injury from becoming worse in the victim.

Embroidery tools and materials are such that an embroiderer may get injured mainly on fingers. It is important to keep a first aid kit at the embroidery workplace.

It is important to have basic first aid kit at the workplace, so that the injured person can be treated quickly before the person can get proper treatment from the doctor or in the hospital. Materials in the first aid kits are planned, to manage the accidental situations that do not require a doctor urgently. It is also prepared to provide instant relief and care in emergency situations before treatment by a doctor. All first aid kits should have the basic items used to take care of small injuries immediately, such as:

(i) sterile dressing to stop bleeding
(ii) cleansing agent or soap, and antibiotic to disinfect
(iii) anti-allergic medicines and antibiotic ointment to prevent infection
(iv) ointments for burns and wounds
(v) adhesive bandages of different sizes
(vi) nonstick sterile pads: They are super soft, absorbent pads which help in healing wounds, burns, bleeding, draining wounds and infections
(vii) eye drops to wash the eyes, or as a general decontaminant
(viii) thermometer
(ix) ice pack and hot water bags
(x) pain killer and antipyretic tablets
(xi) cotton packet and
(xii) crepe bandages of different sizes

(c) Use of good lighting and magnifying glass

While magnification is not necessary for everyone, good light access is essential for embroidery workers. Good lighting minimises eyestrain and it helps the embroiderer to see the embroidery details properly. Many electronic and other shops in the local market provide a range of good lighting options. If the embroiderer does not have the facility of good light, he/she may work in a natural, well-lit place.

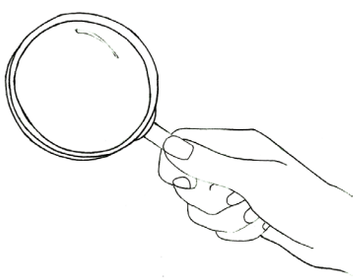


Fig.3.8 Magnifier

The use of a magnifier is of great help for the embroiderer while doing intricate needlework without giving stress to the eyes. Extremely fine embroidery, having intricate and very small motifs, can be worked out better using a magnifier.

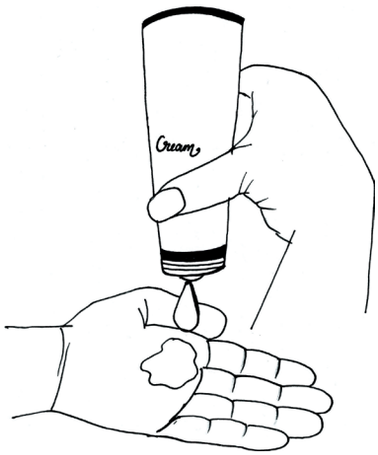


Fig. 3.9 Care of hands

(d) Tips for hand embroiderers

(i) Hand care is the most significant aspect for a hand embroiderer. Different types of needles may harm the hands while doing needle work; hence, the embroiderer should be very careful towards the healing of wounds in the fingers. They should also apply suitable cream or oil on their hands for necessary care and prevent them from getting very dry. Hand gloves should also be used.

(ii) Embroiderers' workplace should have fire extinguishers to prevent damage or loss, in case of emergencies.

(iii) The work environment should be dust-free and with proper ventilation.

(iv) The workplace should be free from insects and bugs.

(v) Use face or nose masks during allergies and infections. Make use of head covering for hair fall.

(vi) Maintaining correct posture (straight back) is very important while doing embroidery to avoid back pain.

(vii) Hand embroiderers can consult experts for the correct body posture while at their workplace.

Practical Exercises

Activity 1

Prepare a chart on the precautionary measures taken while doing embroidery.

Material Required

1. Chart sheet
2. Colourful pens and pencils
3. Pencil
4. Eraser
5. Ruler

Procedure

1. Cut the chart sheet in A3 size.
2. Draw margins and write precautionary measures used while doing embroidery.
3. Draw diagrams wherever necessary.
4. Decorate the sheet with colourful pens, pencils, etc.
5. Attach the sheet on the drawing board of the classroom.

Activity 2

Prepare a chart showing embroidery defects and their rectification.

Material Required

1. Chart sheet
2. Colourful pen and pencils
3. Ruler
4. Pencil
5. Eraser

Procedure

1. Cut the chart sheet in A3 size.
2. Write the embroidery defects and their rectification.
3. Decorate the sheet with coloured pens, pencils, etc.
4. Attach the sheet on the drawing board of the classroom.

Note

Samples of embroidery defects may also be prepared and attached to the chart.

Check Your Progress

A. Fill in the blanks with the most appropriate word from the choices given below

1. The incorrect _____ of the design finally results in improper placement of embroidery design.
   (a) mixing
   (b) tracing
   (c) copying
   (d) labelling
2. A _____ is a small hard-pitted cup worn for protection on the finger that pushes the needle in sewing.
   (a) paper
   (b) ripper
   (c) thimble
   (d) tape

B. Questions

1. Describe the precautionary measures used while doing embroidery.
2. Write down 10 tips for good embroidery work.
3. Explain the different types of defects in embroidery and their rectification.

SESSION 2: FINISHING AND COSTING OF EMBBROIDERED PRODUCTS

Finishing

Embroidery work involves materials and methods which can determine the quality of the final product. Base materials, different raw materials, various techniques to carry out stitches and many other finishing aspects in the end products are important from the point of view of quality. Finishing of the embroidered products is one of the very important aspects of the quality of embroidered finishing process.

Embroidery finishing process

After the embroiderer has completed the embroidery work, the finishing needs to be done to improve the quality of their work and give high quality services to the clients.. The finishing process is much more than just folding up the embroidered product or garment, and removing the backing.

Following are the main issues which should be sorted and rectified during the finishing process:

(a) Thread tails

Trim off the thread remains as near to the article as possible, and take care not to cut any locked knots (if made).

(b) Missing stitches

When some stitches are skipped and are found missing, they should be modified. The simplest way for this is to thread a hand-sewing needle with a double strand of embroidery thread matching the base fabric and do

a hand satin stitch to fill in the areas, in which the stitches are missing.

(c) Stray threads

They are the threads that often get trapped during the processing of the stitches on the product or garments. Do not cut the locked knots; these threads should be trimmed as closely to the stitches as possible.

(d) Thread loops

If one observes thread loops in the same direction as of the stitches, they should not be trimmed. Instead, the embroiderer can use fingernails to pull the loops to the wrong side or backside of the garment. However, if thread loops are in an opposite direction of the stitches, it is safe to trim them. They should be trimmed as closely to the stitches as possible.

(e) Crooked logo or embroidered product

Firstly, spread the garment evenly on the trimming table, then if the embroidery appears slightly twisted and wrinkled, steam iron well on the embroidered area. When the embroidery is hot (because of the effect of ironing), twist and turn your hand and stretch the fabric a bit softly. Repeat this process a number of times. Finally, check the embroidery again.

(f) Stains on embroidered product

While doing embroidery, the fabric might acquire some stains like oil, dust, etc. There are many ways of removing stains depending on the type of fabric and type of stains. Most of the stains can be removed with a drop of dish soap and water. If this does not work, once the product is dry, you can spray the area with acetone or bleaching agent in case of white fabrics depending upon the type of stains.

(g) Damaged embroidered product

The damage caused to the product while doing embroidery or hooping should be removed properly. One must not finalise and deliver the product to the client

with damages as it might will be unfair to both the client and the worker, besides damaging the reputation of the organisation or the business handling the project. The best way to deal with it would be to bring the situation to the attention of the customer and let them decide what they wish to do. They could ask for a replacement, the cost of which could be borne by the organisation or the business.

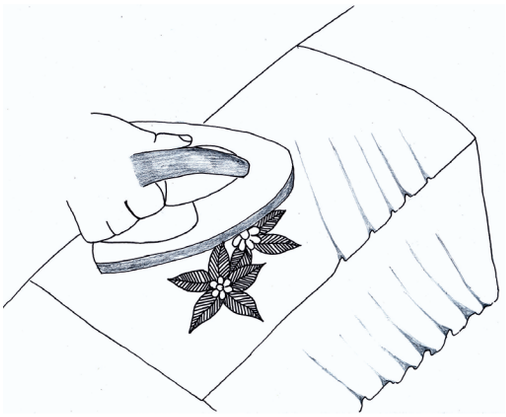


Fig. 3.10 Ironing of embroidered products

(h) Ironing and packaging

After finishing the embroidered product and checking the above points, the product is finally ironed to remove all the creases and wrinkles and folded properly.

At the end, the packing is done according to the packing methods followed in that organisation.

Costing of embroidered products or garments

Cost is the financial value acquired by the resources which are used to prepare a product. Costing is the method of estimating and then evaluating the total cost of producing a product or garment, together with the cost of raw materials, the ornamentation or embroidery done on it, labour charges, marketing and transportation, as well as the general expenses of operating the business. Merchandisers should have a thorough knowledge of costing. A merchandiser has to do costing primarily for two purposes:

Pricing of the embroidered garment

When the manufacturer is selling the embroidered garments directly to the end user, then it is quite necessary to estimate the cost precisely. Pricing of the garment is done by adding the manufacturing costs plus the estimated profit percentage to it.

Order acceptance

Costing is the base of a business, if the manufacturer is supplying exporting the embroidered product. The cost of garment is determined based on the cost of the

manufacturing such as wages, operating expenses, bulk of order (More the pieces ordered, lower is the cost per item),transportation and shipment charges, commissions, taxes and profit margin of the company. With this estimated cost, he/she first negotiates with the buyer and then makes the final decision of whether to accept the order or not.

The person who calculates the cost must have a thorough knowledge and information about the entire process of manufacturing and the activities, including purchase of raw materials, fabrics, operating process charges, sewing, transport, packaging, overheads, expected profit of the organisation, taxes and levies, etc., S/he must be aware and take into consideration the frequent fluctuations in the costs of raw materials and accessories, packing, charges of transport and conveyance, etc.

Since embroidery is mostly done for garments, the cost of the garment must be kept in mind, which depends on—

(i) Fabric
(ii) Trimmings
(iii) Garment design
(iv) Surface Embellishments: printing, embroidery, appliqué, etc.
(v) Cost of Transportation
(vi) Production time
(vii) Labour
(viii) Estimated profit of the manufacturing organisation

All the costing depends upon parameters which are unique and fluctuate often.

Finally, the finished products are labelled with its cost and are checked with buyer's specifications.

Key factors that directly affect embroidery costing, are—

(a) Quantity of embroidery work

It is a key point, which affects embroidery costing to a great extent. Every embroiderer should accurately know the quantity of work to be done in an article, otherwise embroidery takes more cost. Before fixing the cost of embroidery, the quantity of embroidery should

be evaluated. This includes considering where would the embroidery be placed on the fabric, how many times it will be repeated, is it a big-sized embroidery or a smaller one, etc.

(b) Completion time

Time plays an important role in fixing embroidery cost. Different types of embroidery take different time to complete, which directly affects embroidery costing.

(c) Quality of raw materials

Embroidery is produced by using various types of thread and other raw material. The cost of raw materials may not always be the same at all places. Also, bulk purchase of raw material is likely to be cheaper. That affects the cost of embroidery too. If we use expensive raw materials, embroidery cost increases and vice versa. For example, metallic and silk embroidery threads are costlier than cotton thread work.

(d) Nature of embroidery

It is another important point which should be kept in mind during the costing of embroidered fabric. Each embroidery type needs different amount of costing i.e. the cost of chain stitch embroidery is not the same as that of zardozi work. This is because the raw material used in zardozi includes the use of *dabka*, stones, thread as well as chain, compared to chain stitch.

(e) Nature of workmanship

Costing is greatly dependent on the workmanship. Intricate work needs heavily skilled craftsmanship, more time, and more efforts of the worker whereas a regular article can be produced by using lesser efforts in less time.

(f) Customer's specification

Sometimes costing of any work depends on the customer's requirements. Just as in the garment industry, the customer's specifications are of importance, similarly in an embroidery unit too.

Another factor that affects the cost is the size of the design and the number of places where embroidery is done. If the product requires embroidery at two locations, it will cost double than the embroidery done at just one location. Smaller, simpler designs will definitely be more economical.

Considering these factors can be very beneficial to decide the best price for what a client is looking for.

Evaluation of the embroidery work process is essential. Completing a job on time is mandatory. A job progress needs to be evaluated from time to time in order to finish the work order in a predecided time frame. Manuals should be maintained in order to inspect the progress of the embroidery work daily.

Practical Exercises

Activity 1

Prepare a chart of the different issues to be adressed during the finishing process.

Material Required

1. Chart sheet of A3 size
2. Pencil
3. Glue
4. Eraser
5. Colourful pen/pencil
6. Ruler

Procedure

1. Write down the different issues that must be adressed during the finishing process of an embroidered product on the chart sheet.
2. Paste relevant pictures wherever possible.
3. Decorate the sheet with coloured pens,pencils, etc.
4. Pin it on the drawing board of your classroom.

Activity 2

Visit an embroidery unit and prepare a report on the costing of any one embroidered product.

Material Required

1. Notebook
2. Pen

Procedure

1. Visit an embroidery unit.
2. Observe the different steps of costing of any embroidered product or garment.
3. Collect information on costing of the embroidered product or garment.
4. Prepare a report on the costing of an embroidered product or garment.

Check Your Progress

A. Find the following words from the maze given below. You can find words upwards, downwards or diagonally.

QUALITY, FRAMING, FINAL, COSTING, IRONING, PRICING, THREAD, DAMAGE, ORDER, RAW, CUT

Q	J	F	R	C	D	D
I	U	R	A	O	A	A
R	P	A	W	S	E	M
O	R	M	L	T	R	A
N	I	I	A	I	H	G
I	C	N	N	N	T	E
N	I	G	I	G	U	Y
G	N	R	F	N	C	A
M	G	O	R	D	E	R

B. Questions

1. Explain in brief the costing of an embroidered product.
2. Write short notes on: (a) Missing stitches (b) Stray threads (c) Thread loops
3. Write down the issues of the finishing process of embroidered products.

Unit 4

Organisational Rules and Personal Hygiene

Introduction

In India, Ministry of Textiles sets certain rules, policies and procedures, which should be followed in textile, apparel and handicraft industries. Embroidery is one of the important areas of handicraft in India. Every organisation sets its norms for all levels starting from recruitment, training programmes, employee benefits, work schedules, leaves, breaks, salaries, performance reviews, and promotion plans to terminating schedules.

Personal health and hygiene is also of importance in an organisation. Maintaining good health and hygiene not only adds to worker's confidence, but also influences the reputation of an organisation. Clean surroundings help improve work efficiency.

Employees should know the importance of keeping themselves clean, which includes maintaining mouth, foot, hand and hair care. They should know and practise both cleanliness and good food habits.

Session 1: Organisational Rules, Policies and Procedures

The Ministry of Textiles directs the formulation of policy, planning, development and export promotion for the Indian textile industry. This includes spinning and weaving mills that are helpful in making textiles, clothing and handicraft items. Embroidery sector is considered a major and a very significant part of handicrafts in India.

Policies

These are written statements of how the organisation intends to carry out its services, actions or business. They also provide a set of strategies and principles to help in the assessment of operations performed in an organisation. Policies should be simple statements, easily understandable and not long or complex. A few sentences may be enough regarding each policy area. These may include a few major points or instructions which are documented in flowcharts, or forms take over and checklists.

Procedures

These provide an action plan for the set policies to be put into action in the organisation. Each procedure should outline the following points:

(i) which job has to be done by which person
(ii) which steps should be followed and
(iii) what documents are to be used

Rules, policies and procedures vary as per the nature, size and the type of the unit or organisation. They reflect the values, approaches and commitments of a specific organisation and the culture followed there.

Rules and policies of organisations

Textiles and garment manufacturing are considered to be a major area where all organisations set their rules, considering the National Textile Policy Rules.

The general rules are for:

(i) Timings as per shifts
(ii) Leaves

(iii) Holidays
(iv) Care of company property, or machines, etc.
(v) Honesty
(vi) Integrity
(vii) Pay
(viii) Uniforms
(ix) Respect to each other and
(x) Language

The policies are

(i) towards the environment.
(ii) towards the country and society.
(iii) to stop discrimination.
(iv) to stop child labour.
(v) to stop sexual harassment and.
(vi) to make the workplace healthy, happy and hygienic.

Company policies and procedures include rules of behaviour, defining the duties of both, employees and employers. These policies and procedures are framed to protect the rights of workers as well as for the growth of the business, and also to benefit the employers. Different rules are established regarding employee conduct, leave, attendance, training, promotions, dress code, and other employment needs as per the type and size of the organisation.

Conduct of employee

The policies relating to an employee's conduct include the duties and tasks that each employee is expected to perform as a condition of employment, specified dress code, discipline at workplace, workplace safety procedures, and may be even policies regarding the usage of computer and the Internet. The main aim of these policies is to frame the steps to be taken in case of disciplinary issues, inappropriate employer behaviour and may include issuing warnings or termination.

Equal opportunity

Equal opportunity policies should be set taking special care as this can be a sensitive issue and are needed to maintain a balance and giving a fair treatment

to all at the workplace. These include motivation and support for unbiased behaviour, discourage inappropriate behaviour among employees, supervisors and contractors regarding race, religious and cultural beliefs, sexual orientation or gender of another person within the organisation.

Time off and attendance

Attendance policies are made to ensure employee dedication towards work routines. These policies play a significant role for employers to keep a track of the time-off periods and notifying any late arrivals or absenteeism on the part of the employees. This policy also includes rules regarding penalty for failing to follow the set schedule. For example, employers may allow only a few number of absenteeism within a specified time, and he/she can even give warnings in case an employee is absent for more days than the company allows, in order to maintain discipline in the organisation.

Substance abuse

This policy includes rules prohibiting the use of drugs, alcohol and smoking, during the working hours of employees at the work area. Substance abuse policies provide guidelines for employees to avoid smoking or consume any addiction in the work premises, and the penalty they will bear if they are found to violate the rules. Most organisations even have testing procedures for suspects in case of severe issues.

Examples of personnel policies

All organisations have human resource personnel and keep their personnel policies up to date. These policies are framed based on the type of organisation for the smooth running of business. Personnel policies include rules from recruitment to termination; resolving personal conflicts; dealing with workplace discrimination, and cases like sexual harassment. All new employees are informed about these policies, and are often given a written statement to sign stating that they have a clear understanding that any violation of such rules will be unacceptable.

Employee benefits

Companies offer employees a varied set of benefits, relating to health issues, dental and vision problems or any short-term disability coverage, life insurance, employee housing grants and tuition reimbursement. Some companies tie up work in combination with local businesses to provide discount cards and gift coupons to their employees.

Training and orientation

Once hired, employees normally go through an orientation and training programme to learn about their new employer, workplace and their job roles, and how they fit into the overall targets of the organisation. During their orientation, the employees attend training sessions, perform role plays under an assigned mentor, or participate in a practical training session to gain implicit knowledge provided by the company. Training and orientation procedures should be included in personnel policies to enable new employees for their new positions by properly understanding their work functions.

Leaves, breaks and work schedule

Personnel policies provide guidelines for when an employee should report to the office for work and when he/she should leave. These also include instructions regarding lunch hour and other breaks. In addition to that, the number of leaves permitted are also fixed, and in case of extra leaves, what actions are to be taken, is also covered in these rules. Some companies offer flexible schedules while others offer their employees to work in shifts.

Salaries and pay schedule

Employees working in different companies have diverse salaries, including salary ranges or a salary scale. Personnel policies will give employees a brief on how much increment they can potentially get when promoted. Employees are given written documents on their payment schedules like whether paid weekly,

biweekly or monthly. Many organisations help in direct deposit of salaries in the bank.

Performance reviews and promotions

Employees are reviewed based on their performances and later, recommended for promotions by supervisors, or through appraisals. This is done as per the performance reviews which vary from organisation to organisation. Therefore, personnel policies should provide a guideline to the employees about these procedures and how they can affect promotions. Reviews are undertaken at properly specified intervals using various methods.

Terminating employment

Included under personnel policies, it provides instructions to the employees and employers on how to terminate employment. Clear guidelines regarding advance notice and format of terminating procedure, including severance package, clearing dues, returning company properties and submitting all records are mentioned in this policy.

Value of work ethics

Ethics are values that add up to the goodness and virtue of an organisation. Work ethics are used to define how workers present their social, cultural, technological, environmental, economic and psychological patterns within an organisation. Good work ethics enhance the growth of an organisation. Good ethics practice promotes respect within the staff and this is achieved through self expression, sharing of knowledge and knows how problem solving and decision making is done. Ethics define a mutual relationship within the subordinates and between the management and the associate staff.

Individuals possessing a strong work ethic not only benefit society or the business, it benefit the individual too. When one acts with strong moral conduct, a great reputation is established which also reflects on work.

Effective communication of HR policies and procedures to employees

This can be done in the following ways:

(i) Use written documents or guidelines so that these can be easily understood by all employees without any confusion.
(ii) Train all managers and supervisors well so that they are also able to train new employees.
(iii) Encourage all employees and employers to follow proper workplace behaviour and work culture norms.
(iv) Review the implemented policies and guidelines at periodic intervals.

Personal responsibility of an embroiderer

An embroiderer plays an important role in a unit or an organisation. The order completion and the final output of a product is dependent on his/her time consumption, quality and finishing. There are some responsibilities, which an embroiderer has to fulfill, namely—

(i) completion of tasks on time
(ii) use material as per instructions
(iii) prepare the product as per sample approved
(iv) consider the costing
(v) reporting to the supervisor or senior from time to time
(vi) maintain safety and security while doing embroidery and
(vii) be punctual and responsible towards the rules and regulations of the organisation

Importance of discipline in the embroidery unit

Discipline means observing well defined rules laid down by the organisation. It shows the positive and sincere side of the workers towards their job. Discipline is an inbuilt value or social skill of life while performing duties. Some of the points which have to be kept in mind in an organisation are as follows:

(i) Reaching and leaving office on time (Punctuality)
(ii) Taking permission for leave (Sense of responsibility)

(iii) Importance of attendance (Sincerity)
(iv) Importance of teamwork (Cooperation)
(v) Importance of volunteering work (Leadership) and
(vi) Importance of tolerance of conflicts (Respect)

Practical Exercise

Activity 1

Prepare a chart on the personnel policies of an organisation.

Material Required

1. Chart sheet of A3 size
2. Pencil
3. Drawing pins
4. Eraser
5. Colourful pens and pencils
6. Ruler

Procedure

1. Write down the different personnel policies on the chart sheet.
2. Decorate the sheet with colourful pens, pencils, etc.
3. Pin it up on the drawing board or in the laboratory.

Check Your Progress

A. Fill in the blanks

1. Framing proper _____ and _____ is quite helpful for the proper running of an organisation.
2. Some companies offer _____ _____ and in some companies employees work in shifts.
3. The written documents or guidelines made by the organisation should be easily _____ by all employees to avoid any confusion.
4. The policies and guidelines implemented should be reviewed at _____ intervals.

B. Questions

1. Explain the personal responsibility of an embroiderer.
2. Describe the rules of conduct used within an organisation.
3. Explain some examples of personnel policies followed in an organisation.

Session 2: Personal Hygiene and Health

Notes

The standard of maintaining cleanliness and grooming of the physical body for a healthy and pleasing appearance is known as personal hygiene. People have recognised the importance of hygiene from years, not only at home but also at the workplace. Keeping oneself clean and free of infections may lead to efficient and productive workdays. Poor hygiene is an indication of careless attitude ridden with illness and low self-esteem.

Importance of cleanliness

Personal hygiene helps keep oneself and one's living and working conditions neat and tidy, thus avoiding diseases and maintaining good health, besides, cutting down or avoiding health care costs. Things like bad breath or strong body odour, dirty fingernails, stained teeth, smelly feet, unshaven or unkempt beard, leads to a poor impression on others indicating a similar attitude towards work.

Washing hands, teeth and hair, taking showers and wearing dirt free clothes are easy ways to maintain personal hygiene.

Bad breath

It is caused by food left in cavities after eating. Foods, like garlic and onion, tobacco and beer, etc. plague depositions. Gum diseases can be avoided by regular brushing and use of mouth wash. Use of neem twigs and common salt may also be used to clean the mouth.

Body odour

It is usually caused by sweat that is produced under the armpits. The major reason for having body odour is the lack of attention to body hygiene. Body odour makes the other people around uncomfortable making oneself feel rejected. It can be avoided by taking bath once or twice a day. Various deodorants and other such products are available in the market for use after bath.

Foot odour

It is caused by sweat that accumulates in the socks or when the feet remain closed inside the shoes and do not get air. To avoid this, one must keep the feet and shoes clean, wear washed and dry socks. Feet must remain dry and need to be aired for longer time to avoid fungal infections and odour.

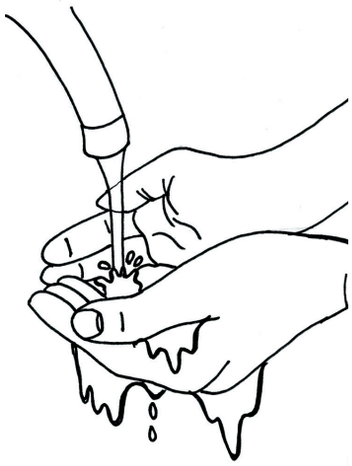


Fig. 4.1 Hand care

Hand care

One uses fingers and hands in performing almost all the activities, hence washing hands frequently, especially after using the toilet or before and after eating meals becomes necessary. Nails need to be kept dirt free and trimmed to avoid germs collecting underneath. This may prevent many infections. At an embroidery workplace, hand washing is necessary to keep the embroidery fabric dust and oil-free. It is mandatory for embroidery workers to wash their hands at regular interval to keep the fabric and thread clean while doing embroidery.

Hair care

Wash hair regularly as shampooing helps in clearing dandruff. Hair must be kept neat by combing and regular cutting, when required. Untidy hair makes one look shabby. Natural cleaning products such as black soil and *shikakai*, etc. may also be used.

Food

Eating food around the work area is not permitted, including, snacks, drinks, chewing gum or tobacco, cigarettes, and candy. Lunch areas are to be kept separate or away from the production unit to avoid any stains on the final products or garments.

Cuts or wounds

In case of cuts and wounds, appropriate dressing and bandages must be used to cover them. In case the blood stain transfers on the fabric, clean and sanitise it as quickly as possible. Ensure that no equipment or

surface contaminated with blood remains stained; clean before continuing production.

Note

If the worker experiences some pain due to repeated exposure to *aari* or needle pricks, he/she may wear gloves.

Importance of nutrition

Eating a balanced diet keeps the body healthy for effective functioning. Thus, eating healthy food everyday is quite necessary to avoid various health problems and to keep one fit and energetic. The time of the meals in an organisation is generally scheduled.

Meals and their importance

Scheduling meal time is important. Regular intake of adequate food keeps one energetic through the day; one feels less inclined to snack between meals and this prevents unnecessary weight gain. The meal frequency can be divided into the following:

(a) Breakfast

This is the first solid meal of the day—normally after a gap of 8–9 hours, since the last meal one has consumed is in the previous evening. The body uses up energy during sleep for growth, cell repair and such activities, that is the reason that it needs to regain energy, hence the first meal of the day must not be skipped. The body requires breakfast to maintain energy level and health.

(b) Lunch

The next largest meal of the day is lunch—generally after 3–4 hours of the breakfast. It must be kept in mind to feed the body a balanced and a nutritive meal.

(c) Tea time

Having tea with light snacks is important because it keeps your energy levels up till dinner. One must avoid a large time gap between lunch and dinner.

(d) Dinner

Since it's the last meal of the day and your body is preparing to do less energetic tasks at night, it should be

lighter than lunch, but just as nutritive and balanced. One must avoid skipping it, as it keeps one working for the next 8–9 hours.

Benefits of healthy meals

An appropriate amount of nutrients and water is required for a healthy diet. The five major benefits of eating healthy everyday are:

(i) It helps in body growth and gives energy for working. It fulfills the daily nutritional needs.
(ii) It reduces one's stress levels.
(iii) It helps in maintaining ideal weight.
(iv) It helps in keeping disease away.

Toxicants: a threat to health

Consumption of toxicants like alcohol, cigarettes, tobacoo, etc. is very injurious to one's health. Excess consumption of these can cause lung, heart and other diseases. They can also result in chronic diseases like cancer, risk of cardiac diseases, teeth disorders and weak bones. All types of organisations have special rules to prohibit the use of these toxicants to maintain a healthy and safe environment at the workplace.

Maintaining proper personal hygiene at the workplace is not only a vital issue, but also a sensitive one for managers and business owners. The embroidery unit should be clean and safe; employees should be exposed to minimum germs. In most industries, good employee hygiene is a legal requirement.

Health and safety precautions for the hand embroiderer

(i) Wear a thimble on the finger of the hand holding the frame to avoid pricking by the needle.
(ii) Use appropriate sized and point needle for stitching so as to not accidentally prick the fingers.
(iii) The needles should be kept safely and away from small children to avoid any harm.

(iv) Cutting, sewing and embroidery should be done with concentration, not as if one is in a hurry, stressed and upset, as the risk of injury is more.

(v) The workplace should be kept clean and tidy by sweeping the floor regularly. Keep dust bins at appropriate place.

(vi) The sewing tools and equipment include sharp objects, like needles and scissors, so their safe handling is essential.

(vii) Needles and thread should be stored safely after use.

By being aware and having an understanding about the process of hand embroidery, one will know how to complete a task safely and responsibly to obtain optimum output.

Practical Exercise

Activity 1

Role Play (Personal Hygiene)

Requirements

1. Students, in dirty and stinky clothes
2. Some other students around
3. The teacher
4. Classroom essentials like tables, chairs, books, pen
5. Some material to spread in the class as litter

Procedure

1. The teacher introduces the importance of personal hygiene and the situation of the role play.
2. Some students with smelly clothes or dishevelled appearance will enter the classroom and the others will react accordingly.
3. Some other students will spread litter in the class.
4. The teacher will ask for a response to the above situations for role play.
5. The teacher will discuss and explain the need for maintaining proper personal hygiene.
6. A conclusion is generated after discussion with the student.

Check Your Progress

A. Fill in the blanks

1. Keeping your body clean is vital in combating and preventing _____.
2. Body image influences _____, confidence and motivation.
3. _____ _____ can be avoided by regular brushing and use of mouth wash.

B. Questions

1. Explain the health and social benefits of maintaining personal hygiene.
2. What are the benefits of a healthy meal?
3. Explain the health and safety precautions for a hand embroiderer.

Unit 5

Safety, Maintenance and Organisational Hazards

Introduction

All industries have different type of tools, equipment and machinery. There is always a risk of hazard while operating machines. They may be physical, biological, psychological, electrical, etc. It is crucial for all employees to be aware of the risk of hazards associated with the industry they work in. While handling tools and machines, employees should follow safety instructions. Specialised training must be given to the employees to prevent injuries from these hazards.

Employees should take precautions to guard against work related hazards and accidents. They should also be explained the importance of cleaning, and maintenance of machinery at their workplace. This includes regularly checking the tools, equipment, machinery, furniture, infrastructure and facilities of the workplace to ensure they are in good working condition and can give the best operating efficiency.

Session 1: Organisational Hazards and Safety Measures

Most manufacturing units have similar hazards in their processes and work areas. Hence, it is mandatory to have adequate equipment and facilities in the factory to

avoid these hazards. Adequate planning, training and awareness workshops are necessary to train employees and workers, in which, the employees must be made aware of various hazards associated with its units, such as embroidery, and the precautions to be taken. Even though manufacturing units like the garment manufacturing is an organised sector in India, they usually fail to adhere to all standards and rules set down by the government. Many small units are located in residential areas which may be prone to fire and other hazards.

All the manufacturing units, whether located in a commercial or residential area, must follow compliance and should have the necessary equipment, like fire extinguishers, hydrants, emergency exits, emergency lights, hooters, first aids, etc. Workers may suffer many occupational accidents due to the processes and equipment or machines used in the garment industry. It is the prime responsibility of an organisation to provide occupational health and safety conditions to the workers.

Types of hazards

There is always a threat of hazards and risks to the health and safety of people at workplace. These may be chemical hazards, physical hazards, adverse ergonomic conditions, allergies, psychological risks, etc.

Physical hazards

They often affect many workers in the workplace, for example occupational hearing loss, postural defects, falls, accidents, etc. Hearing loss is one of the most common problems in a manufacturing unit with heavy noise-making machines like the sewing maching or a cutter; postural defects like cervical and bone shape change can occur if a person needs to sit or stand in a particular position all the time like an *addawala* needs to work sitting on the floor with her head bent down most of the time. Accidents and falls are also a common cause of occupational injuries and deaths in industries, like transportation, construction, extraction, healthcare, building, cleaning and maintenance.

Some of the problems associated with the physical environment at an embroidery workplace include:

(a) chest infection, allergies, flu, etc., caused due to excessive dust. Adequate ventilation, exhaust fans, etc. are helpful to make the environment clean and dust-free.

(b) a low light environment for working, and shortage of eye protective glasses, which can cause eye problems.

(c) prolonged sitting, and continuous needle work involving the eye, creates eye problems (strained eyes) and back bone problems for the embroidery workers. Repetitive Strain Injury (RSI) is likely to occur at an embroidery workplace due to long hours of sitting to complete the embroidery work. Problems like backache, stiffening of neck, cervical and wrist joint problems can also occur during embroidery. These problems can be solved with the following tips:

  (i) Use a hoop stand, embroidery frame or *adda* to keep both of the hands free to focus.

  (ii) Keep the stand on a height till bust level and straight wrist position to avoid bending your neck and back for long time.

  (iii) Use wrist rests to avoid strain in the hand and wrist joint.

  (iv) Take short breaks from long sittings, may be after an hour or two, to relax the strain in the back.

Some other common problems associated with surroundings in an embroidery unit are listed below:

(d) absence of enough congenial and hygienic working atmosphere in the industry

(e) prevalence of sexual harassment

(f) absence of enough toilets and washrooms

(g) lack of clean and filtered drinking water. Also, the absence of clean water for washing hands for the workers

(h) discrimination in wages and other facilities between male and female workers

(i) absence of weekly holiday for female workers. If they still take a leave, then it is without pay

(j) lack of recreation facilities for workers and

(k) absence of baby care centres for workers.


Fig. 5.1(a,b) Fire extinguishers

Fire hazards

They are common in those industries that use a lot of flammable material, like cotton, chemicals, etc. Fire hazards occur mainly due to the following reasons:

(a) improper working of fire and smoke alarm bells in industries
(b) absence of fire and smoke alarm systems in many industries
(c) improper maintenance of fire exits or emergency staircase
(d) lack of proper exit route or emergency staircase to reach the place of safety

Every industry should keep fire extinguishers as a safety measure.

Biological hazards

These involve contagious bacteria, viruses and toxins. It can be due to non-airy and dark rooms, suffocation (bad ventilation), and unhygienic conditions of washrooms. For example, influenza affects a broad population of workers. Outdoor workers, like farmers, gardeners and civil or building workers have a high risk of infection due to biological hazards. These also include animal bites and stings, problems from toxic plants, and transmitted diseases through animals.

Healthcare workers, veterinary health workers face high risk coverage to blood-borne pathogens and various infectious diseases in comparison to others. Dangerous chemicals can cause a hazard in the work area. There are many categories of hazardous chemicals.

Certain chemicals are harmful at some levels when mixed with other chemicals. Chemical hazards are very common in apparel and textile industry while at the time of dyeing and printing.

Psycho-social hazards

This means that the status of mental health and emotional well-being of the workers and employees in an organisation may not be normal. These could be due to a feeling of job insecurity, long working hours, lack of enthusiasm towards work, frustration about not being allowed to deliver quality product due to pressure of quantitative production, harassment at work place and poor work-life balance due to lack of appreciation. This aspect should be dealt with care, as these are sensitive issues. This review also demonstrated that behavioural therapy, like continuous counselling, meditation, yoga, participation in recreation centres, music therapy or occupational care are effective in reducing sick leave days and poor work efficiency at the workplace.

Electrical hazards

These are common in the textile industry as fabrics, machines and other fire-prone equipment are being dealt with here. It is quite dangerous when a worker or employee creates an electrical contact with keyed up equipment or a conductor. Electrical accidents mostly occur when the individuals are working around electrical apparatus which is live but they think it is dead. Wrong use of equipment and use of faulty electrical equipment also cause accidents. Working on, or near electric equipment, without adequate training or appropriate equipment, may be one of the reasons.

Shocks from faulty equipment can lead to brutal and permanent injuries. Due to serious injuries, the chances to fall off from ladders or other work platforms, are high. Apart from injuries or accidents, such mistakes or avoidance lead to damage of the plant, machines, equipment and property.

Note

In a hand embroidery unit, all the hazards mentioned in this session are not very common but awareness about various hazards is essential to be able to deal with them in case they occur.

To reiterate, it is the role of the management to provide basic facilities like day care, canteen, rest room, recreational room, dispensary for first aid, etc., so that workers focus on their routine work in the factories, uninterrupted. Critical emergency essentials, such as alarms, evacuation plans, emergency lights and gathering areas, must be invested in. There are a lot of machinery used in the garment industry. However, before any work starts on a machinery, the worker should be trained in its proper operations and all safety precautions should be taken. Proper training and demonstration of work technique or process is valuable for each worker.

Some important suggestions for maintaining the health and safety of workers:

(i) respiratory and hand protection
(ii) eye protection
(iii) heat stress protection
(iv) supply of filtered drinking water
(v) setup rest or sick rooms as per the number of workers
(vi) set up recreation facility for the workers. In order to remove monotony from work, it is very essential to setup a recreation facility for the workers
(vii) fire protection
(viii) finger protection
(ix) proper lighting
(x) ergonomic design of the workstation
(xi) awareness towards physical and psychological health
(xii) first aid facility
(xiii) adequate washrooms for the workers. Industries should provide proper sanitation system and sufficient number of toilets for the workers, based on their strength. By maintaining proper hygiene facilities, infections and other related diseases can be avoided
(xiv) training programmes for health and safety issues. There is no alternative to training for any type of work. Training the worker to fit the job for which he has been employed is very significant

(xv) setting up of baby care centres for the worker. Many times, the garment and embroidery workers have to carry their small kids to the industries or their workplace, as there is nobody to look after these children at home and if they bring their kids along at workplace, there is a question of the health and security of children. So, factories should provide clean and hygienic day care centers so that workers can work efficiently without any stress

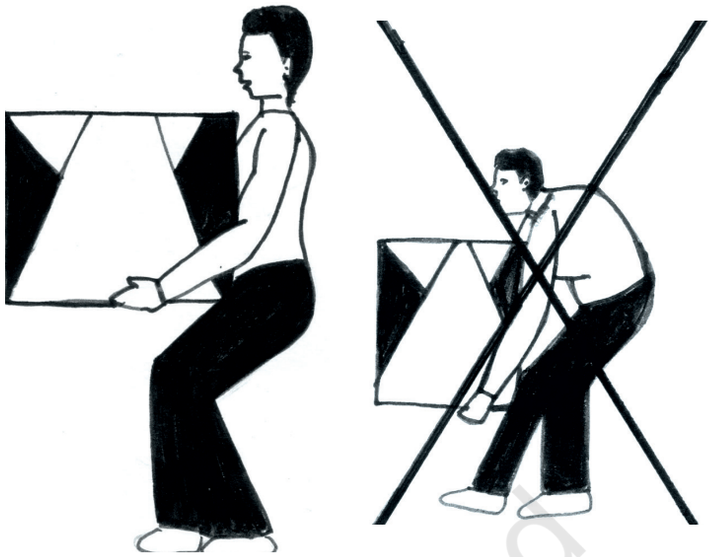


Fig. 5.2 Good lifting posture

(xvi) ensuring proper posture while lifting goods, handling machines, and using personal protective equipment

Safety measures and precautions

Before using any tool or machine, the embroiderer should be trained in safe working practices. Their training should cover the following:

(a) Safety measures to prevent accidents with scissors

Hand scissors can cause accidents when not used properly. Scissor injuries usually happen when the scissor slips during cutting or trimming. In most cases, the blade cuts the worker's hand and/or fingers. Injuries can also occur to other parts of the body. The following safety measures should be taken:

(i) Use suitable storage system, such as racks, boxes, etc., near the working area at a comfortable height to place scissors, blades, etc. after use.

(ii) Ensure placing lighting fixtures in a way that the light should fall on the working surface from the left side or from the front. This promotes better visibility.

(iii) Prohibit carrying knives in pockets, or in the hand when going from one place of work to another.

(iv) Do not hold scissors with sharp sides up or use when the middle screw is loose.
(v) Fix disposal points for used blades.
(vi) Use protective footwear with adequate resistance to slipping and penetration from a dropped knife or other sharp objects.
(vii) Avoid leaving scissors around the work area. This can injure both the worker as well as others walking around.
(viii) Provide even floor surfaces with slip resistance so the workers do not slip.
(ix) Free the work surface and floor off debris and other waste to avoid tripping and falling.

(b) Safety measures to prevent accidents with needles

(i) Keep needles and pins at a fixed place, such as in a special box, and all small parts from the embroiderer's set in separate bags. Do not leave them at the workplace.
(ii) Do not hold the needle, pins, etc. in your mouth or tuck them in the clothes. Do not leave it in the fabric too. A worker can sew through his finger.

(c) Safety measures while using spray guns

Spray guns are used to get rid off any stains on the fabric that may have been transferred while embroidering. These guns use a cleaning fluid, such as ethylene which may cause headache, dizziness and fatigue if inhaled, or spirit which can cause redness, excessive dryness of the skin, if exposed.

Train the workers in the use of the gun. Spray the cleaning fluid onto a rag and then use the rag to clean, rather than spraying on the garment directly.

(d) Safety measures while ironing

(i) Practise caution while using a hot iron as it can cause a major injury.
(ii) Check for any faults with the cord before using it.
(iii) Turn on and hold the plug with dry hands.

(iv) Place the iron only on a heat-resistant stand.
(v) Ensure that the cord does not touch the iron soleplate while ironing.
(vi) Select an ironing mode (heating temperature) suitable for the fabric to be ironed.

All essential chemicals used in the garment industry should be kept safely and workers must be trained to understand its usage, the proportion in which they are to be used, and repercussion of wrong use. Proper ventilation and protective tools are essential to protect workers during handling of chemicals.

Adequate lighting at every machine area can prevent eyestrain. Some garment manufacturing machines are very loud which can damage the hearing ability too. To protect the ear and hearing ability, ear plugs may be used.

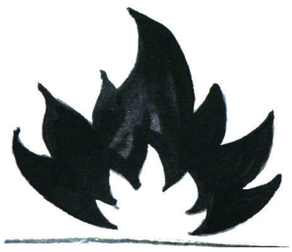
In case of heat transfer, machines, boiler, pressing, fusing machines, where heat processes are used, it is important for workers to drink enough water during their work hours. Proper ventilation or the use of air turbine ventilators can also help to reduce temperatures and ensure comfort.

To avoid ergonomic injuries, workers must know how to take turns for different tasks or take regular short intervals to stretch and relax their muscles. The work area should have plenty of space for the task, should be clean, ventilated and should have correct working height, and proper sitting arrangement. Apart from that, industries provide soothing music at the workplace to keep the atmosphere light.

A signage or symbol is a picture, written word, sound or mark that represents a message. It is important to know the different types of symbols used in a workplace so that they can be followed. There are two types of symbols—safety symbols and navigation symbols. Safety symbols are those which are used for warning and the protection to be taken. Navigation symbols are used to show the direction or placement of a certain object or department. Some of the commonly used symbols are shown in Fig. 5.3.

Symbol for explosives or an explosion hazard

Sign to prohibit flames and smoking



Sign indicates flammable gas

Hazard symbol for nonflammable gas

Sign for protective eyewear

Sign for eye protection required

Symbol for gloves required

Sign for protective footwear

Sign for protective clothing

Sign for ear protection required

Sign for fire extinguisher

Sign for escape route

Symbol for first-aid

Hazard symbol for toxic

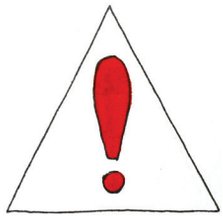
Hazard symbol for a corrosive substance

Symbol for fire exit

Hazard symbol for a harmful or irritant substance

Hazard symbol for flammable

Hazard symbol for oxidising



Warning sign

Symbol for no sitting

Sign for fire alarm

Fig. 5.3 Safety and navigation symbols

Policy measures

Following policy measures may clear the problems of work-related illness and diseases among the workers of the industry:

(i) working system in two shifts
(ii) proper execution of labour laws. There will be health insurance facilities
(iii) supply of iron and vitamin tablets and medical camps should be arranged
(iv) availability of amenities for staff and training for cleanliness
(v) providing health facilities, like dispensary, doctor within the factory premises
(vi) counselling and teaching for awareness about occupational hazards and
(vii) fire fighting training on regular intervals.

Practical Exercises

Activity 1

Prepare a chart on the types of hazards.

Materials Required

1. Chart sheet of A3 size
2. Coloured pen or pencil
3. Eraser
4. Ruler
5. Glue
6. Scissors
7. Pictures of hazards

Procedure

1. Write down the types of hazards and collect appropriate pictures of hazards.
2. Paste the pictures on a chart sheet.
3. Decorate the sheet using coloured pen or pencil, and pin it on the drawing board of your classroom.

Activity 2

Prepare a chart of different types of symbols (safety and navigation).

Materials Required

1. Chart sheet of A3 size
2. Coloured pen or pencil

3. Eraser
4. Ruler
5. Glue
6. Scissors
7. Relevant pictures

Procedure

1. Collect the pictures of symbols of safety and navigation.
2. Cut them neatly and appropriately.
3. Paste them properly on the chart sheet.
4. Decorate the chart sheet using coloured pen or pencil, and pin it on the drawing board of your classroom.

Check Your Progress

A. Fill in the blanks

1. Planning, training and _____ workshops are necessary to train employees and workers.
2. Excessive dust can cause chest infections, _____, flu etc.
3. RSI stands for _____ _____ _____.
4. Biohazards involve contagious bacteria, _____ and _____.
5. There are basically two types of symbols _____ and _____.

B. Questions

1. Explain different types of hazards in an embroidery unit.
2. Why is maintaining health and safety measures essential in a manufacturing unit?
3. Write at least three physical hazards that might be faced by an embroiderer and give causes and precautions to avoid them.

Session 2: Cleaning and Maintenance at Workplace

Cleaning and maintenance at a workplace is very important. It includes keeping the workplace, its structures, furniture, equipment, tools, machines, and facilities in good condition. The machinery should be in proper operating efficiency with proper safety measures.

This includes performing many responsibilities, like repairing, replacing, servicing and inspecting. Maintenance should be done on a department or section-wise basis, for fast and accurate results. Regular maintenance staff is responsible for this maintenance work in the organisation. The term maintenance could also be used in relation to the importance of keeping the staff safe, fit and healthy, and working of the machines smooth and regularly.

Maintenance work can be classified into two types:

(a) Routine maintenance

This is usually planned in advanced. Regular interval maintenance procedures are very common in organisations. It includes scheduled inspections, repairs and replacement to make sure everything continues to work regularly, properly and smoothly. It is also preventive maintenance. It can be compared to an annual service of your four wheeler.

(b) Breakdown maintenance

This is the second type of maintenance. It is done as per the requirement of breakdown of any equipment or machinery. Corrective maintenance is needed when breakdowns occur which demands responsive action to be taken to get things right and running again. It can be compared to having a repair carried out on your four wheeler after the engine has failed.

Maintenance must be planned in advance as per the details given by the maintenance in- charge. An assessment of all the risks should be carried out and the staff should be involved in the process for creating awareness. The planning must chart the details and schedule of the maintenance required for each item. A record of all the procedures, changes and amendments made needs to be kept on a periodic basis.

Using appropriate equipment

The staff involved in the work of maintenance should have appropriate tools and equipment to repair the faults. It should also include appropriate protective equipment in case of accidents or emergency. Many

times accidents can be avoided by avoiding 'to make do' with an inappropriate tool or piece of equipment.

Making areas safe

In any industry, keeping the workplace safe is of prime importance. It may even be sometimes needed to restrict access to the equipment and the area being maintained. Clear warning cards or instructions can be attached to the machinery to remind the workers of the care that needs to be taken while handling it.

Elements of an effective cleaning programme

Dust and dirt removal

In some embroidery units, exhaust ventilation systems may not work to collect dust, dirt and chips properly. Vacuum cleaners are the most appropriate equipment to remove dust and dirt. Industrial procedures have special methods for cleaning walls, ceilings, ledges, machinery, and other places where dust and dirt may accumulate.

Dampening floors or using sweeping compounds before sweeping reduces the airborne dust. The dust that gets collected in places, like shelves, piping, conduits, light fixtures, reflectors, windows, cupboards and lockers may require regular manual cleaning.

Special-purpose vacuum machines are very useful for removing the hazardous substances. For example, vacuum cleaners fitted with High Efficiency Particulate Air (HEPA) filters are used to remove fine particles of fibreglass or asbestos.

The facilities need to be adequate, clean and well maintained. Lockers are essential for storing the employee's personal belongings. Washrooms need to be cleaned daily. They also need to have good and regular supply of clean water, soap, towels and disinfectants.

If the staff is using hazardous materials, they should be provided special facilities, such as showers, washing facilities and changing rooms. The staff should be instructed to keep the clothes of their workplace, separate from the clothes of home.

Smoking, eating or drinking alcohol in the work area should be prohibited where toxic materials are handled. The eating area should be separate from the workplace and should be cleaned regularly and properly in each shift.

Surfaces

Floors

It should be cleaned regularly. Poor condition of the floor is a major cause of accidents; so cleaning up the oily substance and other liquids is important. Chips and dust accumulation can also cause accidents. Areas that cannot be cleaned regularly and continuously, such as the entrance and common corridors, should have anti-slip flooring.

Walls

Light-coloured walls reflect the light and create an illusion of wide and broad spaces while dirty or dark-coloured walls absorb the light. Contrasting colours help warn of physical hazards and mark obstructions. Pillars, railings, and other safety equipment can thus, be highlighted with the use of paints. A schedule should be prepared, with the regulations and standards of using various colours in a workplace.

Aisles and stairways

Corridors and aisles must be wide enough to accommodate the staff and vehicles, comfortably without causing a crowd or a rush. Aisle space allows for the movement of people, products and materials. Warning signs and mirrors should be placed as they can improve sight lines in blind corners. Arranging aisles systematically and conveniently so that it encourages people to use them, instead of following shortcuts through hazardous places. Keeping aisles and stairways clear is very important.

Maintain light fixtures

Dirty light fixtures reduce the required light levels. It is important to clean the lights regularly as clean light fixtures can improve lighting efficiency significantly.

Spill control

The best way to control spills is to prevent them. Regular cleaning and maintaining the machines and equipment is one way. The other way is to use drip pans and guards wherever there is a possibility of spillage. When spills occur, it is essential to clean them up immediately. To wipe away greasy, oily and other liquid spills, absorbent materials are very useful. These used absorbents must be disposed off properly at the right place, and safely.

Tools and equipment

Tools require suitable fixtures with marked locations to provide proper arrangement, both in the tool room and near the workplace. They should be kept at the designated place immediately after use so the chances of being misplaced or lost are reduced. The person in charge should regularly inspect the cleanliness and repair of all tools.

Maintenance

A regular checking of the condition of building, its infrastructure and equipment may be the most important aspect for the maintenance of an embroidery unit. Keeping these safe, in an efficient working order and a good, repaired condition, is also included in the maintenance work. This includes maintaining sanitary facilities and regular painting and cleaning of walls. It is important to replace or fix broken or damaged items as early as possible. A good maintenance programme includes inspection, the repair of tools, equipment, machines and processes.

Waste disposal

Regular collection and sorting of waste contribute to good housekeeping practices. It makes easier to separate materials that can be recycled from those going to waste disposal. Putting scrap containers near the places where waste is produced encourages orderly waste disposal and makes collection easier. All waste collecting bins should be clearly labelled as recyclable glass, plastic, scrap metal, etc.

Storage

Large and categorised storage areas for stock, wastage and recyclable material is a structured and a progressive method of organising production. Stored materials must be out of the way of the frequently visited sites and exits, fire equipment, aisles, emergency showers, stairs or first aid stations. All storage areas should be clearly marked.

Flammable, combustible, toxic and other hazardous materials should be stored in approved containers in designated areas. Storage of materials should meet all requirements specified in the fire codes and the regulations of environmental and occupational health and safety agencies in the jurisdiction.

Benefits of a clean environment

Proper cleaning in an organisation has a positive effect on the employees. Some of the benefits of keeping a clean environment in an organisation are as follows:

(i) Healthy employees may mean fewer sick days.
(ii) Cleanliness creates satisfaction.
(iii) It preserves assets over the long term.
(iv) It maintains a good image of the organisation.

Practical Exercise

Activity 1

Role Play (Importance of cleanliness at the workplace)

Requirements

1. Students, to perform the role play
2. Some other students around
3. Teacher
4. Classroom essentials, like tables, chairs, books, pen, embroidery frame, needle, some other embroidery material, lunch boxes

Procedure

1. The teacher introduces the importance of cleanliness at the workplace and introduces the topic of role play (like embroiderer working on frame after lunch without washing hands and the fabric getting stained)

2. Students will play the role of embroiderer and supervisor, and an argument takes place between them.
3. The teacher will explain the importance of maintaining cleanliness at the workplace.
4. Finally, a conclusion is generated after discussion with students.

Check Your Progress

A. Fill in the blanks

1. Proper _____ in an organisation has a positive effect on the employees and creates a good image of the organisation.
2. The two main types of maintenance work are _____ and _____.
3. An organisation having proper _____ materials for overcoming material storage problems is surely a beneficial organisation.

B. Questions

1. Explain the importance of storage at an embroidery unit.
2. Using the awareness from the above Unit, write the type of maintenance that would be needed for an embroidery unit.
3. Discuss the cleanliness that is required for an embroidery unit.

Glossary

Crinkled: *A fabric with an uneven surface, mostly created by use of chemicals that cause it to shrink unevenly*

Drape: *The ability of a fabric to hang in graceful folds, for example, the smooth folds of a curtain or skirt*

Eye: *The part of the needle that carries the thread to keep forming stitches.*

Faggoting: *Embroidery produced by pulling out horizontal threads from a fabric and tying the remaining cross threads into groups.*

Fray: *The wearing out of the fabric at the edges due to friction or constant rubbing*

Fringe: *A decorative edge made of hanging strings of thread or fabric*

Lustrous: *Having lustre or shine*

Mercerisation: *A process of treating a cotton yarn or fabric, which results in an increased lustre on the surface of the fabric, softness, strength, and increased affinity for dyes and waterborne finishes*

Oblique even-sized stitches: *Equal-sized stitches which are created on a fabric, slanting or declining from the vertical and horizontal surface or line.*

Ornate embroidery: *A heavily, elaborated thread work*

Outline: *A line enclosing or indicating the shape of an object or marking the boundary of a sketch, diagram, design or figure.*

Point: *The part of the needle that makes the first contact with the fabric and is responsible for how the needle pierces the fabric.*

Shaft: *A part of the needle between the eye and the point. It is a suitable length for driving the eye and thread through the material.*

Shimmery: *Shine in such a way that the light seems to shake slightly and quickly.*

Skein: *A length of thread or yarn, loosely coiled and knotted*

Smudge: *A dirty mark of dry or wet media on a surface*

Spun yarn: *A yarn made by taking a group of short staple fibres, and twisting them together to form a single yarn, which is then used for weaving or knotting fabrics*

Tassels: *A bunch of loosely hanging threads or cords knotted at one end and attached for decoration of garments such as dupattas, scarves, kurtis, and home furnishing items*

Tuft: *A bunch or collection of threads held together at the base*

Wear: *(verb) Have (something) on one's body as clothing, decoration, or protection*

(noun) Clothing suitable for a particular purpose, or of a particular type