

Hand Embroiderer

(*Addawala*)

(Job Role)

Qualification Pack: Ref. Id. AMH/Q1010
Sector: Apparel, Made-ups and Home Furnishing

Textbook for Class IX



विद्यया ऽ मृतमश्नुते



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 will 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 (NOS) 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.

New Delhi
June 2018

HRUSHIKESH SENAPATY
Director

National Council of Educational
Research and Training

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 using an *adda* (a type of adjustable wooden frame to stretch the fabric) is called *adda* work, in which mainly *aari* (a type of needle with a hook) is used to embroider on the fabric fixed on *adda*. *Adda* work is mostly done using different types of precious, semi-precious stones and other decorative materials. *Adda* work is especially done on party wear and other articles to give them a dazzling, royal look. There is a huge demand for trained personnel of *adda* work to carry out the same.

The student textbook for the job role of Hand Embroiderer (*Addawala*) 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 (*Addawala*) covered through this textbook are as follows:

1. AMH/N1010 Plan and organise for process of hand embroidery (*Addawala*)
2. AMH/N1011 Carry out the process of embroidery as per customer requirements
3. AMH/N1012 Maintain health, safety and security at the embroidery workplace (*Adda*)
4. AMH/N0102 Maintain work area, tools and machines
5. AMH/N0104 Comply with industry, regulatory and organisational requirements

Unit I of this textbook explains the basics of hand embroidery including common embroidery related terms, designs and tracing methods. Unit II emphasises the tools and materials used for *adda* work. Unit III will help the student learn about the different *aari* work stitches to embroider. Unit IV emphasises the defects of embroidery and their remedies. Unit V covers the organisational rules and addresses issues of personal hygiene in an embroidery unit. It also deals with the organisational hazards, safety measures, and aspects of cleaning and maintenance of the workplace. A compilation of suggested stitches in floral and geometrical designs of *adda* work 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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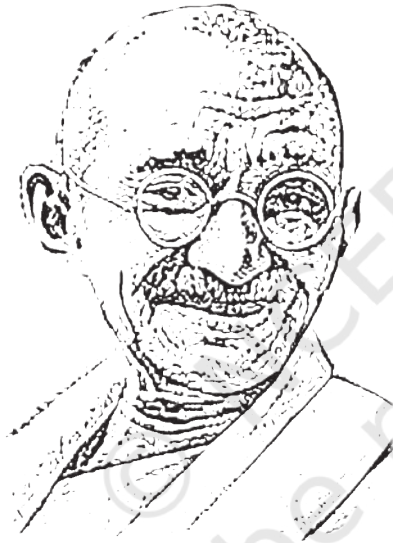
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.....Ahimsa is the very definition of woman and there is no place for untruth in her heart. If she is true to herself she is no longer Abala - the weak, but she is Sabala - the strong.....

not to be certified published

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



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while some others are stitched throughout the garments or items. The design location in embroidery plays an important role to give it an attractive 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 design which can be used for embroidery, practise drawing of all types of design, select them to be transferred on the 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 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,

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



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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.

Badla

It is a flat gold or silver wire used for embroidery.

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.

Buckram

It is a coarse, woven backing fabric that is usually very stiff. It is used to stabilise the fabric for stitching. It is frequently used in caps or panels of garments to hold the embroidery pattern straight.

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.



NOTES

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

Dabka

It is a tightly coiled fine metallic wire used for embroidery.

Design

In embroidery, the term design is used for 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.

Dori

It is a term used for a thick thread which is especially used for hand embroidery.

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 pliable 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.

F

Framing

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



Filling stitches

Long and short, satin, close herringbone, 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.

Foam

It is used to add dimensions to an embroidery pattern. It is mainly used on caps, jackets, quilts, bags, etc. It gives a 3D appearance. Foams are available in varying thickness.

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.

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*.

H

Hoop

Embroidery frames are also called hoops.



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Hooping

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

I

Ingots

These are the solid blocks of steel, gold or other metal, melted and compressed to convert into wires/pieces of different shapes. These are mainly used in *zari* or *zardozi* work.

K

Kalabattu

It is a silver glit-thread used in embroidery.

Karchob

The embroidery frame is also known as *karchob*.

Karchobi

It is a dense metal embroidery done on material using a frame.

Kasab

A gold or silver wire sometimes wrapped around a thread is called *kasab*.

L

Lettering

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

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.



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

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.

O

Organdie

It is a fine, translucent, stiff cotton muslin, used mainly for dresses. It is perhaps the most sheer and crisp cotton cloth.

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.

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.



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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

Salma

It is a coiled, springy metallic wire used in zardozi embroidery.

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.

Smudge

It is a dirty mark of dry or wet media on a surface.

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.

T

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 or 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.

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



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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 ancient to the 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 and 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 design 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(b) Natural design



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



Fig. 1.1(c) Natural design

(b) Floral designs

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



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.

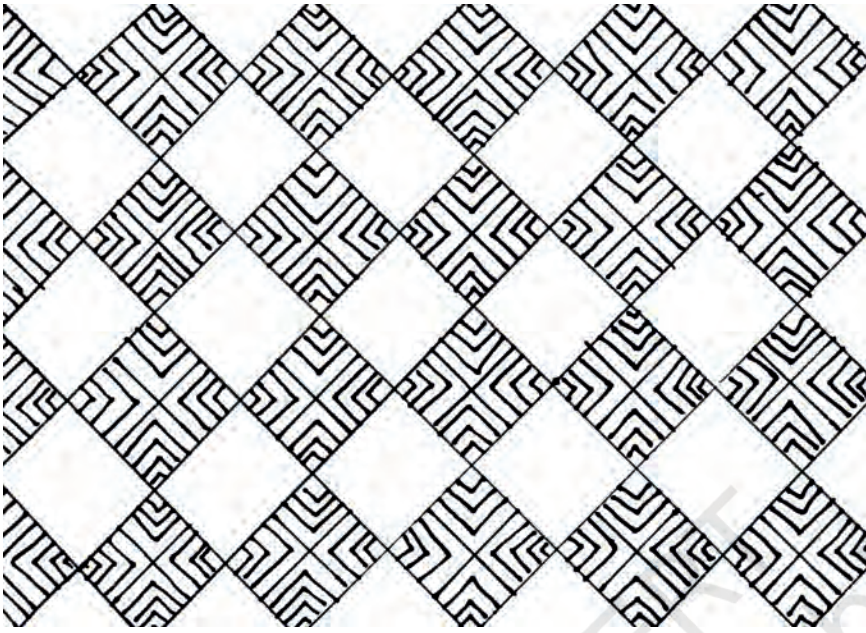


Fig. 1.3(a) Geometric design embroidered on a fabric



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.

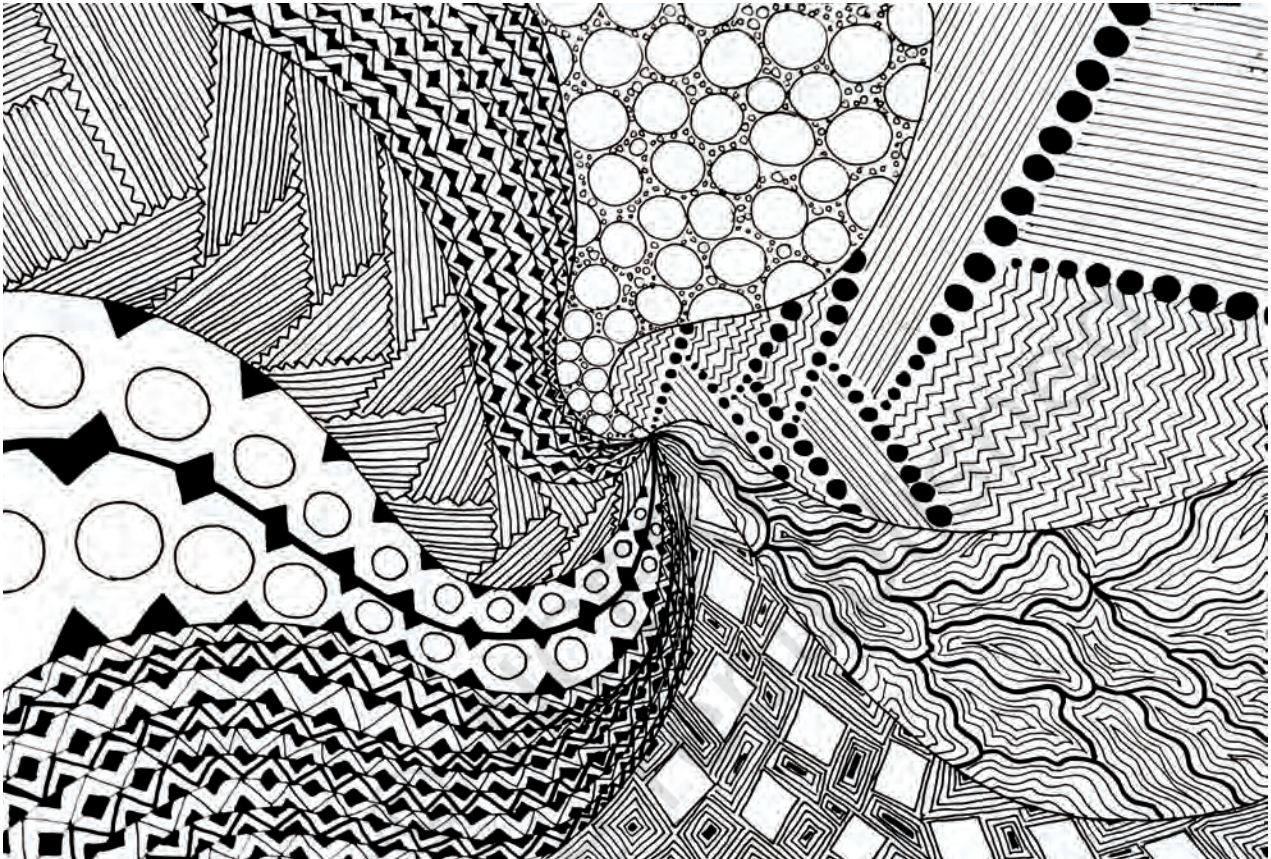


Fig. 1.4 Abstract design embroidered on a fabric



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

Border designs are used on hemlines of garments.



Fig. 1.9(a) Different patterns of design



Fig. 1.9(b) A pattern of design (drop repeat)



Fig. 1.9(c) Border design on a hemline



Fig. 1.9(d) Border designs on a sample

Tracing materials and methods

Various materials and methods are used to transfer the design onto the product or the fabric—

The tracing materials include—

- (i) Embroidery design
- (ii) Tracing paper
- (iii) Pen or pencil
- (iv) Carbon paper
- (v) Iron
- (vi) Piece of glass and lightbox
- (vii) Needle
- (viii) Chalk powder or Indigo (*neel*)
- (ix) Kerosene oil
- (x) Dress maker pins or beaded pins
- (xi) Stencils of selected designs
- (xii) 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.

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

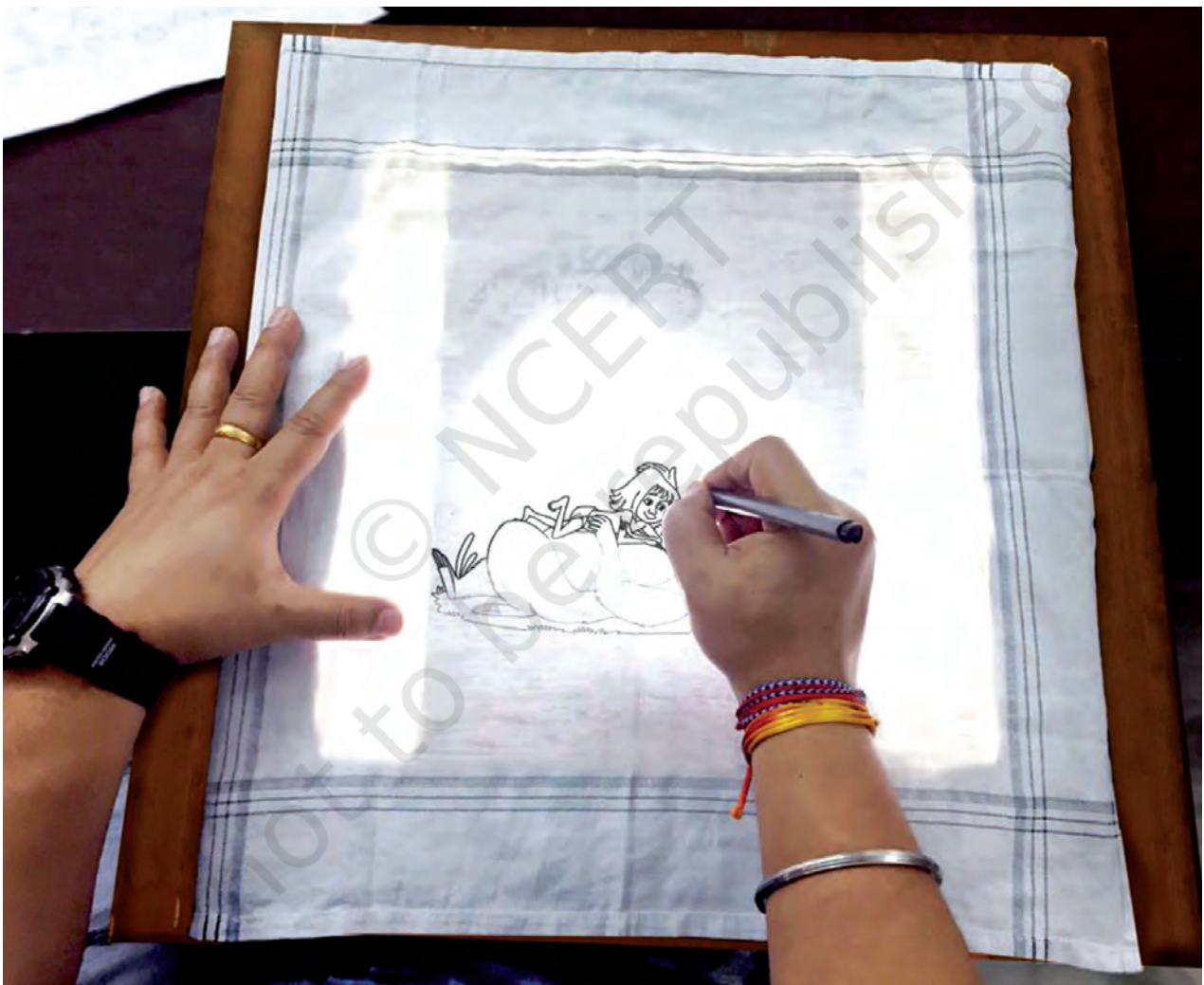


Fig. 1.10 Transferring design using lightbox

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.

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 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.



Fig. 1.11 Transferring design using carbon paper

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 right side of fabric. Then, use a transfer pencil or pen to trace the design in the cut-out 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.



Fig. 1.13 Transferring design using stencil

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

- (i) 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.
- (ii) 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" × 8")

Procedure

1. Draw two natural or geometrical designs of size 6" × 6" 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

NOTES

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

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Introduction to Aari Work



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INTRODUCTION

Aari work is a delicate and intricate form of hand embroidery which requires great efficiency and skills. For the stitches of *aari* work, the embroiderer needs the usage of both his hands; hence, instead of using the normal embroidery hoop, *adda* (frames) are used. *Adda* is a wooden adjustable frame with four wooden bars, used to stretch the fabric for embroidery. The fabric is attached to the *adda* mainly for doing *aari* work.

Aari is a type of needle with a hook at its tip to do the embroidery while working on *adda*. Because of its name *aari*, the embroidery done by it is called *aari* work. *Adda* and *aari* help in working speedily, and with precision and neatness. Before starting this embroidery, one has to do some basic preparations, like preparation of the *adda* (frame) and attaching the fabric which is to be embroidered on it. Then, the design selected is transferred onto the fabric, using proper tracing methods. Mostly, the prick and pounce method is used to transfer the designs onto the fabric in *aari* work.

In this Unit, students will learn the method of fixation of fabric on *adda*, *khaka* making, and transferring the design onto the fabric by properly marking the position where the design is to be made. All these are the initial steps of starting the *aari* work. After that, the tools

and material required for *aari* work, like needle (*aari*), threads (*zari*, cotton and silk, etc.), sequins, beads, fabric backing, *dabka*, stones, etc., are collected at a place. Students will be introduced to all these tools and materials required for *aari* work. They will be practising the fabric fixation process, and tracing some designs. Students can also research various tools and materials used for *aari* work during the progression of this Unit.

Note: The terms used for various hand embroidery (*addawala*) tools, methods and raw material may vary from place to place. However, we have taken the most commonly used and familiar terms to indicate the same in this textbook.

SESSION 1: HISTORY AND MATERIALS FOR AARI WORK

Aari or adda work

Aari embroidery is also known as *adda* work. It is the embellishment of a fabric with threads, accessories and sometimes with other decorative elements. Embroidery is the art of ornamenting fabric or other materials (mainly garments) with threads and needle. Application of embroidery may also include the use of other materials, such as metal strips, pearls, beads, quills, and sequins. *Aari* embroidery is mostly done using different types of silk and *zari* threads. *Aari* work is a very intricate form of embroidery and is quicker to do than the basic hand embroidery and the effect is more rich, durable and luxurious.

Origin and history

Adda or *aari* work is a form of embroidery that has its earliest roots in *Vedic* period. *Kalabattu* is the name of its original process, in which threads in real gold and silver wires were used to decorate silk, satin and velvet fabrics. Apart from this, other decorative trimmings, such as sequins, beads, pearls and precious and semi-precious stones were also used. When it was at its peak of adaptation, it was mainly used by the Mughals and their royal families on wall hangings, as



NOTES

well as on garments and accessories for elephants and horses, etc.

Aari work emerged as the mark of the rule of the Mughal emperors. The Mughal royals were mesmerised by its floral motifs, traditional designs and rich appearance on garments. They encouraged *zardozi* artists to spread throughout India. However, due to the high demand from Lucknow (city of Nawabs), the city remained the main hub of its production. In a short span of time, different places, such as Uttar Pradesh, Rajasthan, Kutch, Delhi and other nearby areas started recognising the special characteristics of *aari* work or embroidery, which marked its popularity.

Over a period of time, the gold and silver thread prices increased and so the use of such expensive material became difficult. Hence, the embroidery workers started using synthetic threads or copper wires polished in gold and silver. *Zardozi* was commercialised as a technique, though the glory of the original traditional heritage of this art was lost with time. *Zardozi* is especially done in regions such as Agra, Kashmir, Hyderabad, Delhi, Kolkata, Farrukkabad, Varanasi and Bhopal.

In the late 16th century, the *zardozi* and the *zari* embroidery were brought to India by the Mughals. The word *zardozi* is derived from two Persian words 'zar', which means gold and 'dozi', which means embroidery. The metallic thread is used for this form of work.

The term 'zardozi work' can also be used for intricate and elaborate form of *zari* where the gold or silver embroidery work is teamed with pearls and precious stones, *gota* and border *kinari*, making this art only within the means of rich people. In recent times, *zardozi* thread mostly has a plastic base and a golden-coloured thread outside as covering.

Zardozi or zari work

It is the embroidery work in metal wires. Metal ingots are melted and compressed through perforated steel sheets to convert them into wires in this work. They are then hammered to the required thickness. Plain flat wire is called *badla*, whereas the rounded is called



kasab. *Sitara* are smaller spangles and *mukaish* are the tiny dots made of *badla*.

Aari work involves a needle with a hook, which is fed by either cotton, *zari* or silk thread from below with the material tucked out on an *adda* or frame. This motion (movement) creates loops of chain stitch, and repeats of these leads to a line of chain stitches. From the underside of the fabric, the other hand feeds the thread, and the hook brings it up, making a chain stitch. It is much faster than the chain stitch done in the common way by hand on a frame. It looks very well finished, almost like machine made. This can also be ornamented with sequins and beads, which are kept on the right side, and the needle goes



Fig. 2.1(a) Zardozi work

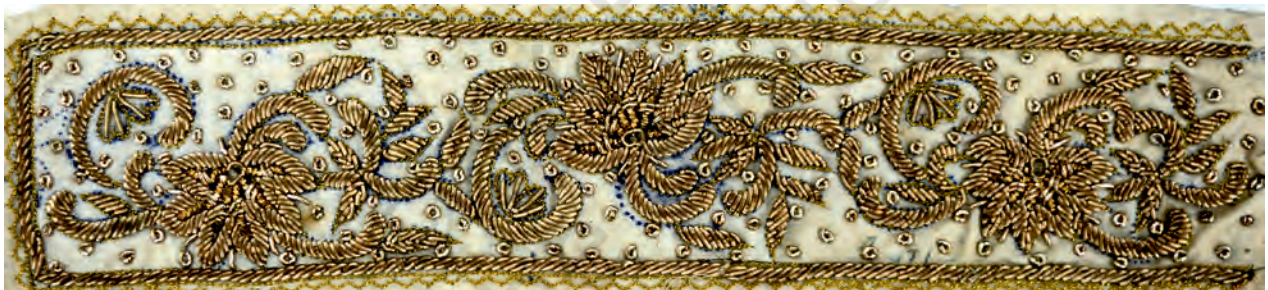


Fig. 2.1(b) Zardozi work

inside their holes before plunging below, thus securing them to the fabric. The cloth to be embroidered is first stitched to the thick cloth strap attached to the *adda*. Thereafter, with the help of *aari* (needle), the embroidery is started. The hook of the *aari* enables the embroiderer to pass the threads both above and below the fabric. This method of embroidery is very time consuming and therefore, the products are expensive. Depending on the intricacy and type of design, it may take a day or a month to complete a design.

Zardozi embroidery requires patience and expertise. It is one of the most common choices for bridal and

designer wears like lehenga-chunni, giving the clothing a rich look. *Aari* work, these days, with the help of advanced stitching procedures, and the role of more artisans working together and proper planning, takes lesser time to complete.

The embroidery on *adda* is worked in two distinct styles. The first, *zardozi* work, is recognisable by the density of its stitches on heavy base materials, such as velvet or satin. It is usually seen on items, like *sherwanis*, suits, sarees, bags, purses, cushions, curtains, shoes and belts, jackets, coats, tent coverings, facades and canopies. The other style is *kamdani*, which is a lighter and more delicate work. It adorns rich and elegant fabrics like muslin and silk. Although this kind of work is considered far more suitable for stoles and veils, yet these days it is very common in bridal wear too.

Zardozi work

It is also known as *karchobi*, which is derived from the term '*karchob*', meaning frame. The artisans stretch the fabric quite tightly on a wooden frame (*adda*), within which this style of embroidery comes to life. .

In *zardozi*, mainly *dabka* (spring type of a thread), *katori*, *tikena*, and sequins are used. The *aari* or hand needle is selected as per the type and style of work and stitches like chain stitch, satin, sequin work, beadwork is done using *aari* and French knot, bullion knot; stone

attachment is done using hand embroidery needle. Beadwork and stone attachment can be done by using *aari* as well as hand needles also.

Zari and stone combinations, several outline stitches, like *madkan*, thick satin line; petal filling stitches, like *kangni*, fishbone, shaded filling, *farisha* and so on.

While working on a chain stitch, if a bead or a sequin is added in each stitch, a line of



Fig. 2.2 Zardozi-dabka work



beadwork and sequin work is created. Similarly, when a chain stitch is spread to form long stitches, it creates a satin-like stitch. The learners can develop and learn new variations along with intricate work with regular practice and experience of working with basic stitches.

Kamdani

It is a lighter type of needlework also called *mukaish* work, which is done on lightweight material like scarves, veils, caps, transparent saris, etc. A simple flat metallic wire is used and the wire is pressed down with the stitching, producing a dotted-stitch effect. The effect produced is glittered and is called *hazarabatti* (a thousand lights). It is done with a thick hand embroidery needle having a large eye to thread the metal wire in it.



Fig. 2.3 Kamdani work

Tools used for aari work

Good work requires good tools and this is very true of embroidery. The different tools used are given below:

(a) Adda (wooden frame)

It is a horizontal wooden adjustable frame, consisting of four wooden bars. It is raised sufficiently from the ground to make it convenient for the embroiderer to work, without having to bend too far forward while

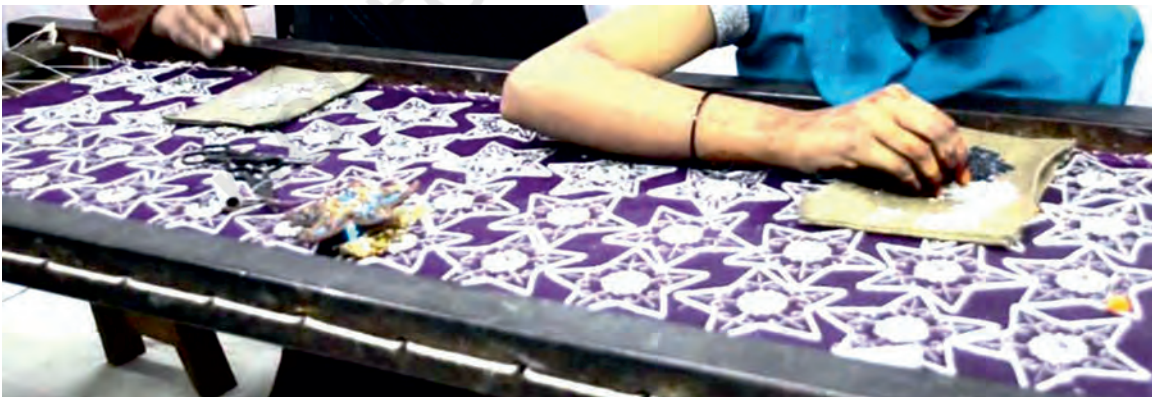


Fig. 2.4 Adda (wooden frame)

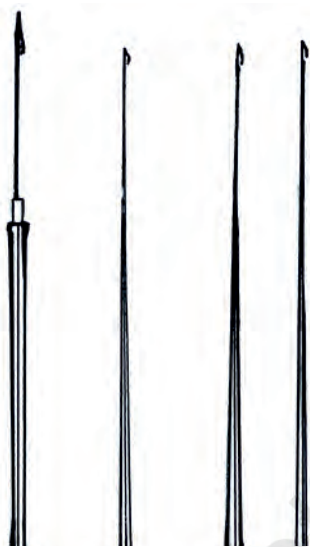
sitting on the ground. The needle is always pushed in such a way that it should be away from the embroiderer and never towards him/her. The fabric on which the embroidery is to be done is first stitched on the two horizontal wooden bars and stretched apart. Then it is fixed tightly and locked onto the other two vertically parallel wooden bars of the *adda*. This prevents the fabric from moving while working, and also enables clear vision and faster movement of the tools.

(b) *Aari* (needle)

It is the main tool of the zardozi embroidery. It has a hook at the tip and a wooden handle at the back. The needles are also available with an iron and a plastic handle. *Aari* (needles) are available in different sizes and thickness, which may be selected according to the type of the fabric, design, type of thread and raw material used. For fine fabric, fine *aari* is used, while for a heavy fabric, a thick *aari* is used. An *aari* may be selected according to the raw material also, for example *aari* for *zari*, *aari* for *sitara* or for *dabka*, etc. Thus, it can be selected by the embroiderer according to his/her requirement, looking into all the aspects of embroidery work.

Aari resembles the shape of a crochet needle and is a pen-like needle. It forms an intrinsic form of artwork called the *aari* work.

(a)



(b)



- (i) the needle hooks are made of iron;
- (ii) they are sometimes handcrafted;
- (iii) they do not damage the fabrics, even very fine fabrics, as they are filled properly;
- (vi) they look like crochet hooks but are still different from it; and
- (v) they are of different sizes according to the use. For example: hooks used to stitch silk and *zari* threads are different in size from the hooks used to stitch sequins and beads. *Aari* plays a major role in embroidery work.

Fig. 2.5(a, b) *Aari* (Needle)



(c) Scissors

These should have slender blades from 1 ½” to 2 ½” long that taper to narrow, sharp points. These should be of very good quality steel so that keen cutting of edges and threads are assured.

(d) Needles

In *adda* work, embroidery needles are also used. The most commonly used needle for embroidery is a crewel; sometimes also known as an embroidery needle. Except for its long slender eye, it does not differ materially from the sewing needle in shape and it comes in the same size and numbers. Crewels should be used unless some other kind of needle is specified.

(e) Thimble

It is a small plastic, metal or rubber cap for the finger or thumb. Mostly it is close-ended. It is worn to protect the finger and/or thumb and push the needle while embroidering.

Raw materials used for *aari* work

The raw materials used for making zardozi embroidery are—

(a) Gold and silver threads

Originally, this embroidery was done by using pure gold and silver threads. These threads were made by metal (gold and silver blocks). The craftsmen melted them in small workshops at their homes and pressed them through iron sheets having perforations to make thin wires.

The size of the perforations varied as per the requirement of the threads. Simple plain flat wire is called *badla*. Sometimes, the *badla* is wrapped around a thread and is called *kasab*. The twisted wire is called *nakshi*.

These days, artificially made bright gold, dull gold, bright silver, antique silver and copper colour threads are commonly used.



Fig. 2.6 Gold and silver zari/thread



Fig. 2.7 Metal wires

(b) Metal wires

In recent times, original gold and silver has been replaced by metal wire made out of mainly copper and steel.

(c) Dabka and Sitara

These are used as ornamentations in the zardozi embroidery. *Dabka* is a spring-like thread. It is cut into small sized pieces and used as per the requirement to make the shapes of flowers and leaves in a design. *Sitara* is golden or silver in colour, but even coloured ones in different shapes are available these days in the market.



Fig. 2.8(a) Dabka



Fig. 2.8(b) Sitara



Fig. 2.9 Beadwork

(d) Kardana and poth ke moti (beads)

Artisans also use beads as and when required. These beads come in different colours, shapes and sizes and are named accordingly. The glass beads with a cylindrical structure are called *kardana* and very small spherical beads are called *poth ke moti*.

(e) Shiny stones

These stones, which resemble diamonds are used to decorate the product, garment or fabric. These are readily available in the local market in different shapes, sizes and colours. Coloured beads, coloured stones, and pearls of various sizes and shapes have been used to decorate the embroideries since early times when all these were pure, like pure pearls, precious and semi-precious stones. These days a wide variety of artificial stones are available in the market. Glue is used to paste these shiny stones on the product, garment or fabric. Then an outline of chain stitch is given to finish the edges.



Fig. 2.10 Stones in zardozi work

(f) Khadiya (chalk powder)

It is used to prepare the chalk solution for tracing the design on the fabric. *Mitti ka tel* (kerosene oil) is mixed with chalk powder to prepare this solution.

(g) Embroidery threads

The thread used for embroidering any design must be carefully chosen for colour, texture and size, because all these factors contribute to the final effect. Fine threads are usually employed on fine fabrics. Stranded threads, corded threads, highly-twisted lustrous threads, thick, matty, cotton thread and pure silk threads are mainly used in hand embroidery. They may also be used in embroidery on *adda* depending upon the design and materials.

Note

Before beginning embroidery work, ensure colour fastness of both the fabric as well as the thread used.

Practical Exercises

Activity 1

Prepare a chart attaching samples of different types of raw material used in zardozi work.

Materials Required

1. Chart sheet
2. Transparent pouches
3. Markers/pencils/colour pencils
4. Ruler
5. Eraser
6. Different raw materials of zardozi work
7. Stapler
8. Pins

Procedure

1. Collect samples of different raw materials of zardozi work from the market.
2. Fill the sample of each of these in transparent pouches.
3. Attach these pouches on the chart and label them.
4. Decorate the chart using coloured pencils.
5. Place the chart in the classroom or laboratory.

Activity 2

Prepare a chart of tools used for zardozi work.

Material Required

1. Chart sheet
2. Scissors
3. Markers/pencils/coloured pencils
4. Ruler
5. Eraser
6. Pictures of different tools
7. Glue

Procedure

1. Collect the pictures of different tools used for zardozi work.
2. Cut the pictures neatly in an appropriate size.
3. Paste them with glue on the chart paper.
4. Label the tools.
5. Decorate the chart using coloured pencils.
6. Place the chart in the classroom or laboratory



Check Your Progress

NOTES

A. Fill in the blanks

- _____ is a wooden frame consisting of four wooden bars.
- _____ is used in *kamdani* work.
- The glass beads with a cylindrical structure are called _____.
- _____ is a small plastic, metal or rubber cap for finger or thumb.
- _____ powder is used to prepare the solution for tracing the design on the fabric.

B. Questions

- Explain *aari* work and its origin.
- Describe the tools and raw materials used for *aari* work.
- Explain two distinct styles of embroidery work done on *adda*.

SESSION 2: FABRIC FIXATION ON ADDA AND KHAKA MAKING PROCESS

Setting of *adda*

The fabric which is to be embroidered is held onto the *adda* following an elaborate process, which requires great precision. The tightening of fabric is known as *tangarna* and involves more than one person. *Adda* is a wooden frame mainly used for *aari* work on which the fabric to be embroidered is stretched tightly, making it comfortable and suitable for working. This frame has adjustable wooden bars which are rested on four stools or stands at four corners. These frames can also be customised according to the width of the fabric. These frames are large and mainly made up of sheesham wood. It is strong, hard and durable, but sometimes bamboo is also used as an alternative material. One frame can provide accommodation to 4–6 artisans sitting on both of its sides. To sit in a comfortable manner, the height of the frame is usually 1.5–2 feet above the ground. The artisans, both male and female, sit either on the floor or on cushions. For smaller designs, small metal frames can be used instead of wooden planks.



NOTES

The *adda* or frame has four stands, two main bars and two sidebars. It is similar to the frames of a slate. The two main bars have evenly placed holes, through which a thick cotton rope is passed twice. A strip of cotton cloth is attached to one side (inner side) of the main bar. The embroiderer has to sit on the floor to embroider.

Attaching the fabric

- (i) The fabric is first joined to the two main bars.
- (ii) The centres of the bar as well as of the fabric are marked on both sides and pinned up.
- (iii) Cotton thread is used to sew the first side of the fabric to one of the cotton strips of the main bars.
- (iv) To begin, a knot is made and to end, 4–5 back stitches are done onto the white cotton cloth, which is attached on the bars.
- (v) Then, the second side to the other bar is stitched and rolled.
- (vi) Now, the stretcher bars are inserted and the frame is stretched to place the pegs or nails.
- (vii) Then, the selvages are folded. Small darning stitches are sewn and the same thread passes through these stitches, then the fabric is pulled tightly. Now, the thread is pulled and tied to the peg or nail.
- (viii) Now all the four sides of the fabric are stretched.

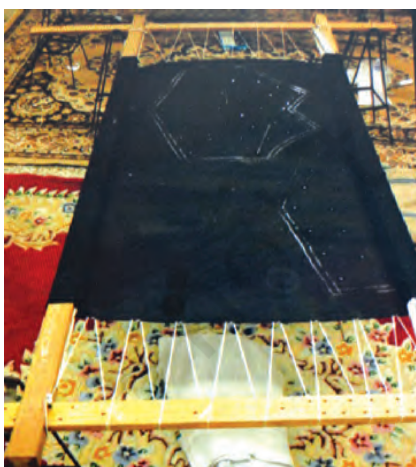


Fig. 2.11 Attaching the fabric on adda



Fig. 2.12 Artisans doing aari work on a fixed adda



Khaka making process

In this process, a paper of design is pricked with a pin at regular intervals. The pattern is then pinned up to the fabric and a coloured chalk powder is spread through the holes in a pouncing motion using a soft fabric pad. Pouncing materials can be found in specialty needle workshops. The pattern pricked on the transparent sheet of paper, that is pinned to the fabric is called *khaka*.

Practical Exercises

Activity 1

Prepare a *khaka* on a butter paper for using prick and pounce method and transfer the design on a fabric fixed on the *adda*.

Materials Required

1. Pencil
2. Chart sheet
3. Butter paper
4. Needle/pins
5. Cotton ball
6. Chalk powder
7. Fabric sample fixed on *adda*

Procedure

1. Make a paisley or nursery design on the chart sheet.
2. Trace it on the tracing paper.
3. With the help of a needle, prick over the design lines very neatly.
4. Keep the pricked design on the fabric sample fixed on the *adda*.
5. Transfer the design by pouncing the chalk powder on the pricked area to get an imprint on the fabric.

Activity 2

Visit a unit or a workshop of zardozi work and prepare a report highlighting the setting of *adda* and fixing of fabric on it.

Material Required

1. File
2. Pen/pencil
3. Ruler



NOTES

Procedure

1. Visit a unit or workshop of zardozi work.
2. Observe the setting up of *adda* and fixing of fabric on it.
3. Prepare a report on the visit.

Check Your Progress

A. Multiple choice questions

1. The tightening of fabric on *adda* is known as
 - (a) *Tangarna*
 - (b) *Khaka*
 - (c) *Sheesham*
 - (d) *Aari*
2. In the *khaka* making process, a paper of design is pricked on a sheet with a pin at
 - (a) irregular intervals
 - (b) a gap of 1 inch
 - (c) a gap of 1 cm
 - (d) regular intervals

B. Questions

1. Explain the setting up of an *adda*.
2. Explain the process of attaching of fabric on *adda*.
3. Draw the sketch of an *adda*.

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Stitches in Aari Work

INTRODUCTION

The basic stitch used in *aari* work is chain stitch. It is the foundation of all the other stitches of *aari* embroidery. The steps of doing chain stitch are discussed in this unit in detail. *Aari* work can be done with any variety of threads like silk, cotton, *zari*, wool, etc. But to begin with, *zari* is preferable, to avoid frequent breakage of thread. Chain stitch is worked from the bottom of the fabric towards the front side or top side of the fabric attached on *adda*. The thick chain (*madhkan*), *paani* and butt filling, *fansa* chain, open chain, etc., are all chain variations.

Bead and sequin work is quite simple. While doing chain stitch itself, bead or sequin is dropped in each loop of the chain to generate a line or series of beads or sequins. Beads and sequins are available in variety of shapes and sizes. One can select them as per usage in the design. For beadwork, longer tip needles are used to collect multiple beads together in it. Similarly, sequins of different diameters are available which can be used as per need.



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SESSION 1: BASIC AARI WORK

(a) Chain stitch

Mainly, the basic stitch used in *adda* work is chain stitch. The following are the steps of making a chain loop with an *aari* needle:

Step 1: Insert the *aari* through the fabric to the backside of the fabric attached on the *adda* (frame) mostly with the right hand, and in the mean time the thread is seized in the left hand under the fabric.

Step 2: Catch the thread in the hook.

Step 3: Bring it all the way through to the front, without letting go the thread in your left hand.

Step 4: Rotate the hook to the opposite side.

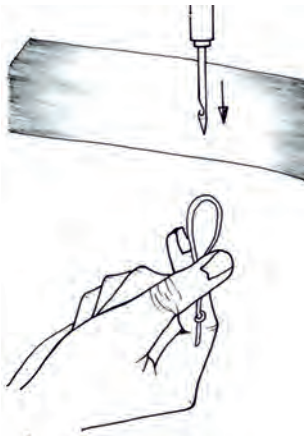


Fig. 3.1(a) Chain stitch formation (step-1)

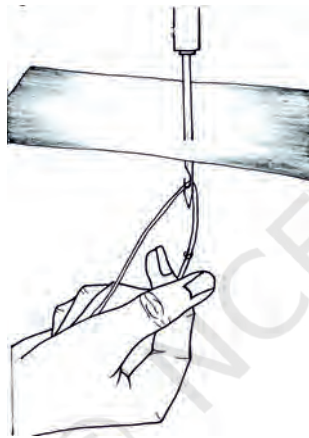


Fig. 3.1(b) Chain stitch formation (step-2)



Fig. 3.1(c) Chain stitch formation (step-3)

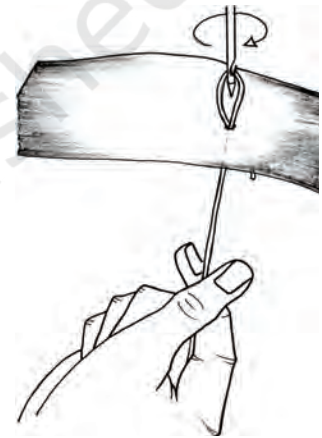


Fig. 3.1(d) Chain stitch formation (step-4)



Fig. 3.1(e) Chain stitch formation (step-5)



Fig. 3.1(f) Chain stitch formation (step-6)

Step 5: Insert the needle looped tip a short distance ahead and on the design line. Keep your stitch the same size.

Step 6: Place the thread around the hook of the needle.

Step 7: Now, make a complete turn around the hook.

Step 8: Turn the hook opposite clockwise.

Step 9: Bring the hook up above on the fabric.

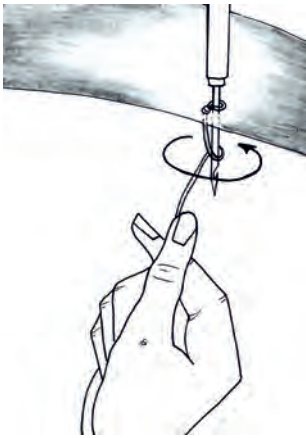


Fig. 3.1(g) Chain stitch formation (step-7)

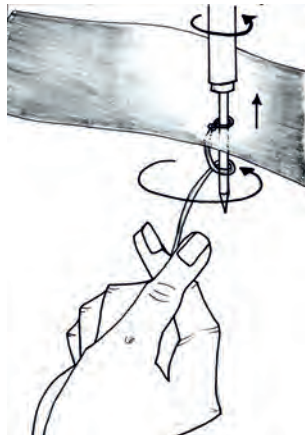


Fig. 3.1(h) Chain stitch formation (step-8)

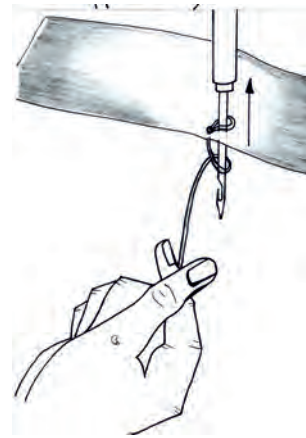


Fig. 3.1(i) Chain stitch formation (step-9)

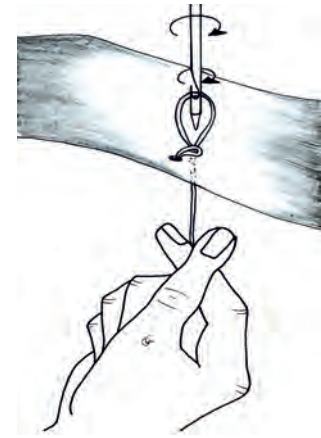


Fig. 3.1(j) Chain stitch formation (step-10)

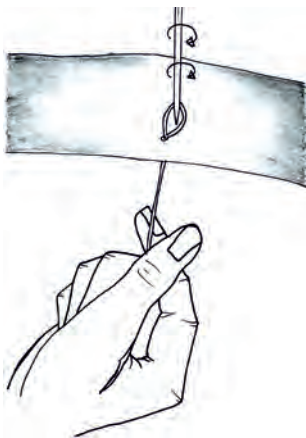


Fig. 3.1(k) Chain stitch formation (step-11)

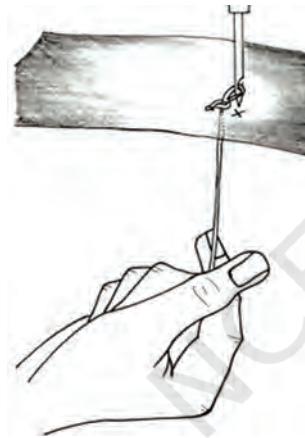


Fig. 3.1(l) Chain stitch formation (step-12)

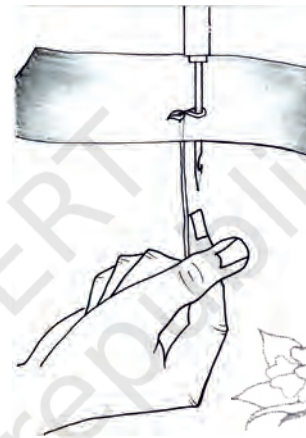


Fig. 3.1(m) Chain stitch formation (step-13)

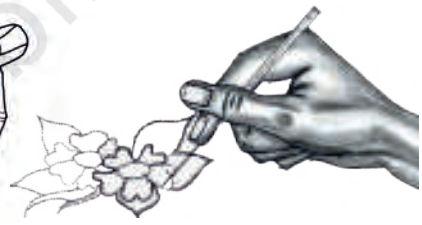


Fig. 3.1(n) Chain stitch final look

Step 10: Remember to keep the thread slightly straight.

Step 11: Rotate the hook opposite, again clockwise.

Step 12: Insert the hook again a small distance ahead.

Step 13: Turn over again a full loop around the *aari* tip and start again from step 7.

(b) Padded chain stitch (load filling stitch)

To create a padded chain stitch, we need piping thread, fabric glue and *aari*. The basic stitch used to make padded stitch is the chain stitch.



Fig. 3.2 Padded chain stitch—final look

As per the selected design, piping thread is cut and fabric glue is applied to it. Paste this thread on the desired area. Now, to cover the piping thread, simple stitches or elongated chain stitches are made over the piping thread. Outline and finish using chain stitch in *zari* thread giving it a padded effect.

(c) Sequin work



Fig. 3.3 Sequin work

Sequins are disk-shaped material used for ornamentation purpose and are usually made from plastic. They are available in different colours and shapes. Mainly, sequins have a hole in the centre. Paillettes are sequin like and are commonly very large and flat. Sequins can be attached while making loops of the chain stitch. Sequins are put on the fabric attached to *adda* and while taking the loop for chain, it is also taken in the loop. Sequins may be sewed flat to the fabric, using *aari* or embroidery needle so that they do not shift, and are less likely to drop or they may be sewed at only one point, so that they hang, swing and move very easily, to grab more light. Some sequins are made with multiple facets, to increase their reflective ability.

(d) Beadwork

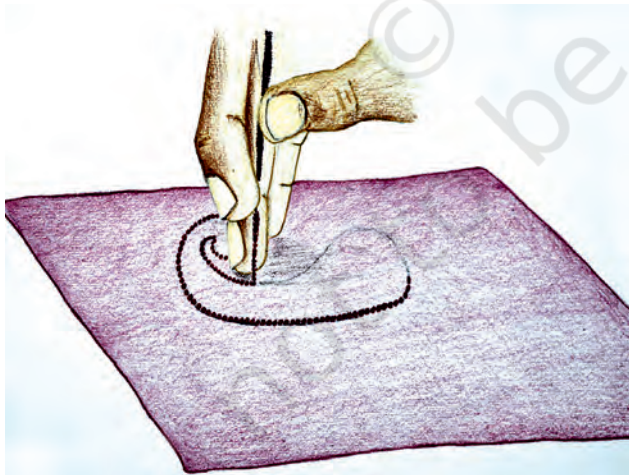


Fig. 3.4 Beadwork

It is an attractive art of embroidering small beads into a range of aesthetically pleasant patterns. In this type of work, very small and uniform coloured beads are attached to delicate garments or other fabrics. Each bead is just a part of a large design, and the overall design creates the impact, rather than a single bead. The artistry and the skill depend on the design, construction and implementation of the article.



Bead embroidery of different areas can be recognised easily by the design, colour and size of the beads, and the methods of its creation. This is done by *aari* or fine hook needle, by adding beads in a chain stitch thread while working on the fabric. In *aari* work, the beads are stitched to the upper right side of the fabric where the loops of the chain stitch are made. The thread is tied through each bead as the stitches are created.

Once the *aari* embroidery is completed, it is carefully checked for errors and accidental defects or problems in order to achieve zero defect final products. All the steps of manufacturing should be strictly supervised by experienced quality control professionals, who ensure perfect execution of the task. One must make sure that the raw material and end products fulfill the quality standards and safety norms.

Practical Exercises

Activity 1

Prepare a sample of chain stitch and beadwork.

Materials Required

1. A floral design of size 5" × 5" on tracing paper
2. Fabric sample
3. Beads/*poth* of any colour
4. *Aari* for beadwork
5. Cotton thread/*zari* matching the colour of beads
6. Sheet of A3 size
7. *Adda* or frame

Procedure

1. Transfer the floral design on the fabric sample using any tracing method.
2. Outline the design line using chain stitch and beadwork (follow the instructions of doing the chain stitch as mentioned in the session).
3. Finish the edges of the sample and attach it on the sheet.

Activity 2

Prepare a sample of sequin work.

Materials Required

1. An abstract design of size 5" × 5" on the tracing paper
2. Fabric sample



NOTES

3. Sequin of multiple colours, shapes and sizes
4. *Aari* for sequin work
5. Cotton thread or *zari*
6. Sheet of A3 size
7. *Adda* or frame

Procedure

1. Transfer the abstract design on the fabric sample using any tracing method.
2. Outline and fill the design using chain stitch and sequin of multiple colours (follow the instructions of doing the chain stitch as mentioned in the session).
3. Finish the edges of the sample and attach it on the sheet.

Check Your Progress

A. Fill in the blanks

1. The basic stitch used in *aari* work is _____ stitch.
2. _____ are disk-shaped material used for decorative purposes.
3. In *aari* work, the beads are attached to the _____ side of the fabric where the chain stitch is formed.

B. Questions

1. Explain the padded chain stitch.
2. Explain beadwork and sequin work.
3. Explain with figures, the steps of making a chain stitch.

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Embroidery Defects and Finishing

INTRODUCTION

So far, you have read about how to select the fabric, the design, appropriate tools like threads, needles and frames; and have even tried your hand at a few stitches—some of you must have made some embroidered product also. Let us now see how to bring a neat finish to the product. While embroidering or even after its completion, some defects may have arisen, which a good hand embroiderer should be able to recognise and rectify. These defects may occur because of uneven 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 or using frayed thread. Lack of undergoing through the finishing process may make the end product look damaged.

All these defects should be rectified neatly and carefully without causing any damage either to the fabric or the 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 type of embroidery. This unit deals with all these aspects in detail.



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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—

(a) Fabric damage or needle holes

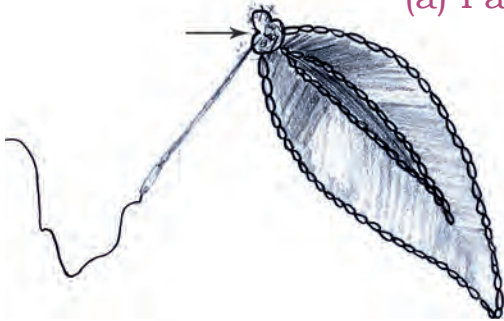


Fig. 4.1 Fabric damage

These are caused because of the following reasons:

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

(b) Fabric gapping

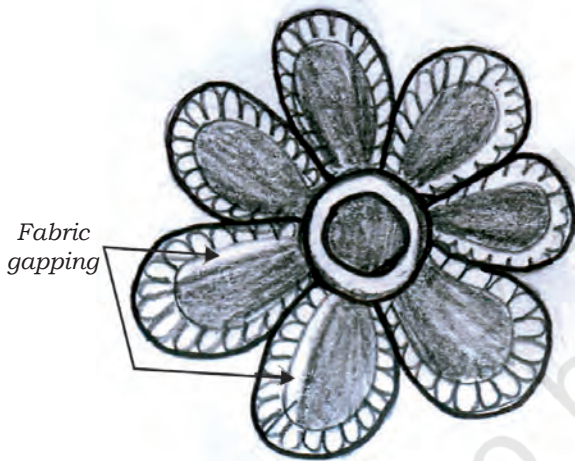


Fig. 4.2 Fabric gapping

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. 4.3 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. 4.4 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.

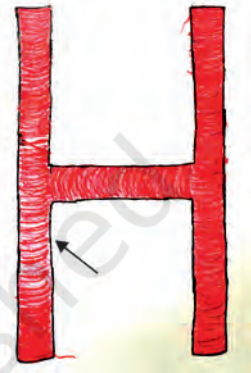


Fig. 4.5 Poor stitch density

(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.

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/ *adda* 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.



Fig. 4.6 Poor hooping

NOTES

- (iv) Hoop/*adda* 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 pointed, small and sharp 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/product.

Important tips for good embroidery work

- (i) Before starting the work on embroidery, wash hands with soap so that the fabric or the material used remains as clean and retains its lustre.
- (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 in *adda* or frame.
- (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 used while doing embroidery

(a) Use of thimble

It is a lightweight and small hard-pitted cup worn on the finger for safety and protection of the finger or thumb. 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. 4.7(a) Working by wearing a rubber thimble

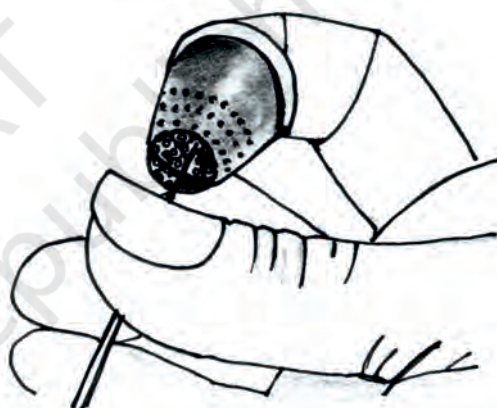


Fig. 4.7(b) Working by wearing a metal thimble

(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
- (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.

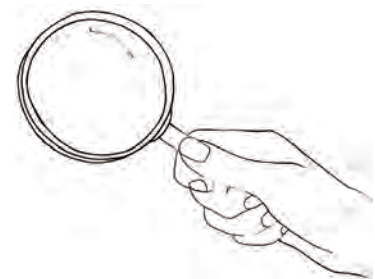


Fig. 4.8 Magnifier



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.

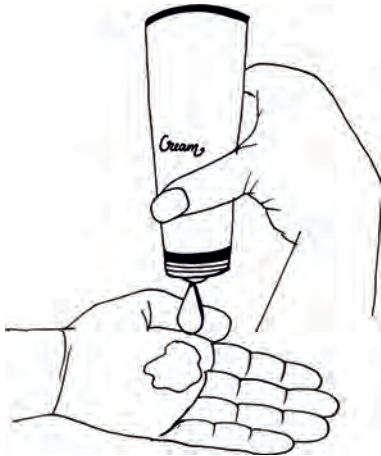


Fig. 4.9 Care of hands

(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 to be taken while doing embroidery.
2. Write down 10 tips of a good embroidery work.
3. Explain the different types of defects in embroidery and their rectification.

SESSION 2: FINISHING AND COSTING OF EMBROIDERED 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



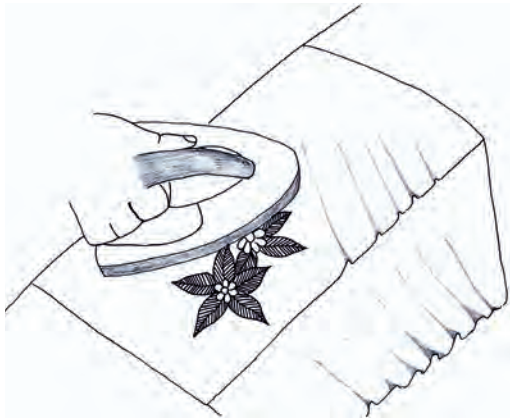


Fig. 4.10 Ironing of embroidered products

with damages as it might 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.

(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 (the more the pieces ordered, the 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., she/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—

- (a) Fabric
- (b) Trimmings
- (c) Garment design
- (d) Surface Embellishments: printing, embroidery, appliqué, etc.
- (e) Cost of Transportation
- (f) Production time
- (g) Labour
- (h) 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 main 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

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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 materials. 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 pre decided 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 of the finishing process.

Materials Required

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

Procedure

1. Write down different issues of 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



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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 search 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.



Safety, Maintenance and Organisational Rules

INTRODUCTION

In India, the Ministry of Textiles sets certain rules, policies and procedures, which need to be followed by the 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 the recruitment, training programmes, employee benefits, work schedules, leaves, breaks, salaries, performance reviews, promotion plans to terminating schedules and standards for personal health and hygiene.

There are risks of several hazards in different departments of the apparel and handicrafts' industry, like physical, biological, psychological and electrical. These should be properly dealt with, by using prescribed safety measures at the workplace. Following a set of instructions while handling machines and tools, proper employee training can help prevent hazards. Routine and breakdown maintenance, both are essential in an organisation.



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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 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
- (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



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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
- (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)



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- (iv) importance of teamwork (Cooperation)
- (v) importance of volunteering work (Leadership) and
- (vi) importance of tolerance of conflicts (Respect)

Practical Exercises

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, 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 a _____ _____ 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

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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. 5.1 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 proper food keeps you 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 is in the previous evening. The body requires breakfast to maintain energy and health, hence the first meal of the day must not be skipped.

(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.



Benefits of healthy meals

An appropriate amount of nutrients and water is required for a healthy diet. The 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 diseases away.

Toxicants: a threat to health

Consumption of toxicants like alcohol, cigarettes, tobacco, 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, etc. 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) Use a sharp and correct sized needle for stitching to protect the fingers.
- (ii) The needles should be kept safely and away from small children to avoid any harm.
- (iii) Cutting, sewing and embroidery should be done with full focus and concentration, not as if one is in a hurry, stressed and upset, as the risk of injury is more.
- (iv) The workplace should be kept clean and tidy by sweeping the floor regularly. Keep dustbins at proper place.



- (v) The sewing tools and equipment include sharp objects, like needles and scissors, so their safe handling is a must.
- (vi) Needles and thread, etc. 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 Exercises

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 how personal hygiene is maintained?
2. What are the benefits of a healthy meal?
3. Explain the health and safety precautions for a hand embroiderer.

SESSION 3: 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 machine 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 by following these 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.
 - (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:

- (a) absence of enough congenial and hygienic working atmosphere in the industry
- (b) prevalence of sexual harassment
- (c) absence of enough toilets and washrooms
- (d) lack of clean and filtered drinking water. Also, the absence of clean water for washing hands for the workers
- (e) discrimination in wages and other facilities between male and female workers
- (f) absence of weekly holiday for female workers. If they still take a leave, then it is without pay
- (g) lack of recreation facilities for workers
- (h) absence of baby care centres for workers



Fig. 5.2(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.



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Shocks from faulty equipments 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 include:

- (a) respiratory and hand protection
- (b) eye protection
- (c) heat stress protection
- (d) supply of filtered drinking water
- (e) setup of rest rooms or sick rooms as per the number of workers
- (f) setting 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
- (g) fire protection
- (h) finger protection
- (i) proper lighting
- (j) ergonomic design of the workstation
- (k) awareness towards physical and psychological health



- (l) first aid facility
- (m) 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
- (n) 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
- (o) 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
- (p) ensuring proper posture while lifting goods, handling machines, and using personal protective equipment

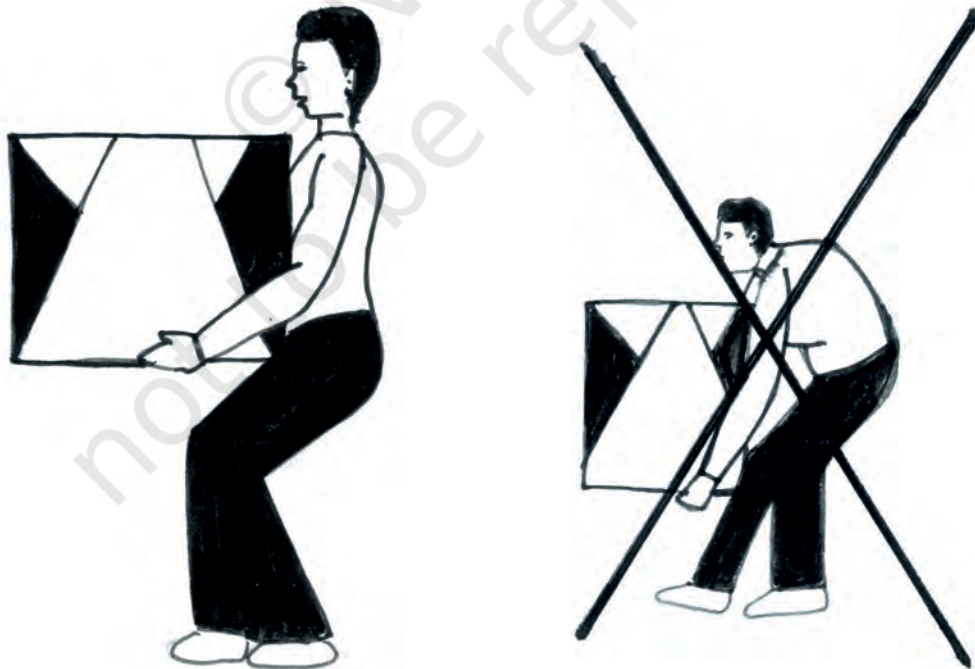


Fig. 5.3 Good lifting posture

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 each 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.



NOTES

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. 5.4.

Following are some of the measures which 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
- (vii) fire fighting training on regular intervals





Symbol for explosives or an explosion hazard



Sign to prohibit flames and smoking



Sign to indicate 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 required



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 substance or irritant



Hazard symbol for flammable



Hazard symbol for oxidising



Warning sign



No sitting symbol



Sign for fire alarm

Fig. 5.4 Safety and navigation symbols

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 signage or symbols.
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 the different types of hazards in an embroidery unit.
2. Write down the points to maintain health and safety in a manufacturing unit?
3. Write safety measures and precautions essential in an embroidery unit.

SESSION 4: 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 called



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 need 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

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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



NOTES

clean environment in an organisation are as follows:

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

Practical Exercises

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, *aari* work frame/*adda*, *aari* 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 *adda* 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.



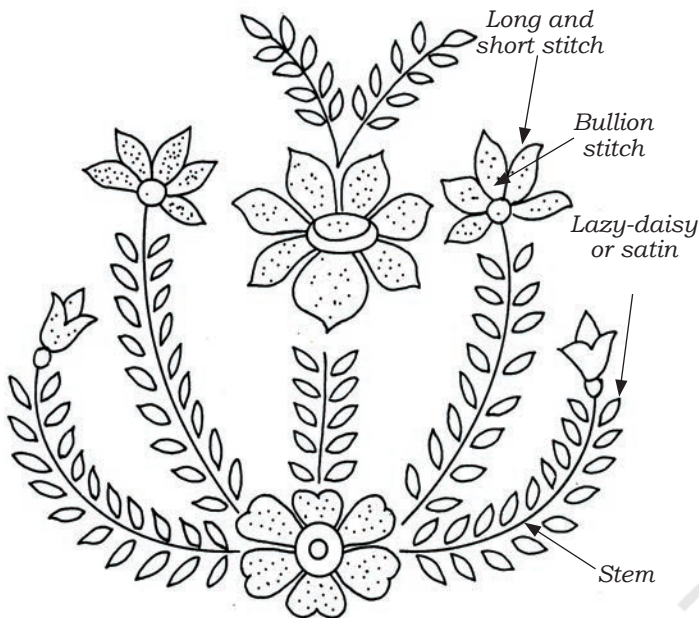
B. Questions

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 *addawala* embroidery unit.
3. Discuss the cleanliness that is required for an embroidery unit.

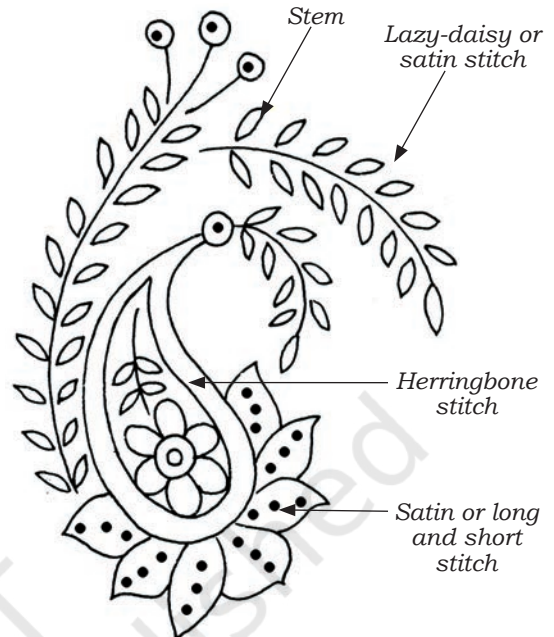
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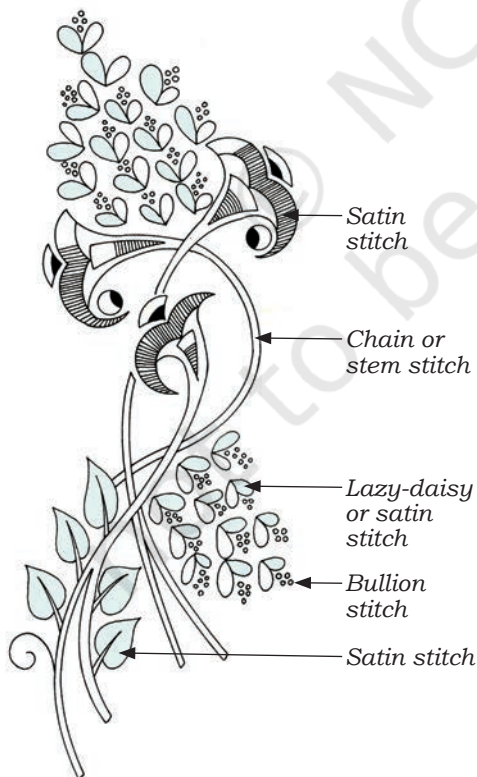
SUGGESTED EMBROIDERY STITCHES IN FLORAL AND GEOMETRICAL DESIGNS



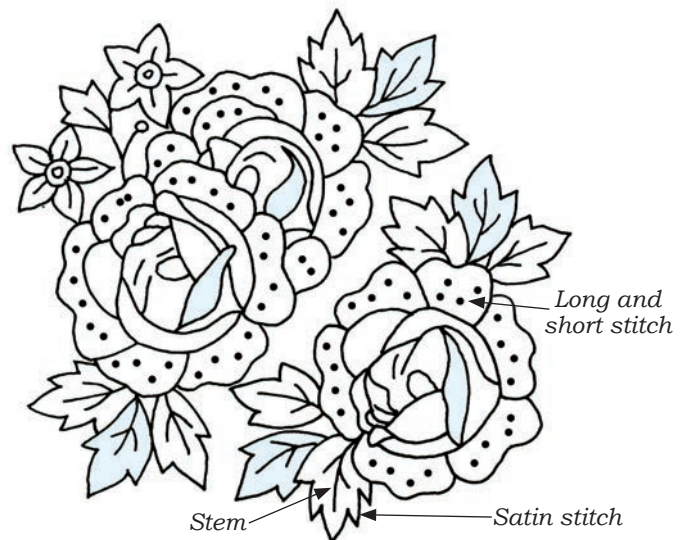
(i) Floral design for bed sheet, pillow cover, table cloth, etc.



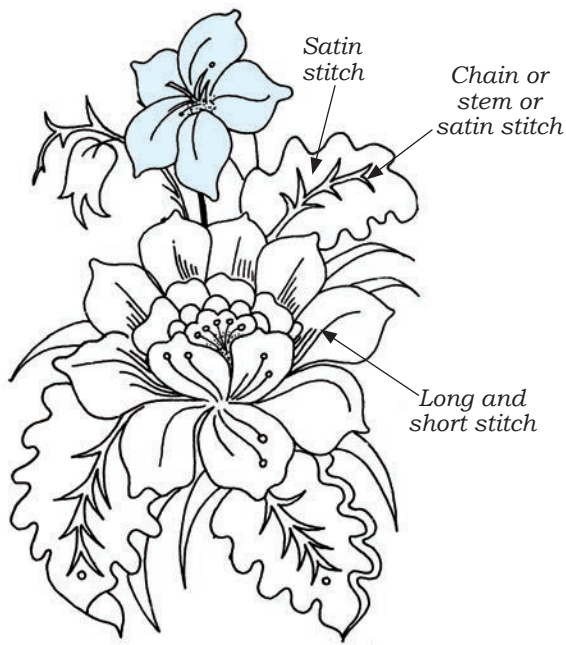
(ii) Floral design for dupatta, saree, kurti, bed sheet, pillow cover, table cloth, etc.



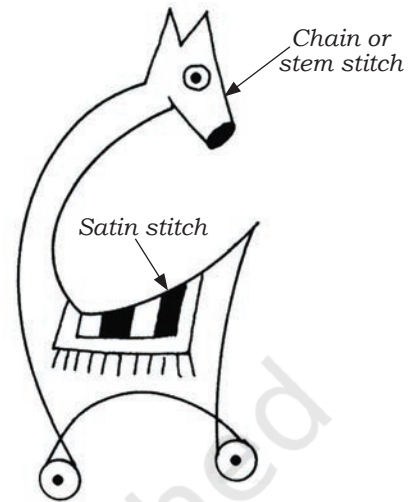
(iii) Floral design for saree, kurti, bed sheet, table cloth, dupatta, etc.



(iv) Floral design for dupatta, saree, kurti, bed sheet, pillow cover, cushion cover, etc.



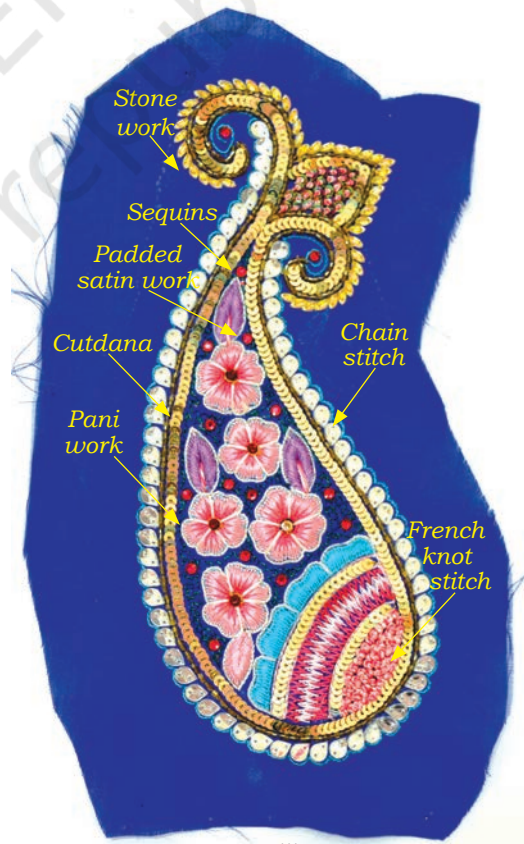
(v) Floral design for kurti, bed sheet, pillow cover, cushion cover, etc.



(vi) Geometrical design for bed sheet, pillow cover, cushion cover, dupatta, saree, etc.



(vii)



(viii)



(ix)



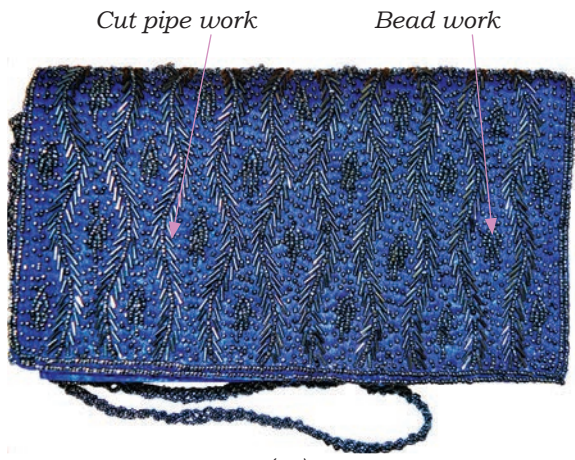
(x)



(xi)







(xv)



(xvi)



(xvii)



ACTIVITY

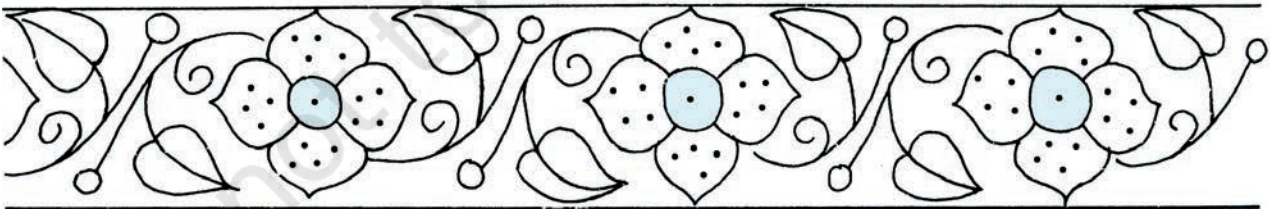
Now that you have learnt about the different stitches, use your imagination and embroider the following designs with those that you find most apt.



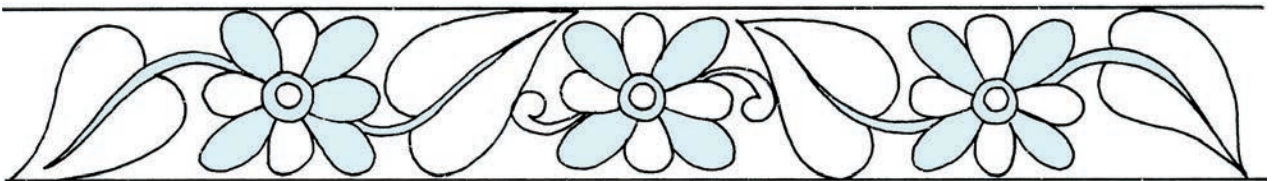
(xviii) Floral design for bed sheet, table cloth, wall hanging, etc.



(xix) Floral border for saree, dupatta, table cloth, etc.



(xx) Floral border for saree, dupatta, kurti, pillow cover, table cloth, etc.



(xxi) Floral border for bed sheet, saree, dupatta, kurti, pillow cover, table cloth, etc.

ANSWER KEY

Unit	Session	Fill in the blanks	Maze of words
1	1	1. Stitch(es) Per Inch 2. Support and stability 3. Gapping 4. Puckering 5. Painting with the needle 6. Hooping 7. Needle	
	2	1. Nursery designs 2. Stencils 3. Abstract 4. Prick and pounce	
2	1	1. <i>Adda</i> 2. <i>Badla</i> 3. <i>Kardana</i> 4. Thimble 5. Chalk	
	2	(a) <i>Tangarna</i> (d) Regular intervals	
3	1	1. Chain 2. Sequins 3. Upper right	
4	1	1. (b) Tracing 2. (c) Thimble	
	2		



- 5
- 1
 1. Policies and procedure
 2. Flexible schedule
 3. Understood
 4. Periodic
 - 2
 1. Illness
 2. Self-Esteem
 3. Personal hygiene
 - 3
 1. Awareness
 2. Allergies
 3. Repetitive Strain Injury
 4. Viruses, Toxins
 5. Safety
 - 4
 1. Cleaning
 2. Routine, breakdown
 3. Stored
 4. Dust, stains

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LIST OF CREDITS

Figures

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Soni, Vinod K. [1.1(a), 1.7 (b), 1.11, 1.12, 2.1(a, b), 2.2, 2.3, 2.4, 2.6, 2.7, 2.8(a, b), 2.9, 2.10, 2.11, 2.12, 3.2, 3.3, 4.6, Suggested embroidery stitches in floral and geometrical designs]

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