DRAFT STUDY MATERIAL

SELF EMPLOYED TAILOR

(Qualification Pack: Ref.Id.AMH/Q1947)

Sector: Apparel, Made-ups & Home Furnishing

(Grade 11)

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PSS CENTRAL INSTITUTE OF VOCATIONAL EDUCATION
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PREFACE

Vocational Education is a dynamic and evolving field, and ensuring that every student has access to quality learning materials is of paramount importance. The journey of the PSS Central Institute of Vocational Education (PSSCIVE) toward producing comprehensive and inclusive study material is rigorous and time-consuming, requiring thorough research, expert consultation, and publication by the National Council of Educational Research and Training (NCERT). However, the absence of finalized study material should not impede the educational progress of our students. In response to this necessity, we present the draft study material, a provisional yet comprehensive guide, designed to bridge the gap between teaching and learning, until the official version of the study material is made available by the NCERT. The draft study material provides a structured and accessible set of materials for teachers and students to utilize in the interim period. The content is aligned with the prescribed curriculum to ensure that students remain on track with their learning objectives.

The contents of the modules are curated to provide continuity in education and maintain the momentum of teaching-learning in vocational education. It encompasses essential concepts and skills aligned with the curriculum and educational standards. We extend our gratitude to the academicians, vocational educators, subject matter experts, industry experts, academic consultants, and all other people who contributed their expertise and insights to the creation of the draft study material.

Teachers are encouraged to use the draft modules of the study material as a guide and supplement their teaching with additional resources and activities that cater to their students' unique learning styles and needs. Collaboration and feedback are vital; therefore, we welcome suggestions for improvement, especially by the teachers, in improving upon the content of the study material.

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MODULE-1: INTRODUCTION TO CLOTHING, TAILORING AND SEWING MACHINE

Clothing is said to be originated from prehistoric times. Prehistoric man practiced hunting as their main occupation. In the process of protecting oneself while hunting, they got body scars and wounds which became symbols of victory over nature. There was huge importance of these scars on the body as people with such scars gained respect of others. This was the first time when something on body became so important. Hence, people started imitating these scars. These imitated scars were the first form of body painting. Later, these prehistoric men realized that these scars were temporary and to make them permanent they started making patterns with tools on body. This was the origin of tattooing. Further, to glorify their image they started wearing bones, teeth, skin of animals killed by them as trophies of kill. Alongside these trophies of kill they started using bark of tree, leaves etc. They stringed the leaves in row and wore as garments to cover themselves which became the first form of adornment. It was believed that string wore around the neck led to the development of upper garments while the string they wore around the waist led to the development of lower garment.

With time leaves and tree barks got replaced with fabrics. Initially natural fabrics, mainly cotton, silk, linen, wool were used by the early people. At this time the fabrics were joined together by hand using needles made of bones and threads drawn from plant fibers. Later, metal needles and strong sewing threads were developed and used to join fabrics together to form a garment by hand. Everything was made at home by people themselves. In the middle age people started getting their garments made from people outside. These people were known as tailors. These tailors customized clothing according to the desired fit and style. This was the first time people started purchasing clothes. From then tailors have been making clothes for people till date.

Tailors make clothing according to the need of their customers. For doing this, they must have a skillful hand and technical knowledge about different fabric, body measurements, latest styles etc. Many of the tailors work in custom made garment shops, boutiques, department stores, garment manufacturing units etc. These tailors who work under master tailors might face problems related to work. Thus, many of these tailors open their own shops and start working on their own, being self-employed.

Self-employment brings a sense of freedom, independence and control in the lives of people. A tailor may enjoy working directly for his clients and not for his employer. He can earn more money when he is not dependent on others

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for employment. He may also adjust his work schedule according to his need and comfort.

A tailor's major work involves styling, cutting, sewing and mending clothes. For this a tailor requires various tools and equipment's including sewing machine, scissors, shears, marking chalk, yard stick, measuring tapes etc.. Sewing machine being the most important equipment for any tailoring work is used by all the tailors.

A sewing machine is used to stitch the fabric and other pliable materials together with threads. Sewing machines were invented during the first Industrial Revolution to decrease the quantum of manual sewing done in garment industries. Invention of sewing machine started in late 1700s. At this point of time sewing machine was being under research in various parts of the world. However, the first fully functioning sewing machine was invented in mid 1800s. After this the developments in sewing machine never got stagnant and the sewing machine is still evolving till date with different attachments and functions.

Since its invention, it has greatly improved the efficiency and productivity of the fabric, garment and needle industries.

The different parts of a sewing machine and its functions help the tailor to know the functioning of a sewing machine. A number of sewing machines are used for different stitch formation. Single needle lock stitch machine being the most favorable and demanded machine is used by almost all the tailors for basic sewing.

A sewing machine controls the fabric with feeding devices and forms a perfect stitch to join the fabrics. It has various parts and attachments, each of which have their own importance and use. There are mainly two categories of sewing machines that is, domestic sewing machine and industrial sewing machine.

A tailor needs to have the knowledge and skills to operate different types of sewing machine. Its various operations, be aware of different functions of its parts and attachments and the terms related to stitching. Some of the common and important terms are explained in this Unit.

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Learning Outcomes
After completing this module, you will be able to: • Explain sewing machines and its types • Describe terminology related to sewing and garment • Describe parts and attachments of a sewing machine
Module Structure
Session 1: Sewing Machine and its Types
Session 2: Terminology Related to Sewing and Garments
Session 3: Parts and Attachment of a Sewing machine

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SESSION1: SEWING MACHINE AND ITS TYPES

INTRODUCTION TO SEWING MACHINE

Before the invention of a sewing machine, everything was sewn by hand. Many early efforts tried to replicate this hand sewing method but were mostly a failure. These machines failed to join fabric rather they just added rows of stitches which appeared as embroidery.

The final look of any garment or article depends on how the different components are attached together by sewing. Thus, sewing must be done with caution.

Sewing can be broadly classified in two categories— hand sewing and machine sewing. Before the invention of sewing machine, everything was hand sown with the help of thread and needle. These hand stitches were not very strong and were sometimes uneven. Now-a-days hand sewing may be used where temporary stitches are applied such as to hold different fabric layers while machine stitching or sometimes, it may be used for some special purposes like hemming, buttonhole making, blanket stitch, etc.. The basic thought behind sewing machines is to mechanically stitch two or more pieces of material—mainly fabric, together using thread and a needle. Sewing machines reduce the amount of manual sewing in preparing a garment or any other article. Sewing machines help the tailor in getting the work done quicker, with greater accuracy and much more consistently.

Classification of sewing machine

The following are the main categories of sewing machine based on their use:

Domestic sewing machines

These sewing machines are used for domestic or custom tailoring. They are designed mainly to be used by one person for sewing individual dresses while using a single stitch type. Modern sewing machines are designed in such a way that the fabric easily glides in and out of the sewing machine, speeding the stitching process and saving time and energy.

Some key points for domestic sewing machines are as follows:

1. Domestic sewing machines are usually used in homes by people simply interested in sewing.
2. These are commonly used by people in a variety of projects for dressmaking, and for stitching simple home furnishing items.
3. With little changes, these machines can perform a variety of stitch types. Domestic sewing machines usually work on lightweight fabrics or work pieces.
4. These machines run on significantly smaller motors compared to that of the industrial sewing machines.

Industrial sewing machines

1. Industrial sewing machines are a heavy-duty version of a standard basic sewing machine, and it is used in garment and other related industries.
2. Industrial sewing machines are used for mass production.

Fig.1.1: Operators working on industrial machines

3. These are heavy-duty machines that work thousands of stitches per minute.
4. An industrial machine is well equipped with a clutch and large servomotor.

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5. Most industrial machines are mainly designed to perform one single specific function. For example: buttonhole machines, overlock stitch machine etc.
6. Some industrial machines are designed to stitch heavier than normal materials.
7. Mainly, mass production requires an industrial sewing machine, which is designed to sew heavy material speedily, such as leather, canvas, and vinyl, at one time.
8. The industrial machines are named based on the function that they serve. Typical names for industrial machine class include pocket setter, buttonhole, and programmable pattern sewers etc.
9. Programmable machines can store 10–30 or more patterns in the memory.
10. Special purpose industrial machines can give better output in production, for example, buttonhole machines, pocket setter, pattern sewer.

The following are the comparison between domestic and industrial sewing machines:

1. The industrial machine is faster, around 3000–6000 stitches per minute, while the fastest domestic sewing machine stitches not more than 1500 stitches per minute.
2. The presser foot (See Session3) on a power machine is raised and lowered with a knee lift to a special foot pedal. While in domestic sewing machines, it is generally operated manually using a lever at the back of the needle bar.
3. Lubrication is done automatically in industrial sewing machines whereas it is done manually in domestic sewing machines.

Classification of sewing machine based on machine type

Though there are different types of sewing machine but mainly, three types are considered for sewing, as given below:

1. Mechanical sewing machines
2. Electronic sewing machines
3. Computerized sewing machines

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1. Mechanical sewing machines

These machines are less expensive and are the simplest type of sewing machines in terms of build. They are the treadle sewing machine or handle based machine (hand-operated) that runs with mechanical or human power.

Fig.1.2: A hand-operated sewing machine

Fig.1.3: Treadle sewing machine

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Hand-operated sewing machine

(i) This is the simplest form of domestic sewing machine which is operated by hand.

(ii) A handle is attached to the fly wheel (See Session 3) which is detachable and is used to operate the machine.

(iii) A hand-operated sewing machine is generally used for domestic purpose for simple projects as it does not work very speedily.

(iv) This machine is suitable where there is no electricity supply.

Treadle sewing machine

(i) This machine is the same as a hand-operated sewing machine but it is

operated by feet, with an additional peddle attached to the machine.

(ii) A belt is attached to the lower peddle passing through the balance wheel and driven by feet.

(iii) These machines run faster than the hand-operated sewing machine.

(iv) This machine is also suitable for the places where there is no electric supply.

(v) When handling the treadle sewing machine, both the hands of the tailor are free to handle the fabric. Hence, this speeds up the work of sewing.

2. Electronic sewing machine

These sewing machines are operated by electric supply. An electric motor is added to the sewing machine to omit manual efforts of moving the treadle or hand operation. Motorized operations result in adding more features to the sewing machine. The key features of such sewing machines are as follows:

(i) These sewing machines run faster than manually operated machines.

(ii) In the electronic machines, balance wheel comes to motion by a belt, which is attached to an electric motor.

(iii) A single motor is attached to the electronic sewing machines and this motor supplies power to the needle.

(iv) It is essential to control the speed of this machine

by putting pressure on an electronic foot pedal.

(v) Practice is essential to handle an electric sewing machine.

3. Computerized sewing machines

These machines are computer operated and do not require any manual effort for their operations. Complete instructions are fed in the machine through a computer attached to the machine. They work on very high speed and are very efficient. Following are the features of such machines:

(i) These sewing machines are very fast and specific

to use.

(ii) These machines are similar to the electronic sewing machines. However, a computerized sewing machine works with the help of various software.

(iii) Computerized sewing machines allow the tailor to adjust the functions according to the sewing needs. A computerized sewing machine functions very appropriately in designing and stitching various components of the garment like sleeves, yokes, pockets, etc.. These advanced computerized machines have an LED display or LCD display or touch screen. They are multi-functional machines and are expensive.

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Classification of sewing machine on the basis of machine bed and feed mechanism

Sewing machine come with four main types of machine beds to allow easy access or movement of garment components that are being sewn. Appropriate selection of machine beds aids operator to work easily with minimum wastage of time. Following are the types of sewing beds available for sewing machines:

1. **Flatbed -** The most common type, resemble traditional sewing machines with the arm and needle extend to the flat base of the machine used for sewing flat pieces of fabric together.

Fig.1.4: Flatbed

2. **Cylinder bed -** These machines have a narrow, horizontal column which allows fabric to pass around and under the column. The diameter of the cylinder-bed varies from 5 cm to 16 cm. It allows easy rotation of tubular or cylindrical pieces such as cuffs.

Fig.1.5: Cylinder bed

3. **Post bed -** These machines include bobbins, feed dogs in a vertical column that rises above the flat base of the machine. The height of column ranges from 10 cm to 45 cm, that make access to the sewing area.

Fig.1.6: Post bed

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4. **Feed of the arm -** Material is fed along the axis of a horizontal column. The design limits the length of the seam sewn to the length of the column, used for stitching of sleeve and shoulder seams.

Fig.1.7: Feed of the arm

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Types of feed mechanisms

The main types of feed mechanisms are as follows:

Drop feed: The feed mechanism lies below the machine's sewing surface. In this mechanism the movement of fabric depends on the feed dog. The fabric moves with every stitch by the movement created by feed dog.

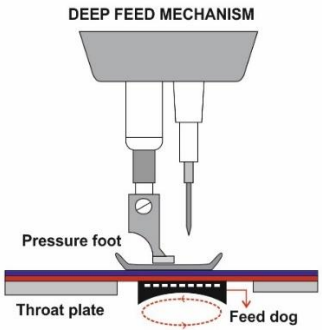

Fig.1.8: Drop feet

Needle feed: The needle itself acts as the feed mechanism, which minimizes slippage and allows tailor to sew multiple layers of fabric. The mechanism is useful while sewing thick fabrics such as quilting. The needle after penetrating fabric layers enters the feed dog and with the movement of feed dog the needle also moves keeping the layers of fabric intact.

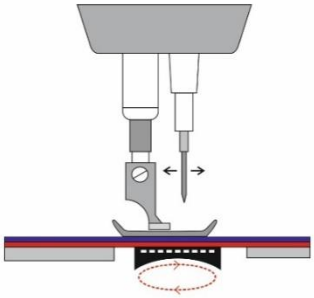

Fig.1.9: Needle feet

Differential feed: The differential feed mechanism works similar to drop feed mechanism. In such mechanism a set of two individual feed dogs are responsible for moving the fabric.

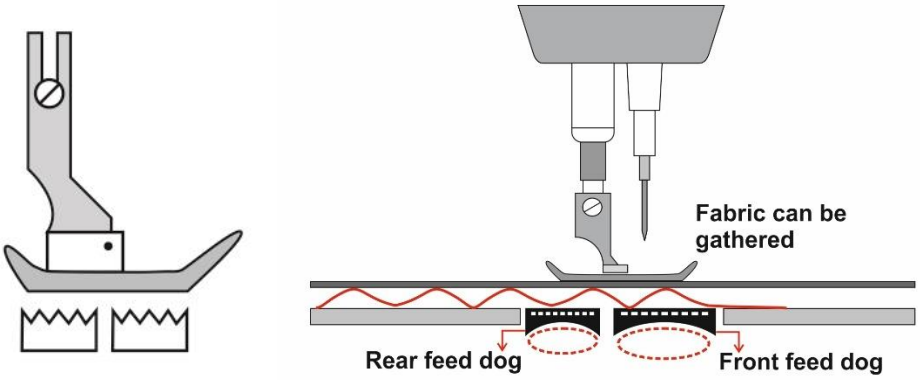

Fig.1.10: Differential feet

Top feed: In such feed mechanism two sections of presser foot are used. One section holds the fabric while the other moves the top fabric layer.

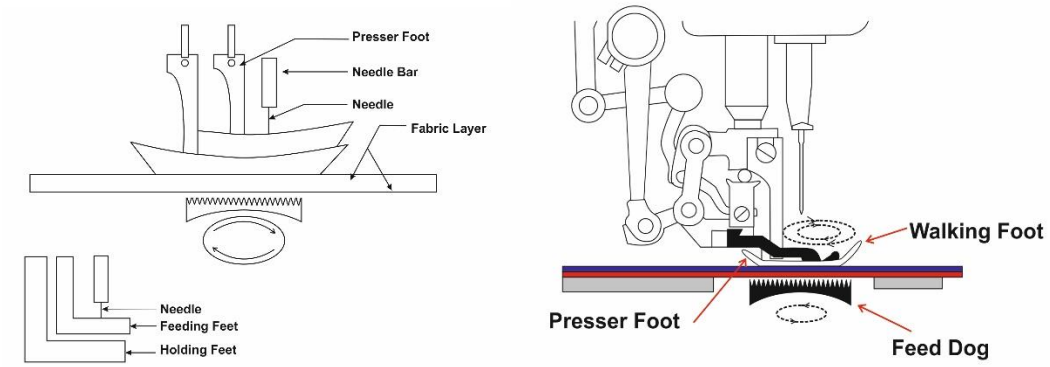

Fig.1.11: Top feet

- **Unison feed**: It is a combination of needle feed and top feed where both needle anda two-section presser foot are responsible for the feed.

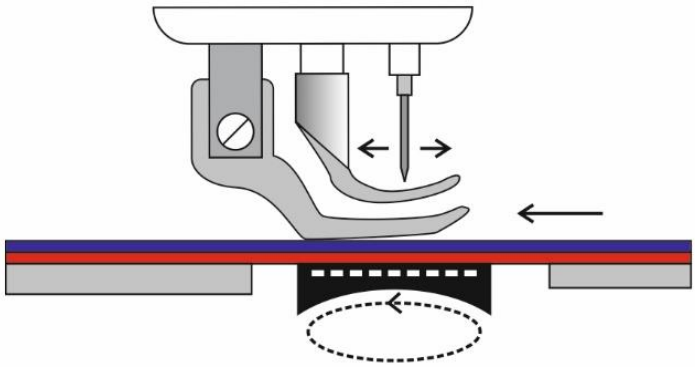

Fig.1.12: Unison feet

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Puller feed: In this system a roller is used along with drop feed mechanism. This roller is placed behind the presser foot. The roller pulls the fabric after each stitch.

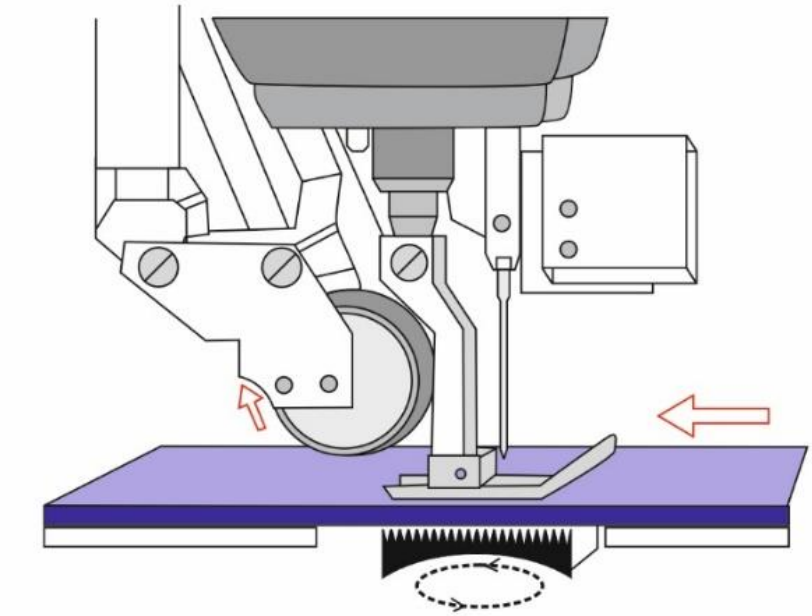

Fig.1.13: Puller feet

Except the above-mentioned sewing machines, a variety of specialized machines are used in the industry on every scale. The following are some other types of sewing machines according to their specific applications:

(i) Lock stitch machine

(ii) Chain stitch machine

(iii) Double chain stitch machine

(iv) Buttonhole machine

(v) Button stitch machine

(vi) Bar-tack machine

(vii) Over-lock machine

(viii) Blind stitch machine

(ix) Over-edge machine

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Fig. 1.14: Lock stitch machine

Fig. 1.16: Double chain stitch machine

Fig. 1.18: Button stitch machine

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Fig. 1.15: Chain stitch machine

Fig. 1.17: Buttonhole machine

Fig.1.19: Bar-tack machine

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Fig. 1.20: Over-lock machine

Fig 1.21: Blind stitch machine

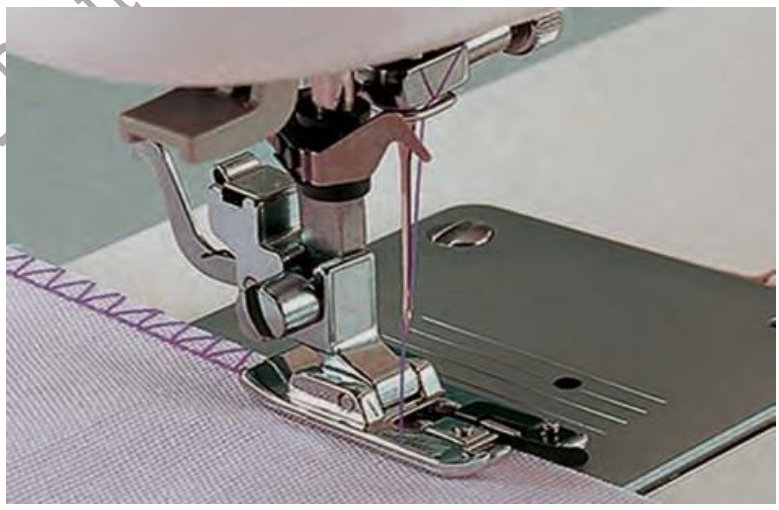

Fig. 1.22: Over-edge machine

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Practical Exercises

Activity 1

Visit the garment manufacturing industry/local distributors of sewing machines/boutiques/workshops/units of garment making and designing.

Materials Required

1. Writing material
2. Camera (if available/mobile phone with camera)
3. Vehicle (bus) for field visit

Procedure

1. Visit a garment manufacturing industry/local distributor of sewing machines/boutiques/workshops/units of garment making and designing with your teacher.
2. Observe the different parts and attachments of a sewing machine and its functions.
3. List the type of sewing machines used and write about their functions.
4. Prepare a report of the field visit.

Check Your Progress

A. Fill in the blanks

1. _____sewing machines are those usually used in homes by people simply interested in sewing.
2. A_____sewing machine works with the help of various softwares.
3. _____sewing machines use a single motor that supplies power to the needle.

B. Short answer questions

1. Enlist the different type of sewing machines.
2. Write short notes on:
   (a) Electronic sewing machines
   (b) Computerised sewing machines
3. Write the difference between a domestic and industrial sewing machine.

C. Long answer questions

1. Write down the different categories of sewing machine.
2. Explain mechanical sewing machines in detail.

SESSION 2: TERMINOLOGY RELATED TO SEWING AND GARMENTS

There are some special terms related to sewing and garments which a tailor should know to facilitate the task.

A

Alter

It refers to changing or revising a pattern or garment to suit individual sizing or desires. This could be making an item larger or smaller, adding darts, lengthening a bodice, etc.

Anchoring stitches

These stitches are back stitches that are added at the seam edges in order to prevent the ripping off or pulling out of the seam.

Appliqué

A surface embellishment that employs small patches or fabric pieces which are sewn on a larger fabric or surface.

Apex

The highest point on the bust for ladies' garment.

Armhole

It is a hole for the arm where bodice joins the sleeve. It is important to have the depth and width of the armhole to be perfect for an individual, especially when clothes are closely fitting.

Armscye

It is used to describe the scooped-out curve of the armhole on a block or pattern.

B

Balance

It refers to the hang and proportion of the garment. Fashion does determine balance to a certain extent, for example it is appropriate to wear long tops over short skirts. Where the flat pattern cutting is concerned, it is often

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difficult to judge correct balance until the garment is test-fitted.

Balance point

It is a mark made on the various pieces of the garment to maintain a balance while stitching.

Baste

To stitch the pieces of a fabric together temporarily using long running stitches by hand or by machine.

NOTES

Basting

Basting refers to temporarily joining pieces of fabric before stitching them firmly. Basting can be done by working long running stitches by hand or by using pins to keep the pieces intact.

Bell sleeve

A style of sleeve that is full and flared at the elbow or

wrist level.

Bias

It is a diagonal line across the grain of the fabric. When used to substitute crosswise or lengthwise grain in pattern placement, a bias cut will cling to the figure following body curves closely.

Bias binding

Also called bias tape, a bias-cut strip used to bind or cover edges. It is used for binding the curves, for example, necklines and armholes. It gives raised edge effect.

Bias cut

Any diagonal cut that is not on the lengthwise or crosswise grain is a bias cut.

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Bias facing

A bias-cut fabric strip which is used for finishing neckline, armholes. It's completely folded inside and hemmed or stitched.

Binding

It is a strip of fabric used to cover a seam edge or to enclose raw edges. It can be straight or bias.

Blanket stitch

It is a stitch that is used to reinforce and finish the edges of blanket or other thick material for which hemming is difficult due to the thickness of fabric.

Blending

It means to mix different type of fibbers to produce a blended fabric which has resultant properties of the blended fibers.

Blind hemming (stitch)

It is a hemming (stitch) that is not visible on the face of a fabric or garment.

Bobbin winder tension angle

It is a device situated near the bobbin winder which helps to wind the bobbin evenly.

Bodice

The front and back upper part of a pattern or garment that runs from shoulder to waist.

Bodkin

Long, flat, needle-like tool used to thread elastic through a loop

.

Brocade

It is a woven textile having a raised floral or figured design that is introduced during the weaving process. The design, appears only on the fabric face and it is usually made using a satin or twill weave.

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Buckram

A heavy, coarse stiff cotton fabric used for interfacing and stiffening parts of garments such as collars, cuff and hats.

Button

It is a fastener which is used to close an opening in the garments or any other article. It is sometimes used for decoration purpose also. Buttons are available in the market in different size, shape, material and colours.

C

Cambric

It is a soft, plain weave cotton or linen fabric which is closely woven, usually with slight stiffening.

Canvas

It is a general classification of strong, firm, closely woven fabrics usually made with cotton, originally made of hemp. Produced in many grades and qualities, it may be softly finished or highly sized.

Carding

It is a mechanical process that disentangles, cleans and intermixes fibers to produce a continuous web or sliver suitable for subsequent processing.

Casing

Folded and stitched tunnel of fabric that holds elastic, cording, or boning.

Centre point

The point that is equally distant from every point on the circumference of a circle or sphere or place in the middle.

Chain stitch

It is a stitch formed by making connected loops that form a chain.

Chiffon

It is a very lightweight, sheer silk or man-made fabric made in a plain weave with fine, spun yarn.

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Clip

It is a small snip or cut made in the edge of fabric. All curved edges must be clipped so that the fabric lies flat when final pressing is done

Combing

It is a technique whereby fibers are passed through a series of straight, metal teeth in order to lay the fibers parallel to one another.

NOTES

Corduroy

It is a strong durable fabric with a rounded cord, rib, or wale surface formed by cut pile yarn.

Couching

A method of embroidering in which a design is made by various threads or cords laid upon the surface of a material and secured by fine stitches drawn through the material and across the cord. Couching can be both raised or flat.

Crêpe

It is a general classification of fabric that may be made of silk, rayon, acetate, cotton, wool, man-made fibers, or blends, characterized by a broad range of crinkled or grained surface effects.

Cross grain

It refers to the direction of weft yarns (crosswise yarns) which is perpendicular to warp yarns (lengthwise yarns) and selvedge of fabric.

Crotch Depth

It is the measurement from waist to bottom of the crotch.

Crotch Length

It is the measurement from front waist through the legs to back waist.

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Crotch point

This is where the inside leg seams meet the crotch seams in a trouser. The exact position depends on the figure but the crotch point should be towards the front of the body.

Cutting board

It is a specially constructed, folded, corrugated board which opens out to cover a table or bed to provide a surface on which the pattern can be cut.

Cutting Line

On a pattern, the outermost solid dark line is the line upon which the pattern is cut.

D

Dart

It is a wedge or diamond-shaped section which is used to shape a flat piece of fabric to fit the curves of a figure.

Dart intake

It is the amount of fullness that is controlled by a dart in order to shape the fabric.

Dart Point

The tip and pointed end of a dart.

Denim

A well-known basic cotton or blended fabric usually woven in a 2/1 or 3/1 warp- faced right hand twill weave.

Dobby weave

It is a style of patterned surface figure weave consisting of small frequently repeating geometric designs.

Double-fold hem

It is a hem that is folded once for the hem allowance and a second time to enclose the raw edge.

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Double needle

Two machine needles attached to a single shaft that sews two parallel rows of stitches at once with two spools of thread and one bobbin. Sometimes it is known as twin needle.

Drafting

It is a step/system for pattern making that depends on the measurements taken from a dress form or model, or the actual measurements, to create basic/foundation or design patterns of the garment or article.

Draping

It is the process of positioning and pinning fabric on a dress form to develop the structure of a garment design.

E

Ease

It is the amount of space added to the measurements in order to ensure that there is space to move while wearing the garment. The amount varies according to the current fashion.

Easing

This is needed when joining two edges that are of different lengths and shape. The longer edge makes a slight bubble of fabric as it is seamed, which provides a slight ease for movement. Examples of easing include sleeve heads into armhole, back shoulder on to front shoulder, back edge of sleeve seam on to front edge at elbow level.

Edge stitch

It is a kind of straight stitching very close to the edge of a seam, trim, or outer edge. It secures seam allowances, prevents the edge from stretching, and supports the fabric.

Eye

It is the part on the needle that carries the thread to

keep forming stitches.

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Eyelets

It is a small hole, usually round and finished along the edge, as in cloth or leather for the passage of a lace or cord.

F

Fabric weight

The weight of a fabric depends on the thickness of the threads it is made of, the density of the weave or knit, as well as its composition. The dyeing or printing process can also affect the weight. The weight will be measured in grams per square meter (g/m^2 or GSM) or in ounce per square yard (oz/y^2, often abbreviated to oz.)

Very light: up to 4 oz. (135 g/m^2)

Light: 4 to 6 oz. (135 g/m^2 to 200 g/m^2)

Medium: 6 to 8 oz. (200 g/m^2 to 270 g/m^2)

Medium-heavy: 8 to 10 oz. (270 g/m^2 to 340 g/m^2)

Heavy: 10 to 12 oz. (340 g/m^2 to 400 g/m^2)

Very heavy: above 12 oz. (400 g/m^2)

Fabric width

It is the fabric length from one selvedge edge to the other selvedge or the length of fabric along the weft yarns.

Facing

It is an extra layer of fabric stitched on the inner side of a garment for strength and edge finishes.

Facing width

The width of the facing is called the facing width.

Feeding devices

These are the parts of a sewing machine which are used to advance and raise the fabric while stitching.

Felt

It is a non-woven sheet of matted material made from wool, hair, fur, or certain manufactured fibers. It isan entanglement of a mass of fibers that takes place by a combination of heat, moisture, and pressure; no bonding

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adhesive (sticking material) is used.

Filament

It is a fiber of indefinite or extreme length. This length permits the use of filament in yarn without twist or with very low twist.

Flare

It is a shaped fullness added to the different parts of a garment. While cutting a pattern, flare is added by cutting from the top to the bottom of the basic shape of the garment and spreading the pieces at one edge only.

Floss

It is a soft thread of silk or mercerized cotton used to clean tension discs, feed dog, etc.. It may be used to clean the area between two narrow parts.

Flounce

It is a full circular edging for the neckline, sleeves and hems.

Forearm seam

It is the seam nearest to the front of a two-piece sleeve.

Fray

The wearing out of the fabric at the edge due to friction or constant rubbing.

French curve

A drafting tool that enables one to draw smooth curves for e.g., armholes.

Frill

It is a strip of fabric of any width gathered and attached to a garment as an edging.

Fringe

It is a decorative edge made of hanging strings of thread or fabric. It is an edging or border of loose threads, tassels, or loops. These may be produced by the constituent threads or by threads added to a fabric after weaving or knitting. The threads forming the fringe are sometimes bunched or knotted

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together to increase the decorative effect.

Fullness

It is an extension on one of two sections of a garment joined by a seam, used to create volume or shape in the garment.

Fusible

It is a type of fabric or material that has heat-sensitive adhesive on one side that enables it to bind to another fabric.

Fusible interfacing tape

It is available in a variety of narrow widths. On heating, this tape fuses to fabric to stabilize a seam or edge.

Fuzz

It refers to the fiber ends that protrude from a yarn or fabric.

G

Gathers

Gathers are graceful folds of fabric that provide fullness, suggesting a soft look, which can be made using machine or hand stitches. These are formed by drawing the fabric together on a line of stitching and may be used to control the fullness at yoke lines, waist lines, neck lines and upper and lower edge of sleeves.

Gathering

Gathering is an effective and decorative way of distributing fullness over a given area.

Gore

Vertical garment sections, usually on a skirt.

Grain

It is thedirection of yarns in a woven fabric along the length or across the width. Fabric grain can be straight grain (lengthwise grain), cross grain (crosswise grain) or bias grain (diagonal grain). A straight grain is oriented parallel to the lengthwise yarns or the warp yarns while the cross grain is oriented parallel

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to the crosswise yarns or the weft yarns. It is important for a good fit and the garment should be cut on the right grain or in other words on grain. An on-grain garment hangs evenly and appears symmetrical. If the garment is off-grain, it will not hangstraight.

Grain line

It is a line drawn from end to end on the pattern piece to show how the pattern should align with the lengthwise grain of the fabric. The pattern pieces will always be placed parallel to the selvedge on the fabric in the direction in which the grain line is drawn on each pattern.

Grading

It is a method of proportionately increasing or decreasing the size of an original pattern within a size range, the grade is in the length, width, and circumference.

Gusset

It is a small piece of fabric inserted in the seam to allow room for movement. Gussets are mostly required in kalidarkurta sleeves to allow arm movement.

H

Halter

It is a style of neckline that has a strap or an extension of fabric running from the front armhole to around the back of the neck edge.

Ham

A tailor's ham or dressmaker's ham is a tightly stuffed small pillow used as a curved mold when pressing curved areas of clothing, such as sleeves, darts, waistlines collars, or cuffs.

Hand

The way a fabric feels in the hand, e.g., smooth, soft, rough and crisp.

Hand overcast

A hand stitch that wraps around an edge like a spiral

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Handle

It is attached to the handle attachment of the machine and helps to drive it with hand.

Hem

It is an edge finish used to finish the bottom edge of a garment or any other article.

Hem allowance

It is the distance between the cutting line and the hemline.

Hemline

It is the lowest edge of the garment once the hem is sewn.

Hemp

It is a fine, light coloured, lustrous, and strong bast fiber, obtained from the hemp plant.

Hip curve

A curved ruler used to give shaping on the pattern at hip area.

Hook

A piece of metal or other hard material curved or bent back at an angle, for catching hold of or hanging.

Hoop

A plastic, metal, or wooden frame that holds fabric tight while sewing or embroidering.

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I

Interfacing

It refers to a sew-in or fusible fabric used to stabilize the fashion fabrics. It can also add body, reinforce, or shape. They are available in two types: fusible and non-fusible. Fusible interfacing has adhesive due to which they get fused with the main fabric with the application of heat.

Interlacing

During stitching, when one thread passes over or around another thread or loop of another thread, it is called interlacing.

Inter-looping

It is the passing of a loop of thread through another loop formed by a different thread.

Intra-looping

When a loop of one thread passes through the loop of the same thread during sewing

Invisible zippers

An invisible zipper is a concealed zipper which is hidden within the seam. The zipper teeth and zipper tape is concealed in the seam such that only the zipper puller is visible from the outside.

J

Jacquard weave

It is a decorative weave which is made on a jacquard loom. In this weave, detailed and intricate designs are made. Manufacturing of the jacquard designs involves at least two basic weaves in various arrangements to form the pattern. Brocade is a common example of the jacquard weave.

L

Lapel

Lapel is folded flap of fabric, it is the part of garment that is turned back which usually becomes an extension of collars in garments like coats, jackets etc.

Linen

This fiber is obtained from the stem of the flax plant.

Linen is a strong and durable fabric.

Lining

A fabric (usually lightweight) which helps to cover the stitching details on the inside of the garment

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Loop stitches

These are stitches formed by the loop section of a serge or over locker.

M

Marker Making

Marker making is the process of determining a most efficient layout of pattern pieces for a style, fabric and distribution of sizes so as to minimize fabric wastage during cutting.

Marking chalk

These are made of coloured powder that is used to transfer markings on to the fabric.

Mending

It is a finishing process in fabric manufacture in which irregularities such as weaving imperfections, tears, and broken yarns are repaired after the cloth is taken from the loom. It is primarily done on woolen and worsted woven fabrics to prepare them for further finishing.

Mercerized thread

It is a boil-fast (that is, damage resistant at the boiling temperature), plied cotton thread which has been treated with caustic soda, to give it more strength, lusture and affinity for dyes.

Mercerizing

It is a treatment of cotton yarn or fabric with strong alkali. The process causes a permanent swelling of the fiber, increasing its luster, strength, and affinity for dyes.

Multi size pattern

A commercial pattern printed with several sizes on each pattern piece.

Muslin

It is basically an unbleached plain woven cotton fabric used for making test fits. It is available in light, medium and heavy weight. Medium quality is used for test fitting and draping. It is used by the designers to check the fit and look of the design before the construction of a garment.

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N

Nap

It is a layer of fiber ends raised from the ground weave of the fabric by a mechanical brushing action. In napped fabrics, a fuzzy, fur-like feel is created when the fiber ends extend from the basic fabric structure to the fabric surface. The fabric can be napped on either one or both sides. In napped fabrics, the texture runs in a particular direction.

Needle clamp

It is a screw that is tightened to hold the needle in position.

Notch

It is a small cut that is shaped like a 'V' and that is made on an edge or a surface.

O

Organza

It is a light weight, transparent fabric in plain weave with a crisp hand that usually is made of very fine filament yarns. The most commonly used fibers are silk, nylon, polyester, or rayon.

Overcast stitch

It is a slanting stitch used around cut edges or open parts to prevent raveling.

P

Pattern Blocks

A block pattern is a custom-fitted, basic pattern which can be altered to create designs for many different styles it is also called as sloper. For example, a bodice sloper consists of bodice front, bodice back and sleeve blocks.

Pattern

It is the paper or cardboard template from which the parts of a garment are traced onto the fabric before cutting out and assembling.

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Pattern drafting

Drawing a paper pattern by positioning lines, points, and curves in a prescribed manner based on body measurement.

Pile

A surface effect on a fabric formed by upright yarns, cut or loops of yarn raised from the surface of the fabric

Pinning

Attaching pins for keeping fabric and pattern in place.

Piping

A narrow piece of bias-cut fabric folded over a cord/without cord and stitched into the seam with the raw edge of a garment functional or as a decorative trim especially used for necklines, armholes, bibs.

Placket

It finished opening of a garment that enables easy slip on and off on the body.

Plain weave

A weave in which each weft yarn passes alternately over and under each warp yarn in a square pattern that is, the interlacing is one up and one down for the whole length of the fabric

Pleat

It is a type of fold formed by doubling the fabric back up on itself and securing it in place. It is commonly used in garments and upholstery to gather a wide piece of fabric to a narrower circumference.

Ply

It is one of the strands in a yarn. The thickness of yarn is also determined by how many plies or strands it has twisted together.

Point presser

A small tool used to insert into a tight corner or small space for ease of pressing

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Point turner

A tool used to turn a sewn corner to the right side with a sharp, crisp point

Polyester fabric

It is a generalized term for any fabric, which is made using polyester yarns or fibers. This name is used for a synthetic, man-made polymer, which, as a specific material, is most commonly referred to as a type called polyethylene terephthalate (PET).

Pre-shrink

Washing the fabric before cutting to allow it to shrink depending upon the type of fabric

Princess seam

It is a lengthwise seam passing through the apex and giving shape to the garment. The seam may originate from the armhole, shoulder and neckline. The seams are named accordingly. For example, a princess seam originating from the shoulder is called a shoulder princess.

Pucker

It is tightly gathered or contracted wrinkles or small folds, caused due to incorrect density of stitches, blunt point needle, insufficient backing, and incorrect thread tensions.

R

Raw edge

Fabric ends with an unfinished look.

Rib weave

It is a variation of plain weave with visible stripes in either warp direction or weft direction. The ribbed effect is a result of thicker warp or weft yarns.

Ripping

To cut or tear apart in a rough or vigorous manner to rip open a seam.

Right side of the fabric

For a solid-coloured fabric the right side of the fabric can be defined as the

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side where the dotted pricks at the selvedge feel smooth on touching. Whereas, for printed fabric, this can be defined as the side of the fabric where the prints appear brighter.

Rise

The measure between the waist band and the crotch seam on pants.

Rolled hem

The edge of garment is rolled and stitched for a very narrow hem.

Rubber ring

This is a ring on the bobbin winder which comes in contact with the nut of the balance wheel. This should never be allowed to become oily which will make it slippery and will not be able to make proper contact with the balance wheel.

Ruffles

It is a pleated piece of fabric often used as trim on clothes. A ruffle on the bottom of a dress is like a fancy wrinkle. It can be used as linear trims to finish any edge of the garment.

S

Seam

A line along which two or more fabrics are joined by fusion, gluing, sewing, stapling. Usually near edges of the fabric pieces.

Seam allowance

It is the area between the edge and the stitching lineon two (or more) pieces of material being stitched together. It can range from 1/4 inch wide to as many inches as required (mostly not more than three inches).

Seam finish

Any technique that finishes the raw edges of a seam.

Seam roll

It is a cylindrical-shaped long tool used to press open long seams or to slide inside a sleeve for creaseless pressing.

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Selvedge

The edge of fabric that runs parallel to the warp (lengthwise) yarns is called selvedge. It protects the fabric from unraveling and fraying by providing a finished edge.

Set-in sleeve

A sleeve sewn into an armhole or armscye.

Sewing needle

It is a fine cylindrical piece of metal with a sharp point at the lower end, a hole or eye in it, used in sewing.

Sewing threads

It refers to special types of yarns that are designed to pass through a sewing machine. The basic function of a thread is to deliver aesthetics and help in the performance in stitches and seams.

Shank

The back of a button through which the thread passes, to attach the button to the garment.

Shears

It is a cutting instrument in which two blades move past each other, like scissors, but these are typically larger and heavier. These are also known as large scissors.

Sheer

Any transparent or very light-weight fabric as sheer chiffon, crepe, georgette or voile of various constructions and yarns, especially silk and manufactured fiber yarns. Sheers are made in both spun and filament yarn constructions.

Shirring

It is a process to gather (an area of fabric or part of a garment) by means of drawn or elasticized threads in parallel rows.

Shuttle

It holds the bobbin case and moves to form the loop as the machine is

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operated. It is fitted below the feed dog.

Skipped stitches

In skipped stitches, there is no needle thread or looper thread movement during certain respective portions of the stitch cycle. It is one of the most common sewing machine problems. It can be one skipped stitch or multiple skipped stitches between normally sewn stitches.

Sleeve board

Small ironing board that fits inside a sleeve.

Sleeve cap

The area of the sleeve above the biceps line. This passes over armhole edge on the shoulder.

Slit

An open part of a seam often found in skirt side or center back seams and also in kurta side seam.

Slip stitch

It is used to join two folded edges or one folded edge to a flat surface, for an almost invisible stitch.

Snagging

It is the defect in fabrics where a yarn or part of a yarn gets pulled or plucked from the surfaces.

Snap tape

Snap tape is a narrow strip of fabric usually twill weave with a continuous row of snap fasteners, sometimes called press studs. The snaps are made of mainly metal or plastic.

Staple yarn

Short length yarns produced from short-length fibers are called staple yarns. With the exception of silk, mostly the fibers that come from natural sources are staple fibers.

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Stay stitch

Stitching placed on or just outside the seam line, used to stabilise the fabric.

Stitch

Loop or loops of one or more threads when bound with each other, either by inter-looping, interlacing, intra-looping or combination of these three while sewing fabric, each unit of such configuration is called stitch.

Stitches per inch (SPI)

A stitch per inch(SPI) is measured by counting the number of stitches found within one inch. The number of stitches per inch has a direct influence on the seam strength, the stitch appearance and the seam elasticity on stretch fabrics. Using the correct number of stitches per inch can greatly enhance the strength, appearance and performance of the seam for a given fabric type and application.

Stitch length

Length of a stitch determined by the movement of the feed dog.

Stitch line

It refers to a line in the paper pattern where one complete movement of a threaded needle passes through a fabric or material over the line.

Strand

A general term for one component of a rope, thread, or ply yarn, or any of the fibers that are twisted or plaited together. Sometimes the term is also applied to the entire rope, cable, thread, or ply yarn.

Stretch fabric

The fabric in which the properties of substantial elongation (stretching) and recovery that is, coming back to its original position, have been produced.

Stripe

A design consisting of bends or straight lines against a plain background.

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T

Tacking

Fastening pieces of fabric together, mostly temporarily, with stitches.

Tassels

A bunch of loosely hanging threads or cords knotted at one end and attach for decoration of garments such as dupattas, scarf, kurtis and home furnishing items.

Terry

It is a woven fabric, usually cotton, or a blend with man-made fiber, with loop pile on one or both sides. Loops may cover the entire surface or may form stripes, cables, checks or another pattern. The fabric is noted for its ability to absorb moisture.

Thread tail

The left-out thread, unfinished or untrimmed threads on the edges.

Thread tension

The degree of tightness of stitches in machine sewing or the state of the thread being stretched tight.

Top stitch

It is a row of continuous stitches on the top or right side of a garment or any other article. It is a sewing technique where the line of stitching is designed to be seen from the outside of the garment, either decorative or functional. Top stitching is used most often on garment edges such as necklines and hems, where it helps facings to stay in place and gives a crisp edge.

Trim

It is any decorative item, ribbon, lace, etc., that is put on a garment or other item that is being sewn. The word trim is also used to define the act of trimming excess seam allowances or fabric with scissors.

Trimming materials

Additional material used for decorative or functional purposes on a garment and on other items are called trimming materials.

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True bias

Also called true across, it refers to a of 45 degrees angle that intersects the warp and weft yarns in a woven fabric.

Tucks

These are folds of fabric which are stitched in place by straight rows of machine stitching. A tuck is similar to a pleat. The only difference between a pleat and a tuck is that a tuck is stitched at the base to keep the fold secure.

Twill weave

It is a type of plain weave with a pattern of diagonal parallel ribs. This is done by passing the weft thread over one or more warp threads then under two or more warp threads.

U

Under lap

The lower fabric of two overlapped pieces of fabric.

Underlay

A layer of fabric or thin material below another layer of fabric.

Underlining

Fabric (usually light weight) helps to add weight to thin, transparent fabrics. It is placed inside the garment. A fabric under layer used to hold the shape of the fabric/garment or support its strength.

Upholstery fabric

Any fabric used as upholstery, for example, to cover furniture. It is made with a wide variety of fibers including cotton, linen, silk, wool, man-made fibers, and blends. Weaves include plain, twill, satin, jacquard and dobby. Some knits are also used.

V

Velvet

It is a warp ply fabric with short closely woven cut pile that gives the fabric a rich, soft texture.

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Vent

A slit in the back hem of a jacket, which allows person wearing it, to move, bend, sit or use the pocket without pulling the jacket. Vents at skirt hems are usually called slits.

Voile

It is a lightweight, sheer fabric, made of hard twisted yarns in a low count plain weave. It is made of cotton, worsted, silk, rayon or acetate.

W

Warp

It is the lengthwise yarns used in the weaving operation. This forms the basic structure of the fabric. These yarns run parallel to the length of the fabric.

Weft

The crosswise yarn that interlaces with warp in weaving is known as weft or filling yarn. Weft yarns are carried over and under the warp. These yarns run parallel to the width of the fabric.

Worsted

The yarns spun wholly from combed wool to ensure that all the fibers are reasonably parallel. The fabrics made from such yarns are called worsted fabrics.

Wrong side of the fabric

For a solid-coloured fabric the wrong side of the fabric can be defined as the side where the dotted pricks at the selvedge feel raised on touching. Whereas, for printed fabric, this can be defined as the side of the fabric where the prints appear dull and faded.

Y

Yarn

It is a continuous strand of textile fibers that may be composed of endless filaments or shorter fibers twisted or otherwise held together. Yarns may be single or ply, and form the basic elements for fabric/threads.

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Yardage

The length of fabric that is required to cut all pattern pieces of a garment is called yardage.

Yoke

It is a shaped pattern piece which forms part of a garment, usually fitting around the neck, shoulders, or around the hips to provide support for looser parts of the garment, such as a gathered skirt or the body of a shirt.

Z

Zigzag stitch

The Z-shaped stitches used to finish raw edges. It may be used for decoration purpose also.

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PRACTICAL EXERCISES

Activity1

Collect ten pictures showing different parts of a sewing machine, etc., from the terminology listed above and prepare a scrapbook of the same.

Materials Required

1. Scrapbook,Ten pictures of your choice from the terminology listed above
2. Adhesive
3. Scissors
4. writing material

Procedure

1. Search and collect ten pictures of different parts of a sewing machine from the terminology listed above.
2. Cut the pictures neatly.
3. Paste them in ascrapbook.
4. Label them.

Check Your Progress

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

1. True bias refers to a of _____ angle that intersects the warp and weft yarns in a woven fabric.
   (a) 90degrees
   (b) 45degrees
   (c) 50degrees

2. Selvedge is edge of fabric that runs parallel to the _____yarns.
   (a) width wise
   (b) crosswise
   (c) length-wise

3. _____ is the finished bottom edge of a garment.
   (a) Warp
   (b) Selvedge
   (c) Hem

4. _____is the distance between the cutting line and the hemline.
   (a) Hem allowance
   (b) Hem
   (c) Hemline

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SESSION 3: PARTS AND ATTACHMENTS OF A SEWING MACHINE

The basic structure of the mechanical sewing machine is the same irrespective to the type of machine. The basic parts and attachments of a hand-operated sewing machine, treadle sewing machine or motorized sewing machine is the same.

Parts and their functions

A sewing machine has two major parts: upper part and lower part. The upper part comprises of-

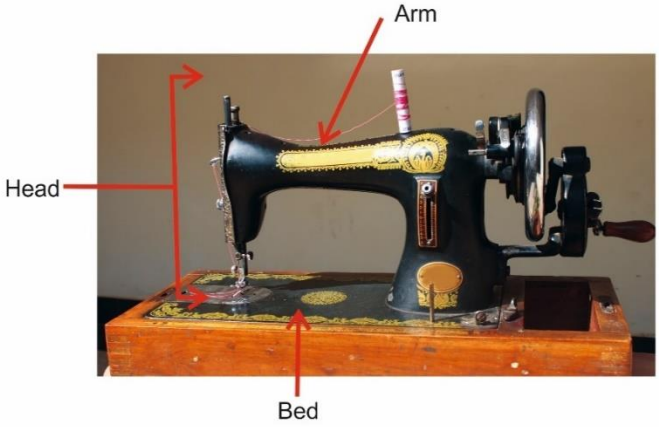

Fig.1.23: Parts of a sewing machine

1. Head of the sewing machine comprises of complete sewing machine without the cabinet or stand.
2. Arm is the curved part of the sewing machine head. The arm contains mechanism for operating needle.
3. Bed is the flat portion of the sewing machine under the feed dog where it is mounted. The shuttle and lower thread are placed under the sewing machine bed.

While the lower part of the sewing machine comprises of treadle, legs etc.. Presence of these lower parts depend on the type of machine. For example, a hand-operated machine does not have lower parts while a treadle machine comprises of treadle, legs and other parts.

The functions of basic parts of a sewing machine are as follows:

1. Spool pin is an upright metal rod placed on top of the arm of the machine for correct positioning of the reel of thread. Depending on the type of machine the number and position of spool pin can be different. It can be placed horizontal or vertical.

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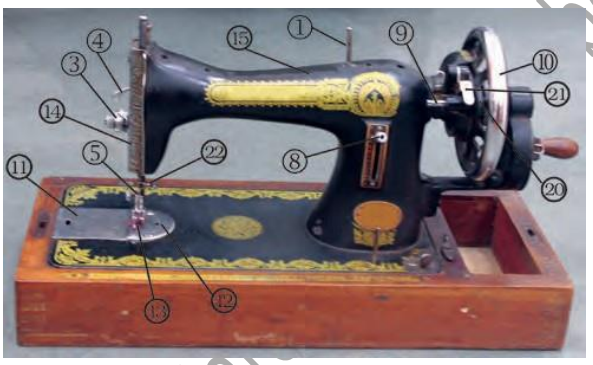
2. Thread guide is a metal loop that takes the thread from the spool pin to the needle. It holds the thread from the spool to the needle in position. It keeps the thread and protects it from abrasion.

3. Tension disc is a combination of two concave discs placed together with the convex sides facing each other. From spool pin, the thread passes through the thread guide, then between the tension discs after which it reaches the needle. Tension discs control the delivery of the upper thread from the spool to the needle. The tension of the thread is adjusted by a spring and nut mechanism which decreases or increases the pressure.

4. Thread take-up lever is a lever fitted to the body of the arm located above the tension disc. It receives its up and down motion from the front axle. At the outside end of the lever, there is a small hole through which the thread passes. The take-up lever first loosens the top

   thread during the stitch formation, and then removes any slack to set or lock the stitch.

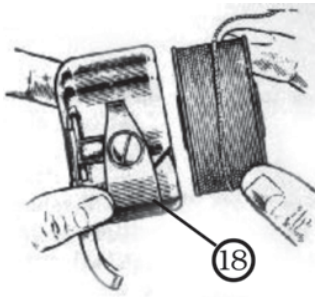


(a)

(a)

(b)

(c)



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5. Check spring is a small wire spring behind or at the top of the tension discs. It provides a little amount of tension on the thread of the needle and acts a shock absorber.
6. Slack thread regulator is a metal hook near the tension discs.
7. Bobbin case is fixed in the shuttle case placed in the bottom chamber (the hollow space under the slide plate) of the sewing machine and moves into position to catch the top thread and form the stitch as the needle is lowered into the bobbin case. The lower tension of the thread can be adjusted (by loosening or by tightening) by a small screw fixed on the bobbin case.
8. Clutch or thumb screw is in the center of the fly wheel and it engages and disengages the stitching mechanism.
9. Rubber ring is a ring on the bobbin winder which comes in contact with the nut of the balance wheel. This should never be allowed to become oily, as it will make it slippery and will not be able to make proper contact with the balance wheel.
10. Bobbin winder tension angle is a device situated near the bobbin winder which helps to wind the bobbin evenly.
11. Needle clamp is a screw that is tightened to hold the needle in position.

Fig 1.25: Shuttle and shuttle case

12. Handle driver is attached to the handle attachment of the machine and helps to drive it with hand.
13. Shuttle holds the bobbin case and moves to form the loop as the machine is operated. It is fitted below the feed dog or to its left side.
14. Treadle drive is a large wheel located under the board in the treadle machine. It is connected to the balance wheel with a leather belt. As it rotates, the power is transmitted to the balance wheel by the leather belt.

Fig.1.26: Blind hem foot

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Fig.1.27: Braiding foot

Fig.1.28: Button fixing foot

15. Treadle is the foot rest at the base of the treadle machine which is pressed with the feet to operate the treadle machine.
16. Pressure regulating screw is the screw above the presser bar, which can be tightened to increase the pressure on the fabric when stitching with fine/ lightweight fabric and loosened to accommodate thick fabric.

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Attachments and their functions

Different machines have separate attachments for different sewing processes such as hemming, gathering, etc., but they operate differently on various types of machines. The details of attachments are mostly given in the manual provided with the machine. Students may discuss with the teacher and according to the availability of the sewing machine and attachments, they can practice on it. Some common sewing attachments are given here.

Blind hem foot

It is an additional attachment used for edge finishing of various apparels like trousers and skirts, and home furnishing items like curtains, etc. (Fig.1.26).

Braiding foot

It is an attachment which is used in place of a presser foot while attaching braids, cords, elastics etc..It allows lot of flexibility while attaching elastic cord, braid or cord (Fig.1.27).

Button fixing foot

It can attach two-hole buttons and four-hole buttons to the material or garment. In this machine, the foot holds the button in place and then attaches the button to the fabric using zigzag stitch (Fig.1.28).

Buttonhole foot

It is used for preparing precise buttonholes or binding the raw edges. On a sewing machine, the buttonhole attachment produces a simple buttonhole stitch by swinging the needle from side to side. (Fig.1.29).

Circular sewing attachment

It allows the tailor to stitch in a circular pattern using straight stitch, zigzag stitch and any decorative stitches. Circles mostly up to 26 cm in diameter are stitched perfectly using this popular attachment, which is very essential for craft and decorative work. This is suitable for most top loading machines (Fig.1.30).

Cording foot

To attach decorative cords and threads, a cording foot is attached to the machine. This foot is designed for stitching closed to a raised edge. It is used for applying cord to the seam(Fig.1.31)

Decorative tape foot

This attachment is used to fix trimmings and

ribbons on the fabric (Fig.1.32).

Gathering foot

It is attached to create gathers on a fabric with high speed and precision to create perfect ruffles. This attachment gathers the fabric as it is stitched with fullness locked in every stitch (Fig.1.33)

Zigzag foot

It is attached to create designs in fabric using

zigzag stitches of different widths (Fig.1.34).

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Fig.1.29: Buttonhole foot

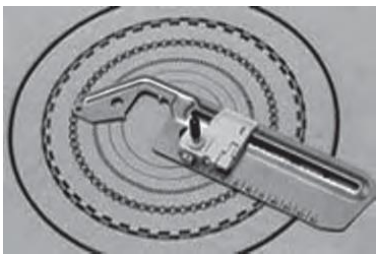

Fig.1.30: Circular sewing attachment

Fig.1.31: Cording foot

Fig.1.32: Decorative tape foot

Fig.1.33: Gathering foot

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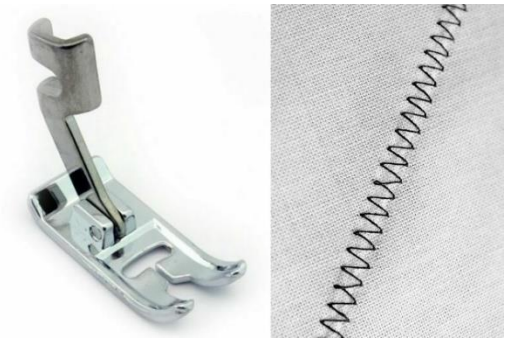

Fig.1.34: Zigzag foot

Fig.1.35: Hemmer foot

Fig.1.36: Overcasting foot

Fig.1.37: Ruffling foot

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Hemmer foot

It is used to stich the sleek and small edges of fabrics which automatically curls. It is used to stitch narrow hems using either a straight stitch or decorative stitch. The attachment is used to finish hems which are too small to hem by hand. It is best suitable for light weight fabrics. Hemmers make hems from three-sixteenths of an inch to seven-eighths of an inch wide, right on the machine. The hem is turned by the hemmer, and at the same time the line of stitching is guided close to the edge of the hem(Fig.1.35).

Overcasting foot

It is used to make an accurate and consistent overcasting stitch where the thread is locked around the edge of the fabric and aligned with it to prevent the fabric from raveling (Fig.1.36).

Ruffling foot

It easily makes and attaches ruffles on different types of fabric and finish the fabric edges. This attachment is capable of taking gathered or pleated frills, and will take and apply frills to another section at the same time. It is useful in making children's clothes and curtains. The method of using this attachment varies with different machines(Fig.1.37).

Zipper foot

It is the foot used for attaching mainly zippers and snap tape. Zipper foot has a narrow toe foot which gives more precision and visibility. The foot needs to be adjusted to right or left to stitch both sides of the zipper. This foot also used to attach decorative cording and piping. There are two kinds of zipper foot attachment: one with an adjustable foot, the other with a non-adjustable foot (Fig.1.38).

Elastic foot

It helps in attaching elastic to the fabric and provides even tension every time to avoid pulling and tugging on the needle. (Fig.1.39).

Darning foot

It is also known as embroidery foot and is especially used in embroidery machines. It is used for free hand embroidery and helps in proper stitch formation by keeping the fabric intact in the embroidery frame. (Fig.1.40).

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Overlock foot

It is useful for producing a durable finish on seams which are prone to fray easily or are bulky. (Fig. 1.41)

Fig.1.38: Zipper foot

Fig.1.39: Elastic foot

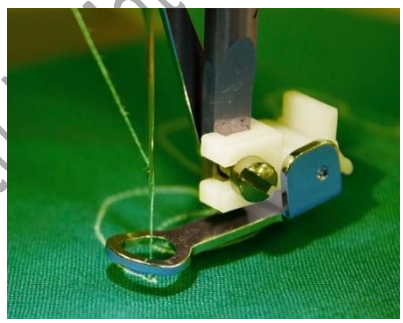

Fig.1.40: Darning foot

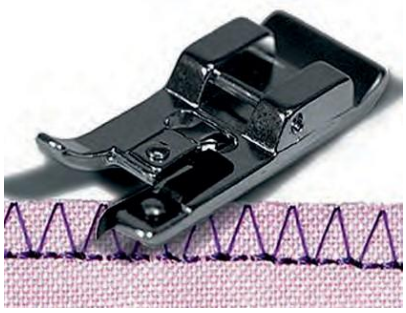

Fig.1.41: Overlock foot

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PRACTICAL EXERCISES

Activity 1

Visit a sewing machine shop or a garment manufacturing unit. Study the machines and their attachments used. Prepare a report on the parts, attachments and their functions.

Materials Required

Writing material

Camera (if available)

Procedure

Visit a local sewing machine shop or a garment manufacturing unit with your teacher and study different types of machine.

Identify different parts of the sewing machine and discuss its functions.

Identify the sewing machine attachments.

Write down the types of sewing machine in the shop or the garment manufacturing unit.

Prepare a report of the field visit using photos, materials and information collected from the site.

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Check Your Progress

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

1. _____is a metal rod to hold the needle at one end with the help of a clamp.
   (a) Thumbscrew
   (b) Bobbin winder
   (c) Faceplate
   (d) Needlebar
2. _____consists of a set of teeth fitted below the needle plate.
   (a) Faceplate
   (b) Elastic foot
   (c) Feed dog
   (d) Flywheel
3. _____sewing foot is used to make a consistent and accurate overcasting stitch around the edge of the fabric
   (a) Ruffling
   (b) Overcasting
   (c) Cording
   (d) Zipper
4. The function of the clutch is to_____.
   (a) engage stitch mechanism
   (b) raise presser foot
   (c) control the speed of the machine
   (d) feed the thread to the needle

B. Short answer questions

1. Write down the functions of the slide plate and feed dog.
2. Differentiate between a bobbin winder and bobbin case.
3. Explain the function of hemmer foot and zipper foot.
4. Write short notes on:
   (a) Button fixing foot
   (b) Overcasting foot
5. Enlist any five sewing machine attachments.

C. Long answer questions

1. Write down the different parts of a sewing machine and their functions in detail.
2. Write down the functions of any five sewing machine attachments.

MODULE:2 SEWING TOOLS AND SEWING MACHINE OPERATIONS

The process of garment construction includes the knowledge and skills of measuring, marking, cutting and stitching, which is done using appropriate tools. Different tools and equipment of measuring, marking and cutting have their own utility and importance.

The selection of needles, threads and fabric based on suitability is important for a quality output. If ignored, it may lead to many defects.

A tailor should knowoperations, functions, preparation of a sewing machine and must have knowledge of pre-requisites for fabric, thread and needle selection before stitching. For example, the tailor must know how to thread the sewing machine, the appropriate way to oil the machine etc. He must also have knowledge of different threads and needles, and he must be analytical to select appropriate thread and needle for the operation.

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Learning Outcomes
After completing this module, you will be able to: • Identify measuring and marking tools and describe their uses • Identify cutting tools and describe their uses • Identify different needles and threads • Explain preparation and operation of sewing machine
Module Structure
Session 1: Measuring and Marking Tools and their Usage
Session 2: Cutting Tools and Usage
Session 3: Needle and Threads
Session 4: Preparation and Operation of Sewing Machine

SESSION 1: MEASURING AND MARKING TOOLS AND THEIR USAGE

Measuring tools

Taking correct and accurate measurements is an important step in making customized tailor clothing or even in constructing other articles. Correct body measurements are essential for making a precise fit pattern of the garment to be sewn.

For this crucial step, the selection of the measuring tool needs to be correct, for example, to take the measurements for a garment, flexible measuring tape would be required, but for measuring cloth a stiff measuring equipment might be needed.

Different type of measuring tools which help to do the job as desired are as follows:

Measuring tape

It is a metal tipped plastic tape used to take measurements. Generally, the size of a measuring tape is ½ inch to ¼ inch wide, 60 inches long and has ⅛ divisions(Fig.2.1). At one end, it has a small metal cover and at the other end of the tape, there is a metal strip of about 3 inches long attached totake measurements from like round chest, round waist and length of the garment, etc.

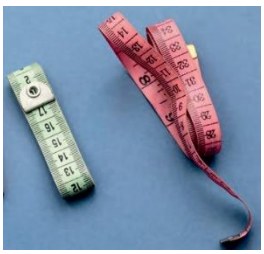

Fig. 2.1: Measuring tape

Ruler

It is a plastic, metal or wood stick with markings for measurements. It is used to take straight measurements on paper or fabric. For a tailor, it is advisable to have two rulers—one being 1 inch wide and 6-inches long, and the other one being 2-inches wide and18-inches long.

Fig. 2.2: Ruler

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Yardstick

It is a straight edge tool similar to a ruler used to physically measure the lengths up to a yard. It is a flat wooden tool with markings at regular intervals (Fig. 2.3). Yardsticks are very useful to draw long seam lines on paper or fabric.

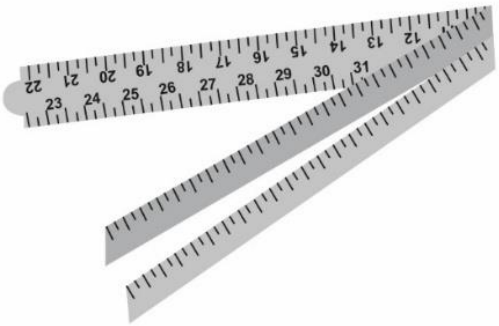

Fig. 2.3: Yardstick

L-square

It is an L-shaped wooden or metal ruler, the long arm of which measures 24-inches and the short arm measures 14-inches. The L-square has a perfect right-angled corner and it is used to draw the lines at right angles while making drafts. It is very useful during the process of straightening the fabric to check whether the corners of the fabric have got a right- angled structure.

Fig. 2.4: L- Square

Gauge

A hem gauge is useful to mark areas where constant measurement is desired. It is ideal for marking hems, tucks, top stitching lines, pleats, buttonhole placements and lengths. It can also be used as stitching gauge for measuring distances that are not marked on the sewing machine. A gauge can be made for any measurements according to the pattern requirement. Notches can be cut on the gauge for marking on the fabric.(Fig. 2.5).

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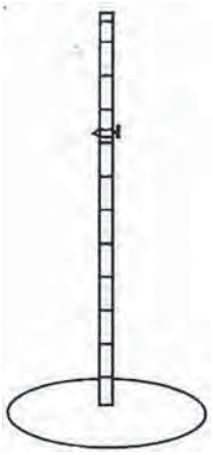

Fig. 2.5: Gauge

French curves

These are plastic, wood or metal templates with an edge composed of different curves. It is used in making pattern drafts,to draw smooth curves of varying radii. In garment making, French curves are mainly used for pattern drafting, pattern alteration and for shaping the armhole and neckline (Fig. 2.6).

Fig. 2.6: French curves

Vary form curve

It is the most accepted contour ruler. It is basically an elongated French curve. This tool is used by pattern makers, graphic artists, illustrators, etc., to sketch smooth curved lines. The vary form curve draws a wide variety of curves by turning smoothly. They are especially helpful to the pattern makers for drawing more defined curves of the neckline, collar design, sleeve caps, pocket contour, armhole, elbow, skirt, trousers, or when a specific contour is required (Fig.2.7).

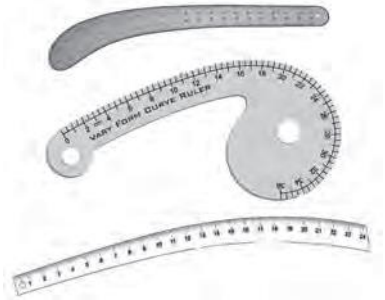

Fig. 2.7: Vary form curve

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Marking tools

The printed symbols and markings on the patterns must be transferred to the fabric to accurately match the seams and position of pockets, folds, buttonholes, darts, tucks and pleats. The objective of marking is to create precise marks that are not permanent or stain the fabric, but are visible during construction.

Tracing wheel

It helps in marking the measurements and pattern on the wrong side of the fabric using tracing paper. Tracing wheels are available in two styles, one with small serrated edge which is appropriate for most fabrics, and another, with a smooth edge used on fine or knit fabrics to avoid snagging of the yarns. The tracing method is to keep the first layer of the right side of the fabric facing the ground, the second layer is that of the tracing paper, and the third layer is a paper pattern on which the tracing wheel is moved to transfer the markings.

Fig. 2.8: Tracing wheel

Tracing papers and sheets

A tracing paper is used with the tracing wheel, pen or pencil to transfer pattern markings to the wrong side of the fabric (Fig. 2.9). Care must be taken when choosing from the wide range of available colours, since most varieties produce a mark that remains on the fabric until it has been washed.

Fig. 2.9: Tracing paper

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Tailor's chalk

These are thin pieces of hard chalk available in several colours. These are ideally used for marking construction lines and alteration marks while fitting. Since, chalk rubs off easily, it should be used only when stitching has to be done immediately(Fig.2.10).

Fig. 2.10: Tailor's chalk

Tailor's wax

It has a consistency like that of a crayon. It is especially suitable for use on wool or worsted materials. It is available in a wide range of colours that is, white, yellow, red, blue, black and fluorescent green, etc. The marks it produces can only be removed from the fabric with heat or washing. (Fig.2.11).

Fig. 2.11: Tailor's wax

Fabric-marking pens

Such pens are air erasable or water soluble. These are specifically used for marking designs. After tracing the design, the colour can last for a long time but disappears completely at once when damped with water (Fig.2.12).Air-erasable pens are especially used for dress making, shoe making, handicraft, embroidery, etc., for temporary marking (Fig.2.12). After marking, the colour evaporates after 2 to 10 days. The garments must be sewn shortly after marking, or the marked fabric must be sealed in a plastic bag with the air squeezed out. To remove the marks, one can dab the marks with a cotton swab soaked in alcohol.

Fig. 2.12: Fabric-marking pens

(air erasable, water soluble)

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Pins

Dressmaking pins are mainly made of stainless steel or brass and are sized from 10to32. Size17 is the general purpose dressmaker's pin, but there are several special varieties that can be useful (Fig.2.13). Its main function is to hold the paper or fabric in position during marking, cutting and stitching. The correct selection of pins for the specific fabric (based on the size and material of the pin) is important as a wrong pin used may create a defect in the fabric.

Fig. 2.13:Pins

Notcher

It is used to cut small opening or notch at the edge of pattern. These notches are used to indicate centre lines, seam allowances and matching points while assembling cut garment pieces.

Fig. 2.14:Notcher

Awl or stiletto

It is a pointed metal tool with wooden handle. It is used for piercing holes in pattern for showing dart point, marking buttonhole placement, forming eyelets for belts etc.

Fig. 2.15:Awl or stiletto

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PRACTICAL EXERCISES

Activity 1

Visit market and source different measuring and marking tools. Identify function of each tool and make a power point presentation.

Materials Required

1. Writing material
2. Ruler
3. Computer

Procedure

1. Visit different shops in the market and source different measuring and marking tools available.
2. Identify function of each tool.
3. Based on your observations make a power point presentation.
4. Present in your classroom.

Check Your Progress

A. Fill in the blanks

1. Tailor's chalk is used to _____ on to the fabric.
2. The available varieties of fabric-marking pens are_ and _____.
3. The short arm of the L-square measures 14 inches and the long arm measures _____.
4. A_____curve is a template made out of metal, wood or plastic composed of many different curves.
5. The correct selection of pins for the specific fabric is important as a wrong pin used may create a_____in the fabric.
6. _____helps in marking the measurements and pattern on the wrong side of the fabric using the tracing paper.

B. Short answer questions

1. Explain the various measuring tools and its uses.
2. Explain the various marking tools and its uses.

SESSION 2: CUTTING TOOLS AND USAGE

Before cutting process, it is important to select appropriate cutting tools based on the type of fabric and applicability of tools. While selecting the cutting tools, the quality of tools is very important that is, the quality of metal used, strength/ hardness of blades, its weight and its plating, etc.

Cutting tools

Scissors and shears are the important tools to the tailor. Scissors and shears of various types and sizes are designed to perform different constructional work and have varied applicability. Common working principles of scissors and shears are similar while they differ in their application. Shears have one finger ring bigger than the other for better grip while cutting thick or several layers of patterns. Whereas scissors have identical round finger rings.

Some of the important cutting tools that a tailor must be aware about are listed below:

Bent-handled shears

These shears are commonly available with 7-inch or 8-inch blades (Fig. 2.16). The bent handle allows the fabric to lie smooth and straight when it is being cut, thus yielding better control over the cutting edge. These shears are available in right-handed or left-handed styles. These are used to cut fabrics only.

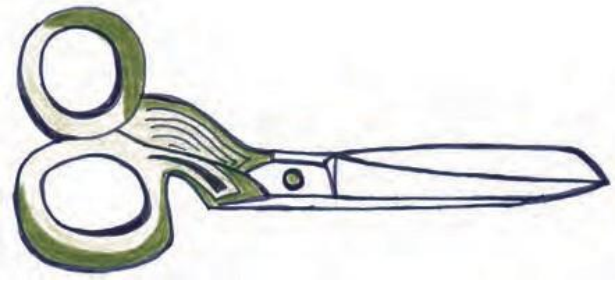

Fig. 2.16: Bent-handled shears

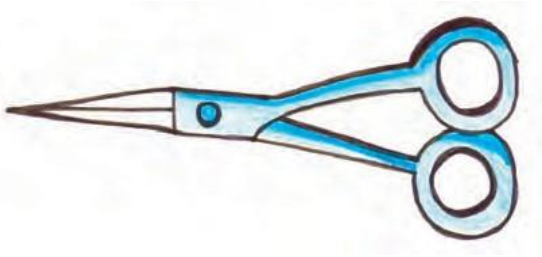

Fig. 2.17 Scissors

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Fig. 2.18: Pinking shears

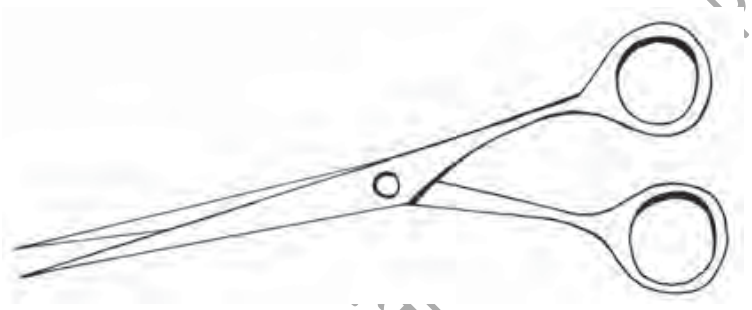

Fig. 2.19: Embroidery scissors

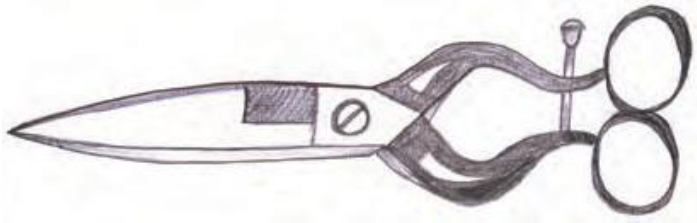

Fig. 2.20: Buttonhole scissors

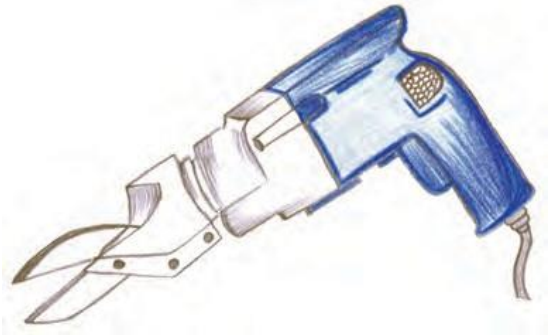

Fig. 2.21: Electronic scissors

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SCISSORS

These are the main tool for cutting fabric. Scissors have sharp, pointed and slender blades, used for cutting of different materials. These scissors are mostly 3 to 10 inches long in size. These have round handles for both the blades. Specific fabric-cutting scissors should not be used for cutting of heavy material as it may reduce the sharpness of the blades.

Pinking shears

These shears are generally 9 to10 inches long (Fig. 2.18). It is useful in finishing raw edges of fabric or to produce a decorative edge. It is one of the best shears for edge finishing of various type of fabrics, which do not ravel too badly. It creates a clean zigzag cut line on any material including fabric. Pinking shears produce a notched cutting line (zigzag) to give a neat look to the inside of the garment and also prevent raveling.

Embroidery scissors

These scissors are small, usually 4–5 inches in length with very sharp blades, used for all- purpose needlework, ripping and for making buttonholes (Fig.2.19).

Buttonhole scissors

These scissors have notched blades (Fig. 2.20). They are useful to make many buttonholes. These scissors have a bolt and lock nut which is adjusted to cut a buttonhole of any length upto 1.5inches.

Electronic scissors

These scissors are used mostly in an industry. It can cut thin and heavy fabric (Fig. 2.21). It is appropriate for cutting silk, nylon, soft and hard-to-cut fabric. These scissors are battery operated. The scissors move when the button is pressed.

Straight knife

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A straight knife cutting machine is one of the most common cutting machines used in cutting department to cut multiple plies of fabric together. As the name suggests, a straight knife cutting machine comprises of a straight knife mechanism which cuts curves accurately. This type of machine is very versatile, portable and effective.

Fig. 2.22: Straight knife

Band knife

A band knife cutting machine is similar to a machine used for cutting wood. It works automatically according to the height of fabric plies. A band knife cutting machine cuts fabric plies more precisely as compared to a straight knife cutting machine.

Fig. 2.23: Band knife

Round knife

A round knife cutting machine helps in cutting more than five layers of fabric at a time. It is electrically operated having a round circular shaped blade with a guard in the front of the blade. It is generally used in small garment manufacturing units. There are several sizes and types of rotary cutters available. Smaller diameter blades make cutting out curves and details much easier; whereas the larger-diameter blades make quick work of long, straight cuts.

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Fig. 2.24: Round knife

Die cutting machine

A die cutting machine cuts fabric lays by pressing a rigid blade through the lay of the fabric. It is used when small motifs and parts with a particular shape and pattern needs to be cut.

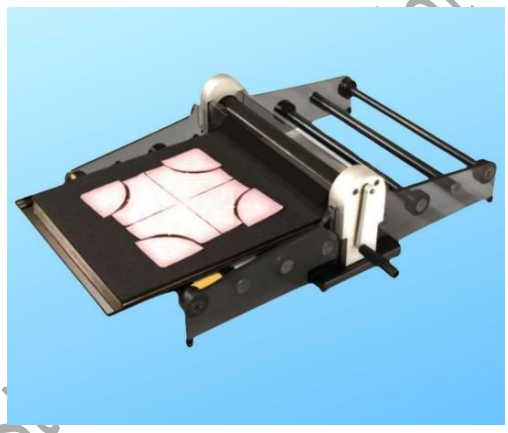

Fig. 2.25: Die cutting machine

Seam ripper

It is a simple pen-like device that allows the removal of machine or hand stitched seams by cutting the stitches in an accurate and safe manner. A seam ripper is the best equipment to rip or open seams (Fig. 2.26). While removing the stitches, the fabric should not be pulled as it can stretch and easily tear the fabric.

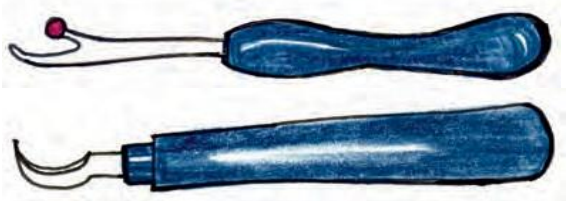

Fig. 2.26: Seam ripper

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Thread cutter

It is a small handy spring loaded tool, specifically used for cutting extra threads on the garments and ripping seams(Fig.2.27). Threads are simply cut by pushing the upper blade down with the thumb.

Fig. 2.27: Thread cutter

Fig. 2.28: Cutting table

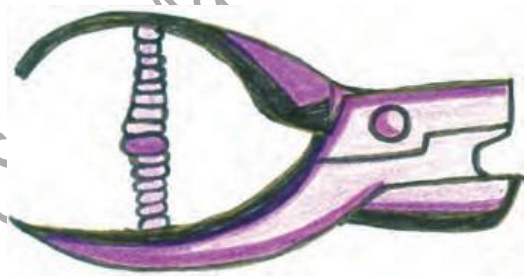

Fig. 2.29: Notcher

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Cutting table

It is a large, flat table used to spread the fabric and patterns while marking, pinning, and cutting (Fig. 2.28). They are often covered with thick felt, which allows the pins to be placed into the surface.

Notcher

It is a tool commonly used in pattern making and sewing. It creates notches in the paper pattern or material. By notching, one marks the balance points of the pattern and also seam allowance, centre lines, ease, dart intake, etc. (Fig. 2.29). Notches are used to align the pattern pieces.

Activity 1

Prepare a chart of the cutting tools.

Materials Required

1. Chart paper
2. Writing material
3. Scissors
4. Ruler
5. Books and magazines
6. Pictures of cutting tools
7. Adhesive

Procedure

1. Search and collect pictures of cutting tools from books, magazines or the Internet.
2. Cut the pictures neatly with scissors and paste on the chart paper.
3. Label them.
4. Display the chart in the class

Activity 2

Identify and practice the use of the different types of cutting tools.

Materials Required

Different types of cutting tools

Procedure

1. Visit a sewing lab with your instructor.
2. Identify different types of cutting tools.
3. Practice the use of these cutting tools.

Check Your Progress

A. Fill in the blanks

1. _____are used to align pattern pieces.
2. A_____is used to rip or open seams.
3. _____shears are useful in finishing raw edges of fabric or to produce a decorative edge.
4. _____is a small tool specifically used for cutting extra threads.
5. The cutting table is mostly covered with__, which allows the pins to be placed into the surface.
6. _____ is the main tool for cutting fabric.

B. Questions

1. Make a list of cutting tools and give their uses.
2. Write short notes on the following:
   (a) Pinking shears
   (b) Round Knife Cutting Machine
   (c) Cutting table

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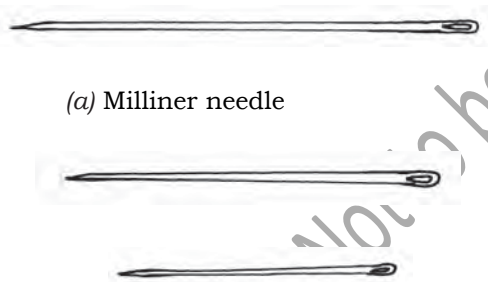
SESSION 3: NEEDLES AND THREADS

There are various type of needles and threads available in the market. It is important to select a suitable needle, thread and miscellaneous tools for sewing.

Hand sewing needles

These needles are used for hand sewing or embroidery. Needles are mostly available in different sizes—from the very small size9 to the heavy size18 as shown in Fig.2.30 (a,b,c).



(a) Milliner needle

(c) Between needle

Fig. 2.30(a, b, c): Hand sewing needles

- Milliner needles: are long needles used for tacking or basting.
- Sharp needles: are medium length needles used on all types of fabric for hand sewing.
- Between needles: are small, short length needles used for fine stitches.

The selection of hand sewing needle depends on the work to be done and the type of fabric. For hand sewing, medium length needles with a short oval eye are selected whereas, for embroidery work, crewel needles with a long oval eye are selected. The hand sewing needle has three parts— the eye, stem and point.

Eye Stem Point

Point Fig. 2.31: Parts of a hand sewing needle

Sewing machine needles

In the garment industry, there are several types of sewing machine, each require different types of needles. Each manufacturer of the needle identifies its needles in a different way; and needles for the same type of system may have several different names or numbers, depending on the manufacturer.

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Functions of a sewing needle

- To produce a hole in the fabric to enable the sewing thread to pass through. While producing this pathway for the thread a needle should not make any damage to the fabric.
- To carry the sewing thread through the fabric and make a loop which is pricked up by the hook on the bobbin case in a lock stitch machine or by the looper or other mechanism in other sewing machines.

It is important to select needles according to the type of material (fabric) and applicability of needles. The size of the selected needles mainly depends on the structure and type of fabric, and sewing threads. Machine sewing needles (Fig. 2.31) are mostly available from sizes 9 to 18. The different type of needles are made to fix on specific sewing machines and specific models.

The needle sizes should match with the weight, thickness, and kind of the fabric.

If the needle is very fine, it will abrade the thread; bend, break, affect the loop formation and cause skipped stitches. If it is too coarse, it will damage the fabric, producing an unattractive seam, and causing the seam to pucker.

The different parts of a sewing machine needle are as follows:

Butt

It is a small pyramid at the upper end of the shank. It is designed to make a single point contact with the hole in the needle bar [see Fig.2.32 (a,b)].

Shank

The upper end of the needle that is held in the needle bar by the needle screw is the shank. The shank is usually round, but it can have one or two flat sides. Designed to support and stabilise the needle blade, the diameter of the shank is mostly larger than the diameter of the blade.

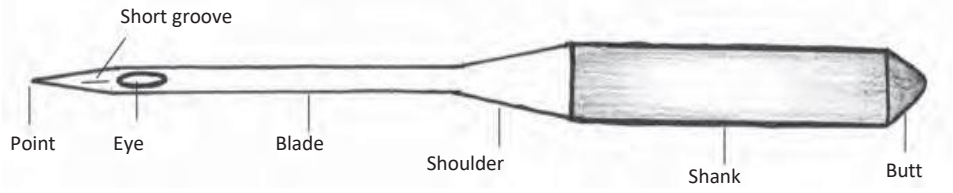

Fig.2.32 (a) A sewing machine needle

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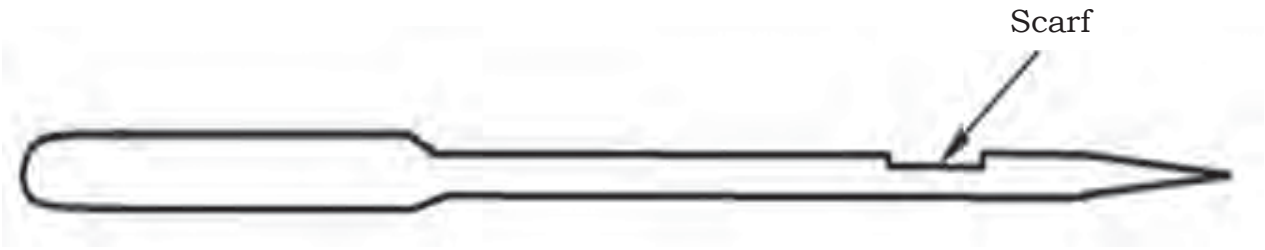

Fig.2.33 (b) A sewing machine needle

Shoulder

is the beginning of the shank just above the needle blade.

Blade

It is the thin section of the sewing needle that extends from the shank to the eye. It can be easily bent and hence, should be examined regularly for its straightening.

Scarf

It is a small indentation above the eye that permits the hook to pick up the thread loop. On some needles, the scarf is elongated and/or deeper to ensure that the needle thread loop will be large enough to prevent the skipped stitches.

Short groove

It is placed in the side of the needle where the hook or looper is placed. It is a small groove between the tip and the needle eye. Short groove helps the sewing thread to create a loop.

Eye

It is an opening in the needle blade at the lower end of the long groove. It carries the thread into the fabric to the hook or looper to make a stitch. The size of an eye is proportional to the diameter of the blade.

Point

It is the tapered end of the needle and is often considered the most critical part of the needle. Mostly, the needles have a round point, ball point, or a cutting point. Generally, round points and ball points are used for woven and knit fabrics because they can penetrate the fabric by spreading the fibers or deflecting the yarns without damaging them, while needles with cutting points are used mainly for leather.

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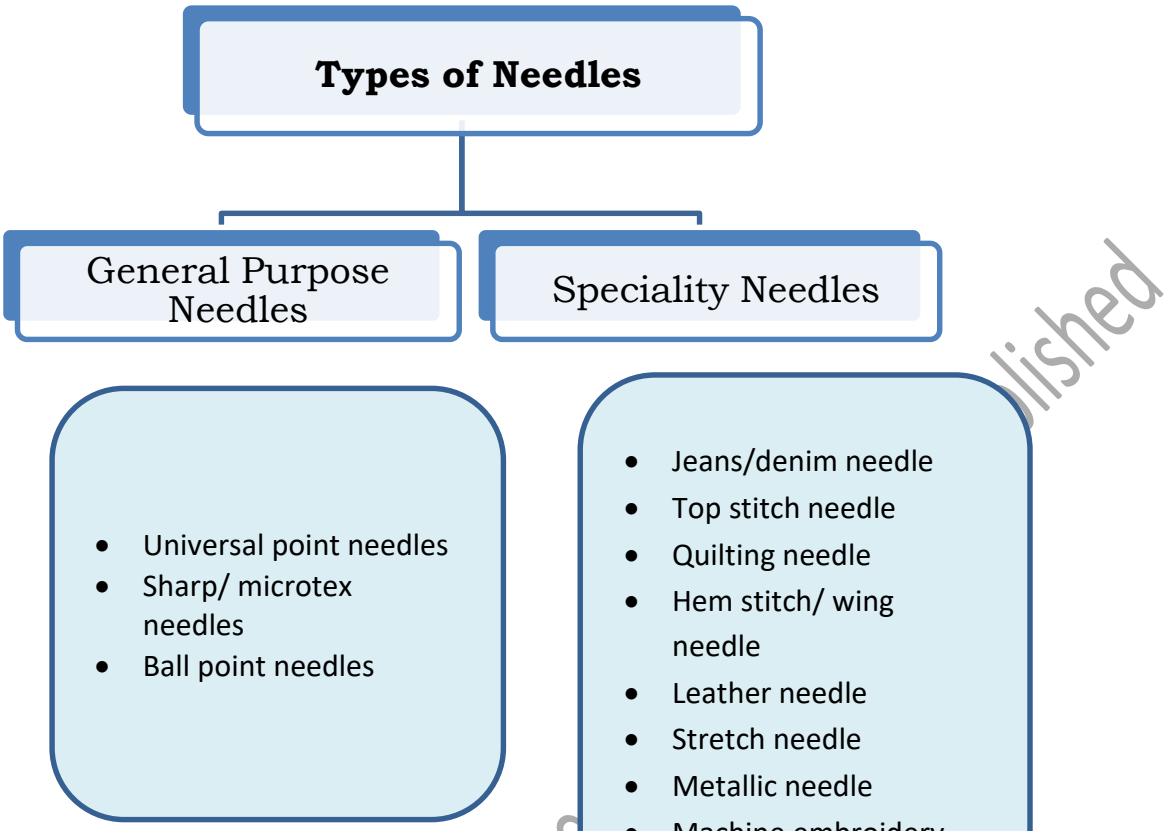
The different types of needles can be classified as follows:



General purpose needles

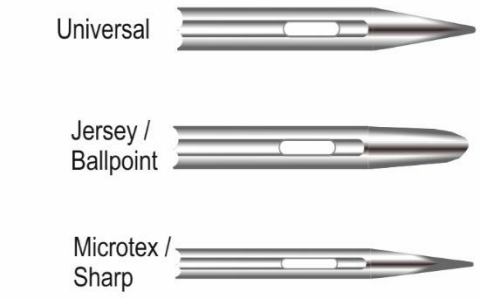


Fig. 2.34: General purpose needles

1. **Universal point needles:** It is a type of general-purpose needle which can be used to sew different varieties of fabrics including woven and knitted fabrics. The point of such type of needle is both sharp and rounded, it is sharp enough to pierce through tightly woven fabrics, yet rounded enough to push between the interloped yarns of a knitted fabric. These needles are available in the sized ranging between 60/8 to 120/19

2. **Sharp/ microtex needles:** It is a sharp slip needle which is mainly used

for stitching silk, light weight and micro fiber woven fabrics. Sizes of such needles are 60/8, 70/10, 80/12 and 90/14.

3. **Ball point needles:** These types of general-purpose needles have slightly rounded point and are used for stitching knitted fabrics. The rounded point of such needles prevents damaging of the knitted fabric while the needle penetrates the fabric. Sizes of such needles are 70/10 to 100/16. Generally following types of needles are used: -

   - **Light Ball Point**
     This point is used for sewing lightweight knitted fabric. It is sometimes used for fine denim and light, densely woven material to avoid damaging the material.
   - **Medium Ball Point**
     This point is used for sewing medium weight knitted fabric. It is also used for medium to coarse denims.
   - **Heavy Ball Point**

     This point is used for coarse knitwear and for sewing dense woven elastic.
   - **Special ball point**
     Used for medium to course elastic materials with covered elastomeric threads and very coarse knitwear.

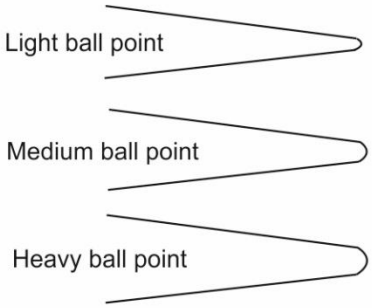


Fig. 2.35: Types of ball point needles

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Specialty Needles

1. **Jeans/denim needle**: These needles are designed to sew closely woven fabrics such as denim, canvas and multiple fabric layers. These needles have very sharp point and stiff shank. Sizes of such needles are 70/10 to 110/18.

Fig. 2.36: Jeans/denim needle

2. **Top stitch needle:** These needles are very sharp needles that have deeper front groove and an extra-large eye to accommodate top stitching thread. These are used for top stitching. Sized of such needles are 80/12, 90/14 and 100/16

3. **Quilting needles:** These needles are thin and tapered with sharp point and are most appropriate for stitching of multiple layers. Sizes of such needles are 75/11 and 90/14.

4. **Hem stitch/wing needle:** The sides of hem stitch needle's shank are flared like wings, that is why it is also called wing needle. Wide "wings" on sides of needle create openwork stitching in tightly woven fabrics and are used for decorative work. Sizes of such needles are 100/16 and 120/19

Fig. 2.37: Hem stitch/wing needle

5. **Leather needle**: These needles have wedge shaped point which pierces real leather, vinyl and suede, creating small stitch holes and strong seams. It is never used on woven or knit fabrics. Sizes of such needles are 80/12 to 110/18.

Fig. 2.38: Leather needle

6. **Stretch needle**: This needle is designed particularly for the knits having spandex, lycra as well as synthetic suedes. Stretch needle has a deeper scarf to prevent skipped stitches. Sizes of such needles are 75/11 and 90/14.

Fig. 2.39: Stretch needle

7. **Metallic needle:** These needles are designed to serve special purpose of stitching with metallic threads. The needle eye size is large enough (may be of double size), having special longer scarf to prevent skipped stitches and large and deep groove to prevent shredding of delicate metallic and decorative threads during stitching. Sizes of such needles are 80/12 and

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90/14.

8. **Machine embroidery needle**: These needles are used for embroidery. They are designed with a large eye and special scarf that protects fragile threads and prevent shredding and breakage while sewing with rayon and embroidery threads. Sizes of such needles are 75/11 and90/14

9. **Self-threading needle:** This needle is designed to solve the problem of difficulty in threading the needle. Such needles have slip in threading slot to help threading. Sizes of such needles are 80/12 and 90/14.

Fig. 2.40: Self-threading needle

10. **Spring needle:** Such needles have a wire cage above the needle point. This helps in preventing the fabrics form riding onto the needle when presser foot is removed and the feed dogs are dropped for free motion stitching. Sizes of such needles are 70/10, 80/12 and 90/14.

Fig. 2.41: Spring needle

11. **Double/ twin needles**: These needles are used for top stitching, pin tucking and decorative stitching. Arrangement of two needles on single shaft produce two rows of stitches. Measurement between needles ranges from 1.6mm to 6mm, and needles come with universal, stretch, embroidery, denim and metallic points.

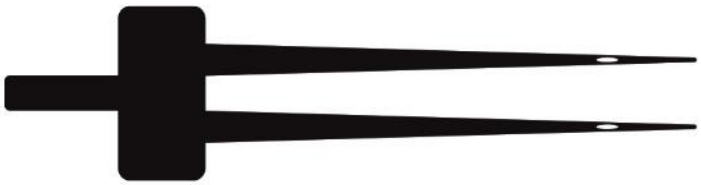

Fig. 2.42: Double/twin needle

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Sewing thread

Sewing threads are special type of threads that are designed to pass through a sewing machine. These threads are capable of forming efficient stitches without breaking or becoming distorted during the useful life of the product. The basic function of a thread is to deliver aesthetics and performance in stitches and seams.Sewing thread is a flexible, small diameter strand usually treated with a surface coating, lubricant or both, intended to be used to stitch one or more pieces of material or an object to a material.

Classification of sewing threads

Sewing threads can be classified as follows:

I. On the basis of substrate

1. **Natural:** These are the threads made of natural fibers. Cotton thread is the most commonly used natural thread used for sewing. For example: cotton thread, silk thread, wool thread etc..

2. **Synthetic:** These are the threads made of man-made fibers such as nylon, acrylic and polyester. For example: nylon thread, polyester thread, acrylic thread etc..

II. On the basis of construction

1. **Spun:** These threads comprise of staple or spun fibers which are short length. Spun polyester thread is the most widely used sewing thread.
2. **Core spun:** These threads are combination of staple and filament fibers. These threads comprise of central core which is wrapped with staple fibers.
3. **Filament:** These threads comprise of filament fibers. They can be mono-filament (one single strand of filament fibers), multi-filament (two or more filaments are twisted together) or textured filament (the fibers are textured).

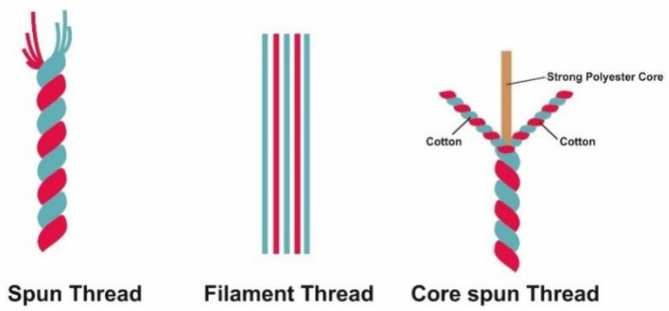

Fig. 2.43: Types of threads

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III. On the bases of finishes

1. **Water repellent:** These are threads which are treated with water repellent finishes to make the thread suitable for use in sewing garments which require quick drying such as swim wear and active wear.
2. **Flame proof:** These are threads which are treated with flame proof or flame resistant finishes to make the thread suitable for use in sewing garments such as children wear and fire fighter's uniforms.
3. **Anti-bacterial:** These are threads which are treated with anti-bacterial finishes to make the thread suitable for use in sewing garments which are made out of fabrics which are prone to bacterial decay.
4. **Anti-mildew:** These are threads which are treated with anti-mildew finishes to make the thread suitable for use in sewing garments which are made out of fabrics such as wool, silk etc. which are prone to mildew attack.

Selection of sewing thread

It is very important to select the correct sewing thread for the fabric. They should share the same characteristic as that of the fabric since they will be laundered, ironed in the garment and thus, will stretch and shrink together.

Although, staple or spun thread is smoother and creates less lint in the sewing machine. Made of short staple fibers, the thread is uneven in texture, hence, does not result in perfect stitching. A strong thread is good for construction, especially on fabrics of natural fiber.

Mercerized cotton is a better sewing thread as compared to cotton, since, it is treated to be smoother and straighter with less fuzz than other cotton threads. Polyester thread has a high sheen and is abrasion-resistant. Silk thread is strong and lustrous. This thread is used for construction and stitching details such as buttonholes and top stitching. Always select a thread according to the type of fabric being used. Synthetic threads must be used with man-made fibers while mercerized cotton or silk thread must be used with cotton or linen. Woolen fabrics should be sewn with silk or synthetic threads as they have stretching capacity with the fabric. Selected thread must be one shade darker than the fabric because when worked on a garment, a thread appears lighter.

The higher the number on the label of a thread, the finer it is. When stitched, the thread should be well set into the fabric to give a firm long-lasting seam. If the thread is too heavy for the fabric, it will remain on the surface and tear out quickly, reducing the durability of your garment.

Fig. 2.44: Sewing thread

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Selection of sewing needles and threads

Sewing needles and threads can affect the overall appearance and performance of the garment. When an inappropriate needle or bent needle is used, it can cause skipped stitches, poor stitch formation, and even damage to the machine. While wrong selection of thread may result in skipped stitches, broken seams etc.. Hence, it becomes essential to select appropriate needle and thread.

Selection of needle, thread and stitch for various fabrics

There is no rigid rule for the selection of needle and thread but it should be chosen mainly as per the type of fabric. The recommended needle and thread selection is given in the table below.

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Table 2.1: Recommended needle and thread selection

S. No.	Type of Fabric	Type of Thread	Needle Number
1.	Lightweight: voile, chiffon, organza, fine lace	Mercerized cotton, silk, nylon, extra fine (any fiber), size: 60–100	9 or 11
2.	Medium weight: crêpe, velvet, Stretch fabric, terry, brocade, linen, corduroy, sometypes of denim	Polyester, cotton-wrapped polyester, mercerized cotton, size: 50–60	11 or 14
3.	Heavy: wide rib corduroy, terrycloth	Polyester, cotton-wrapped polyester, heavy duty (any fiber) size: 30-40	16 or 18
4.	Very heavy: canvas, upholstery fabric	Polyester, cotton-wrapped polyester, heavy duty (any fiber) size: 20	16 or 18

PRACTICAL EXERCISES

Activity 1

Visit a sewing machine shop/boutique/workshop/garment manufacturing unit and make a report on the different type of needles and threads used for different type of fabrics.

Materials Required

1. Writing material
2. Camera (if available, or mobile phones with camera)
3. Vehicle (bus) for field visit

Procedure

1. Visit the local sewing machinery shops/boutiques/ workshops/garment manufacturing units with your teacher to study and observe the different type of needles and threads used for different fabrics.
2. Write down the different type of needles and threads used in shops/boutiques/workshops/garment manufacturing units.
3. Prepare a report of the study field visit using photos and materials (if any) collected from the site.

Activity 2

Analyse suitability of thread and needle for following fabric samples:

- Cotton Cambric
- Knitted Jersey
- Polyester

Materials Required

1. Writing Material
2. Ruler
3. Adhesive

Procedure

1. Identify and analyse different needles and threads that can be used for stitching the given fabrics.
2. Test all the possible needles and threads for stitching on the fabric.
3. Evaluate the best suited set of needle and thread for the sample.

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Check Your Progress

A. Fill in the blanks

1. Machine sewing needles are available from sizes _____ to____.
2. _____ thread comprise of filament fibers.
3. _____ needle is used to sew different varieties of fabrics including woven and knitted fabrics.

B. Short answer questions

1. Explain hand sewing needles in brief.
2. Describe the different points of sewing machine needles.
3. Write short notes on:
   (a) Natural threads
   (b) Ball point needles
   (c) Threads

C. Long answer questions

1. Explain the different parts of a sewing machine needle in detail.

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SESSION 4: PREPARATION AND OPERATION OF SEWING MACHINE

There are some key steps that need to be kept in mind for the preparation and operation of the sewing machine.

Preparation of a single needle sewing machine

Before starting the operation process in a single needle sewing machine, a tailor should be aware of every aspect relating to the sewing machine. This includes the problems one may face while working, so that they may be rectified by the tailor.

The steps for preparing a sewing machine for stitching are listed below:

(a) Connect the machine to the power supply
(b) Placement of foot control
(c) Adjust the presser foot
(d) Wind the bobbin
(e) Select the correct needle and thread for sewing
(f) Fix the needle into needle bar
(g) Set the bobbin and bobbin case in the machine
(h) Thread the machine
(i) Adjust the thread tension
(j) Adjust the stitch length
(k) Check the stitch formation
(l) Check the reverse stitching lever

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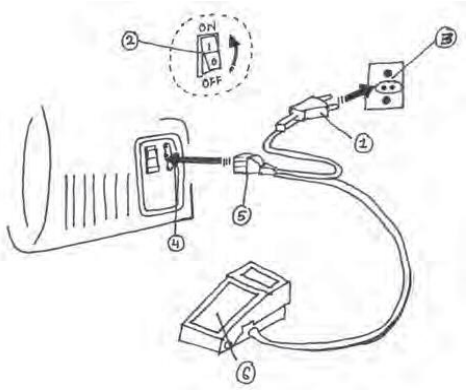
a) Connect the machine to the power supply

Before connecting the power cord, ensure that the voltage and the frequency shown on the sewing machine conform to the electrical power.

a. Connect the plug to connect the foot control.
b. Now, connect the foot control to the machine socket.
c. Connect the power plug to the power socket.

d. Switch ON the power and sewing light. Note: This step is applicable for a motorized sewing machine.



1) Power plug (2) Power switch (3) Power socket

(4) Machine socket (5) Foot control plug

(6) Foot control

Fig. 2.45: Connection of power supply to the sewing machine

(a) Placement of foot control

1. The speed of the sewing machine can be controlled by the foot control. The stronger it is pressed on the control, the faster the machine runs.
2. The foot control should be placed at the correct position for the tailor to operate it comfortably.

Note: This step is applicable for a motorized sewing machine.

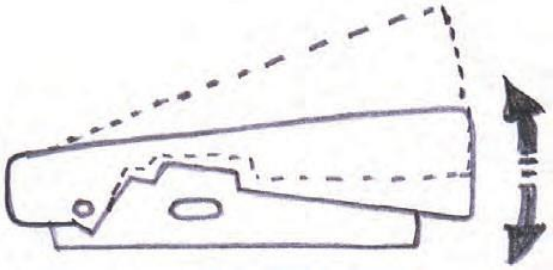


Fig. 2.46: Foot control

(b) Adjust the pressure of the presser foot

It is important for a tailor to have complete knowledge of the required pressure on the material, and method of adjusting the pressure when needed. The pressure of the presser foot is required to be adjusted as per the thickness or heaviness of the fabric/material to be sewn. Heavy fabrics require more pressure than the lightweight fabrics. The pressure should be heavy enough to prevent the fabric from rising with the needle, and to enable the feed to move the fabric along evenly without side creeping.

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The pressure of the presser foot can be adjusted by using the thumbscrew. To increase the pressure, turn the thumbscrew clockwise or downward. To lighten the pressure, turn the thumbscrew anticlockwise. When the pressure is appropriately applied correct stitches will be formed (Fig. 2.47).

Fig. 2.47: Correct stitch

(c) Wind the bobbin

A sewing machine has two thread sources for stitching-a top thread and a lower bobbin thread. The following steps are to be followed to fill the bobbin:

1. To wind the bobbin with the thread, place the bobbin spool on the bobbin winder fitted on the top.
2. Wrap the thread from the reel placed in the thread spool around the bobbin.
3. Press the treadle/foot control or turn the hand wheel to start winding.
4. The winding in the bobbin should be uniform.
5. Once the bobbin is sufficiently filled with thread, stop winding and remove the bobbin.

(d) Selection of needle and thread for sewing

For the selection of the appropriate needle and thread, kindly refer to session 3 of this Unit.

(e) Fix needle into the needle bar

Sewing machine needles have one side flat, so they can only be placed from one side—usually the flat side towards the back. The following steps should be followed to fix the needle into the needle bar:

1. Pull the needle bar to the highest level to insert the needle (Fig. 2.48 Label:1).
2. Loosen the screw or needle clamp to fix the needle (Fig. 2.48 Label:2).
3. Keep in mind that there is a groove. Insert the needle(Fig. 2.48 Label: 3) in a straight line in the groove and tighten the needle clamp securely and tightly to fix the needle properly.

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4. If you are still having trouble, refer to your machine's manual.

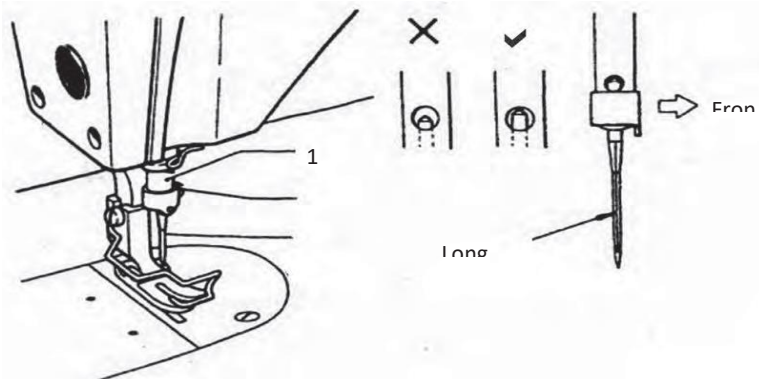

Fig. 2.48: Attaching the needle

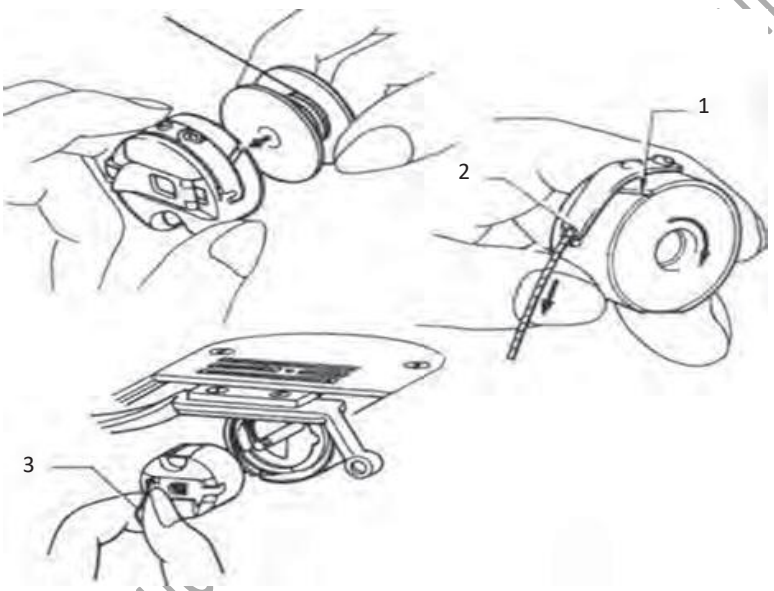

Fig. 2.49: Threading the lower thread

(f) Set the bobbin and bobbin case in the machine

1. Hold the wound bobbin and bobbin case with both hands. Place the bobbin in the bobbin case correctly.
2. Pass the thread through a small notch at the front of the bobbin case and then pull the thread out, as shown Fig. 2.49 Label: 1 and2
3. It should be checked that the bobbin should move clockwise when the thread is pulled out.
4. Leave the end of the thread outside the bobbin case. It should be brought up through the hole in the throat plate after the top thread is threaded.
5. Hold the latch of the bobbin case and fix into the rotary hook (Fig. 2.49 Label:3).
6. Lock the bobbin case in the machine.

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(g) Thread the machine

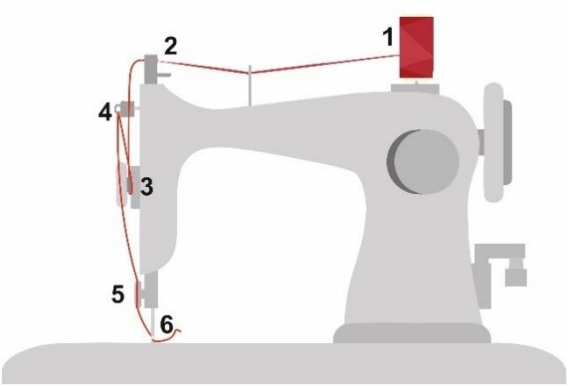

Fig. 2.50: Threading of sewing machine

1. Follow the instruction to thread as per the guidelines printed in your machine's manual.
2. The take-up lever should be raised to keep the needle at its highest point which will help in threading the upper thread.
3. Place the thread reel on the spool pin (Fig 2.50 Label:1)
4. Take the thread end with the hand and pull it through the thread guide at the top (Fig 2.50 Label:2)
5. Now pull the thread down and wrap it around the tension knob (Fig 2.50 Label:3)
6. Pull the thread back up again at the second thread guide (Fig 2.50 Label:4)
7. Thread the needle from front to back.
8. Usually, the thread follows this general pattern: left, down, into a hook, through the needle.

(i) Adjust thread tension

For good quality stitching, a balanced tension or balanced stitches are desirable. When the tension of the upper and lower thread is balanced, the threads interlock in the middle of the fabric to make perfect or balanced stitches. Adjust the tensions only as needed until the stitch is balanced. The tension of the stitch is regulated by two controls.

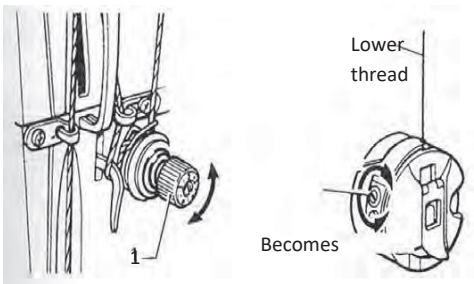

Fig. 2.51: Adjusting thread tension

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1. Upper thread tension

After lowering the presser foot, turn the nut to adjust the upper thread tension. For this, turn the nut to the left to loosen it. Turn it to the right to tighten, as shown Fig. 2.51 Label1.

2. Lower thread tension

It is adjusted by tightening/loosening the screw of the bobbin case, as shown Fig. 2.51 Label 2. The bobbin case screw is very short and will fall out if turned too far. The bobbin case tension screw, which is located on the bobbin case, controls the tightness of the bobbin case spring. These controls increase or decrease the amount of pressure on the threads as they feed through the machine.

Appropriate thread tension is needed for perfect stitching. The tension on the needle and the bobbin threads must be heavy enough to pull the threads to the centre of the thickness of the fabric and make a firm stitch.

Correct seam with balanced thread tension is shown in Fig. 2.52.

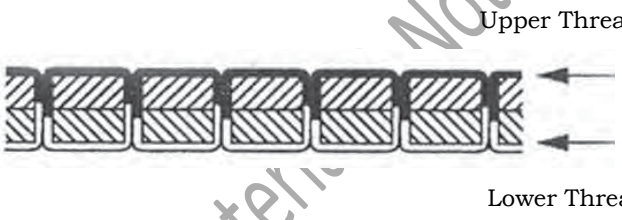

Fig. 2.52 Correct seam

The appearance of seams when the upper tension is too loose is shown in Fig. 2.53.

Fig. 2.53: Seams when the upper tension is too loose

The appearance of seams when the upper thread tension is too tight is shown in Fig. 2.54.

Fig. 2.54: Seams when the upper tension is too tight

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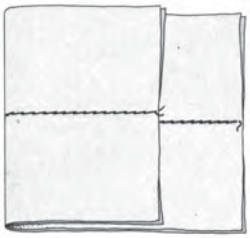
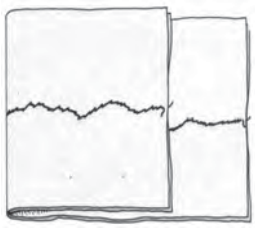
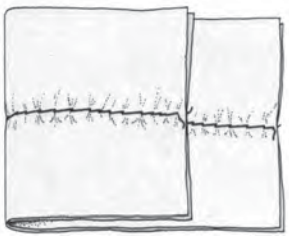


(a) Correct stitch



(b) Too loose



(c) Too tight

Fig. 2.55 (a,b,c): Tension problems

The structure, texture, thickness, density, and resilience of the fabric, and the size and type of the thread, affect the tension. The tension setting will vary with the material and the thread size and type. Test the tension before you begin stitching or sewing with a different fabric, thread, or machine.

(j) Adjust the stitch length

A stitch length regulator/dial is used to adjust the stitch length and get the desired length. The stitch length regulator/dial controls the distance that the feed dogs move the fabric to the back of the machine to make a single stitch. The bigger number on the stitch length dial produces a long stitch, and the smaller number produces a smaller stitch.

(k) Checking the stitch formation

Before starting sewing on the final material, it is a good practice to check the formation of stitch on a rough fabric. Change the pressure and thread tension as required for correct stitch on the final material.

The method of stitch formation in a sewing machine (Fig. 2.56) is as follows:

1. The needle descend (that is, the downward action of the needle) passes through the fabric.
2. Then it reaches its lowest point and begins to rise slowly.
3. It creates a loop. The shuttle enters the slack-loop, enlarging it and taking with it the under thread, and when the needle reaches back to its highest level, a complete interlock stitch is formed.

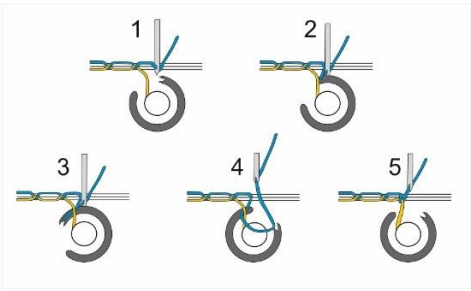


Fig. 2.56: Steps of stitch formation

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(l) Checking of reverse stitching lever

Before sewing the reverse stitch lever is also checked to ensure correct stitching.

1. When the reverse stitching lever is pushed, the cloth feed direction for sewing will be reversed.
2. When it is returned to its original position, the feed direction for sewing will change back to normal.

Operating the sewing machine

Single needle sewing machines are mostly used in domestic tailoring and also in industrial or commercial production. They are most commonly used as they serve the purpose of basic seam formation. As the name suggests, the machine uses a single needle to make a single seam line. The stitch is formed by interlocking two threads—the upper and the lower bobbin thread.

The following are the steps for operating a single needle sewing machine:

(a) Sew on the fabric

1. Raise the presser foot and then turn the flywheel so that the take-up lever is at its highest level.
2. Pull the upper and lower threads straight backside under the presser foot to avoid them from knotting at the beginning of the stitching line.
3. Place the fabric to be stitched under the presser foot, allowing the seam allowance to the right side of the needle and the rest of the fabric to the left.
4. Turn the flywheel until the needle point enters the fabric at the exact beginning point.
5. Lower the presser foot and then start the machine slowly, simultaneously guiding the fabric gently with the hand.
6. To check stitch length and proper tension, first stitch on a scrap, that is rough cloth. Finalize it and then stitch on the final material.
7. Gradually, increase the speed of the sewing machine for stitching.
8. The fabric will move forward and the stitch will be formed continuously.
9. Before the end of the stitching line, stitch slowly with the right hand on the fly wheel and left hand on the fabric that is being worked on (while using hand machine). Stop the machine in time to not sew beyond the fabric.
10. Take the presser up , then pull the material straight back with threads under the presser foot to avoid bending of the needle.

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11. Cut the threads using the thread cutter or scissors.

Precaution

1. Do not pull the material/fabric forward or backward, but hold the two layers slightly tight and firm at the back and front of the presser foot.
2. Keep the take-up lever at its highest point to avoid unthreading the needle when beginning to stitch again.
3. Leave about two to four inches of thread, extending from the machine to prevent unthreading.

(b) Fastening the thread ends

It is essential to fasten the threads at the ends of the stitching lines which are not to be crossed later (for example, points of darts). This can be done in three ways.

Reverse stitching

Stitch till the termination point with the needle in the fabric. Now carry out reverse stitching, and then cut the threads.

Pivoting

Stitch till the termination point with the needle in the fabric, lift the presser foot and stitch back a small distance along the seam. Cut the threads.

Tying

After you have reached the end of the stitching line, pull the fabric back and cut the threads, leaving a length of about two to four inches extending from the fabric. Pick the last stitch with a pin or needle point so that both the thread ends come to the wrong side of the fabric, and then tie a double knot.

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PRACTICAL EXERCISES

ACTIVITY 1

Practice the following on a sewing machine in the practical lab.

1. Connecting the machine to the power supply
2. Understanding the placement of foot control
3. Adjusting the presser foot
4. Winding the bobbin
5. Selecting the appropriate needle and thread for sewing
6. Fixing the needle into the needle bar
7. Setting the bobbin and bobbin case in the sewing machine
8. Threading the machine
9. Adjusting the thread tension
10. Adjusting the stitch length
11. Checking the stitch formation
12. Checking the reverse stitching lever

Materials Required

1. Single needle lock stitch machine (manual operated or motorised)
2. Power socket and outlet
3. Sewing machine needle
4. Screwdriver
5. Thread
6. Bobbin and bobbin case
7. Fabric scraps

Procedure

Follow the instructions given in this session.

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ACTIVITY 2

Practice operating the sewing machine in the practical lab and prepare a sample of the different stitch formations.

Materials Required

1. Single needle lock stitch machine (manually operated or motorised)
2. Power socket and outlet
3. Sewing machine needle
4. Thread
5. Bobbin and bobbin case
6. Fabric scraps (10"X10") 4samples
7. Practical file
8. Scissors
9. Adhesive

Procedure

1. Prepare the sewing machine as per instructions given in this session for stitch.
2. Prepare the samples of correct stitch, or a stitch when the upper tension is too tight and too loose. Finish the prepared samples.
3. Attach samples in your practical file.

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Check Your Progress

A. Fill in the blanks

1. Speed of sewing machine can be controlled by the _____.
2. The bobbin turns_____when the thread is pulled.
3. When the reverse stitching lever is pushed, the cloth feed direction for sewing will be_____.

B. Short answer questions

1. Write steps of threading the sewing machine.
2. Write short notes on:
   (a) The steps for operating the sewing machine
   (b) Placement of foot control
   (c) Adjusting the stitch length
3. Write about adjusting the pressure of the presser foot.

C. Long answer questions

1. Explain the thread tension as per the stitch formation with a diagram.
2. Explain the winding of bobbin and its setting in the machine
3. Describe the operating procedure of a sewing machine and the precautions while sewing.

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MODULE-3: BASICS OF GARMENT CONSTRUCTION

Sewingisacreativeandinterestingartandskill.Toprepareawell-finishedgarment,it's stitching is done by combining the different garment components. Garment construction is a technical accomplishment that requires the knowledge and skills of basic sewing techniques— application of stitches, seams, darts, gathers, pleats, edge finishing, etc.. Its appropriate application in garment construction is necessary for a good quality product. A garment that is made, will be attractive if it fits well, and proper attention is paid to its finer details. A tailor must be aware about the two sides of the fabric—the right side and wrong side. These can be mainly identified by the selvedge of the fabric. Generally, the selvedges appear less finished on the wrong side and are smoother on the right side. For garment construction the right side of a cut component can be defined as the side which will be the outer side of the garment when worn. Whereas the wrong side is defined as the side of the garment that will lie close to the skin, i.e. it will touch the skin.

It is essential to know and practice the various types of stitch, especially constructive stitches which include temporary and permanent stitches. To construct the garment, various types of seam are also used such as flat seam, lapped seam, French seam, slot seam, etc.. The edges of garments are finished using different type of edge finishes like pinked finish, edge stitched finish, double stitch finish, etc.. This Unit will help you learn about the various type of stitches, seams, edge finishes, etc.,all of which have a key role in garment construction.

Learning Outcomes
After completing this module, you will be able to: • Explain various types of stitches • Explain the types of seams • Explain the edge finishes and its types • Explain Disposal of fullness and identify their application in garments • Explain the types of fasteners and plackets • Describe the basic garment components
Module Structure
Session 1: Various Types of Stitches
Session 2: Different types of Seams
Session 3: Seam Finishes

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Session 4: Disposal of Fullness
Session 5: Fasteners, Plackets and Trims
Session 6: Garment Components

SESSION 1: VARIOUS TYPES OF STITCH

This session will help provide the student with a thorough understanding of the various kinds of stitches.

Stitches

A stitch may be defined as one unit of conformation resulting from one or more strands or loops of thread intra-looping, inter-looping or passing into or through the material. Intra-looping is the passing of a loop of thread through another loop formed by the same thread, while inter-looping is the passing of a loop of thread through another loop formed by a different thread. Stiches can be classified into two categories: hand stitches and machine stitches.

Almost every garment or other stitched articles that are sewn, needs some hand stitches. Thus, one should be able to handle the needle and thread to carry out hand stitches competently. Before learning stitching on the sewing machine, one should learn the basic hand stitches which are very commonly used in the manufacturing of garments and other articles. The basic hand stitches are divided into following two types depending on their use:

Constructive stitches

It is a stitch made by a portion of sewing thread passed over and under an equal or unequal number of threads for construction purpose. Such stitches can be classified as temporary and permanent stitches.

1. Temporary stitches

Such stitches are used to hold the garment or fabric pieces together before permanent stitches are made. These stitches are also known as tacking or basting stitches. Usually, this stitch is horizontal and it is worked from the right to the left side with a knot.

Various kind of tacking or basting stitches are as follows:

(i) Even basting

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It is used to hold the fabric together temporarily, but more securely than in uneven basting. In such stitches the stitch length of each stitch is kept equal. It is done by making even stitches of about ¼ inch to ⅜ inch long. When easing one layer of the fabric to another layer, the layer to be eased is held on top and this top layer is gathered to stitch (Fig.3.1).

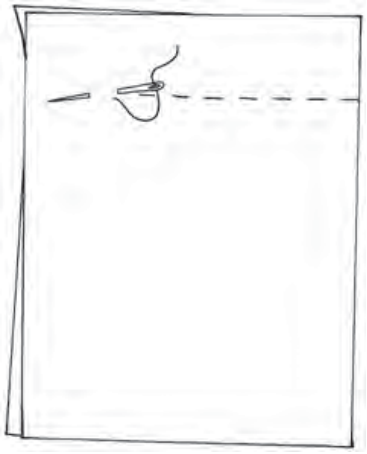

Fig. 3.1: Even basting

***(ii)* Uneven basting**

This is used to mark or to hold fabrics together, only where there is no strain on the stitches. In such stitches the stitch length of each stitch is kept unequal. It is done by make a long stitch, about ½ inch on one side of the fabric and then a short stitch ¼ inch on the other side of the fabric (Fig.3.2).

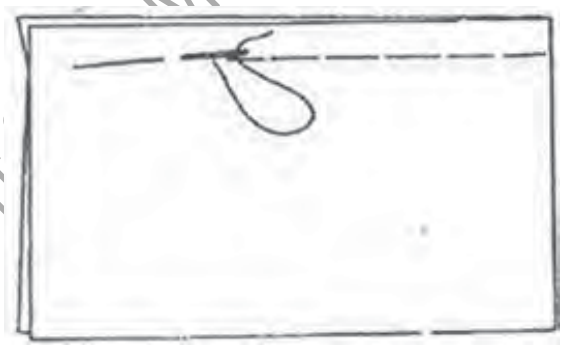

Fig. 3.2: Uneven basting

(iii) Diagonal basting

This is used to hold two pieces of fabric together when more than one row of tacking is required. For example, when you are attaching interfacing to a collar or mounting a fabric on to an underlining, etc. It may be done vertically or horizontally (Fig. 3.3).

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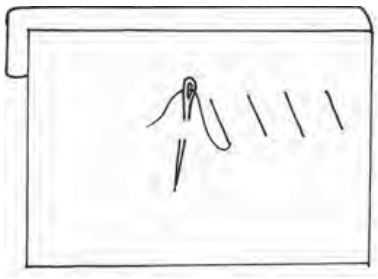

Fig. 3.3: Diagonal basting

(iv) Slip basting

Also called invisible hand basting, it is used when working from the right side of the fabric, and to mark fitting alterations, or on occasions where patterns have to be joined accurately. For example, strips, checks, etc.. It is done by turning one edge of the material on the seam line. Then, pinning the folded edge carefully to the seam line on the other edge with pins at right angles to the seam. Even tacking stitches are then made alternately through the fold and through the single edge on the seam line (Fig.3.4).

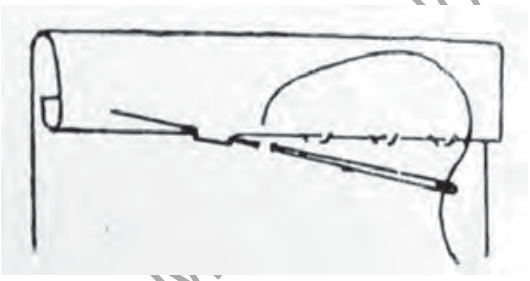

Fig. 3.4: Slip basting

2. Permanent stitches

The stitches that form a part of the stitched garment are called permanent stitches.

(i) Running stitch

This is the simplest form of hand stitch which is used mainly for gathering and shirring fabrics. When using for both gathering and shirring, one must make sure that enough thread should be left to make an unbroken line of stitches. It is similar to the even basting, but the stitches are much smaller (stitch length is less). The stitches should be straight, fine and evenly spaced and mostly about $^{1}/_{16}$ inch to ⅛ inch in length. To carry out the running stitch, several very small stitches are take non to the point of the needle before drawing the thread through the fabric. The stitches should be as small as the thickness of the fabric to allow less than 2mm on fine fabrics (Fig.3.5).

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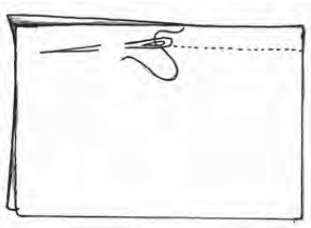

Fig. 3.5: Running stitch

***(ii)* Backstitch**

It is considered to be very strong and is many a times used as a substitute for machine stitching. It is mainly applied when extra strength is needed. Back stitch is very useful for making strong seams and for finishing a line of stitching. The stitches on the front are small and appear continuous. To make the back stitch, a small stitch back from left to right is made. Then a double length stitch forward on the wrong side of the fabric is made. So the needle emerges a stitch's length in front of the first one. It is repeated this way, keeping the stitches uniform in size and fairly firm (Fig.3.6).

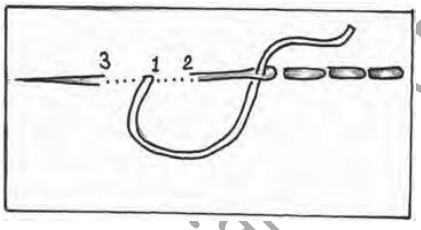

Fig. 3.6: Back stitch

***(iii)* Run and back or combination stitch**

In this combination, a back stitch and three or four running stitches are combined and can be used for working plain seams done by hand. This stitch is worked faster than the back stitch and stronger than the running stitch.

***(iv)* Hem stitch**

It is used for hems on medium weight or lightweight fabrics. It is mainly used to fasten a raw edge which should be turned in or to flatten a seam. It appears as small slanting stitches on the wrong side of the fabric. The stitch size will depend on the fabric. The thread should not be pulled taut or the fabric will pucker (Fig.3.7).

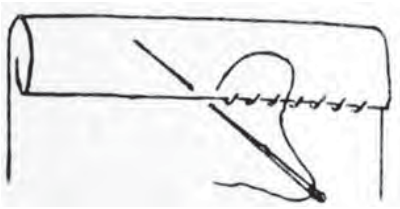

Fig. 3.7: Hem stitch

***(v)* Half backstitch**

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This stitch is quite similar to the backstitch, but with a longer stitch at the back side of the fabric. To carry out the stitch, a small stitch back from left to right is made and then a stitch forward is made, two and a half times as long, on the wrong side of the work. Then another small stitch from left to right on the right side is made.

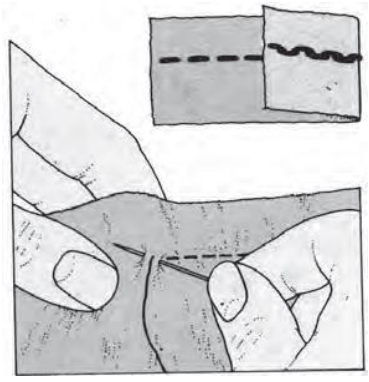

Fig. 3.8: Half back stitch

(vi) **Over-sewing**

It is used to finish seam edges on fabrics which fray easily. To carry out the stitch, the fabric is held with the edge to be worked away from the tailor. The needle is then inserted ⅛ to ¼ inch from the edge, and the thread is brought over the edge of the fabric. The next stitch is made ¼ inch further on.

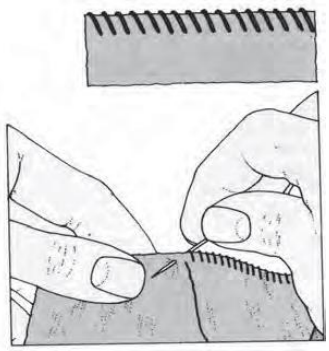

Fig. 3.9: Over-sewing stitch

(vii) **Blind hemming stitch**

This stitch is worked on the inside fold of the hem so that the stitches are almost invisible; thus, the name 'blind'. The thread should not be pulled tightly. To carry out the stitch, the work is held with the fold of the hem towards the worker, then a very small stitch inside the hem fold edge is taken, picking up a thread of the single fabric on the point of the needle before taking another stitch on the inside hem fold of the garment.

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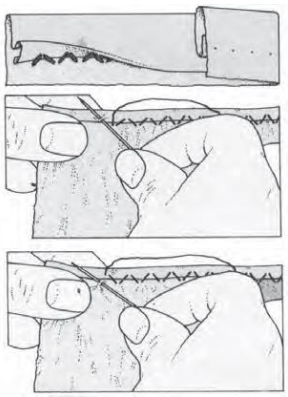

Fig. 3.10: Blind hemming stitch

(viii) **Buttonhole stitch**

This stitch is worked with the needle pointing towards the worker, and the fabric edge away from the worker. To carry out the stitch, the needle is inserted in the right side of the edge of the buttonhole. And brought out ⅛ inch below. The thread is then looped hanging from the eye of the needle from right to left under the point of the needle and draw the needle upwards to knot the thread at the buttonhole edge.

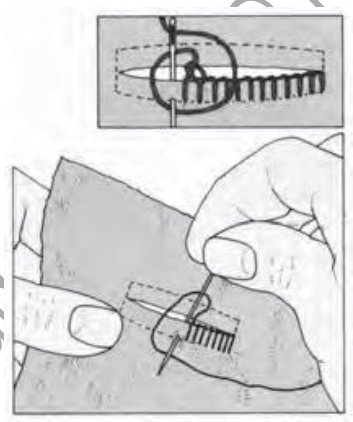

Fig. 3.11: Buttonhole stitch

Decorative stitches

These stitches are also known as embroidery stitches. This art is practised on all kinds of pliable material with different types of threads, precious and semi-precious stones, pearls, shells, beads, etc. There are different kind of hand embroidery stitches. Some of the common hand embroidery stitches are stem stitch, chain stitch, herringbone stitch, feather stitch, lazy-daisy, satin stitch, cross stitch, Bullion stitch, etc., which are used to decorate garments, home furnishing items and other articles. As these stitches are mainly used to decorate the garment or material, hence, not discussed in detail in this book as shown in Figs. 3.12(a–i).

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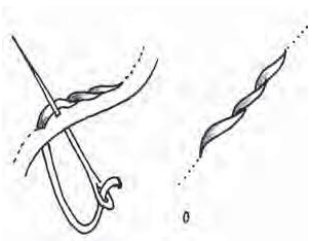
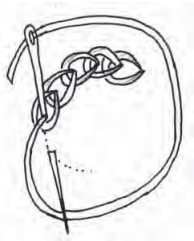
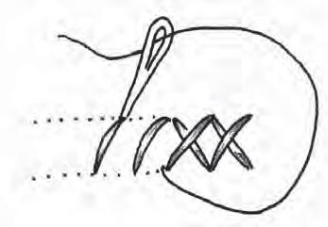


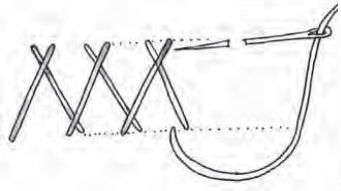
(a) Stemstitch



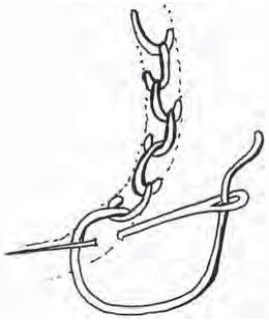
(b) Chainstitch



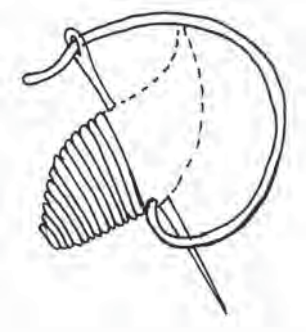
(c) Cross stitch



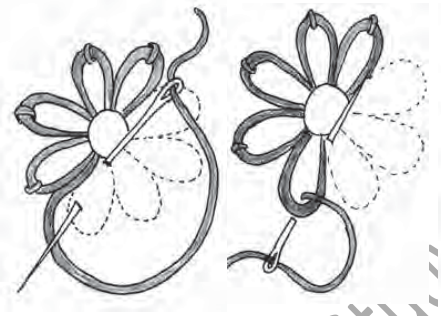
(d) Herringbone stitch



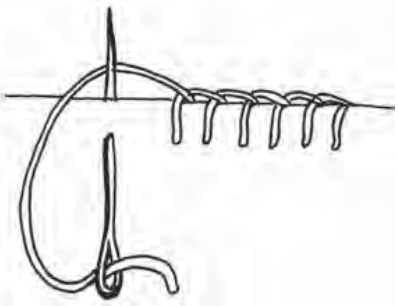
(e) Featherstitch



(f) Lazy-daisy stitch



(f) Satin stitch



(h) Blanket stitch

(i) Bullion stitch

Fig. 3.12 (a–i) Decorative stitches

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PRACTICAL EXERCISES

Activity 1

Make a scrapbook of the constructive and decorative stitches and label them.

Materials Required

1. Writing material
2. Pictures of constructive and decorative stitches
3. Scissors
4. Adhesive

Procedure

1. Search and collect the pictures of different types of constructive and decorative stitches.
2. Cut the pictures very neatly with scissors.
3. Paste them in a scrapbook.
4. Label them.

Activity 2

Prepare samples of hand stitches as given in this session.

Materials Required

1. Cotton fabric to prepare samples (12" x12")
2. Needle
3. Thread
4. Frame
5. Writing material
6. Adhesive

Procedure

1. Use slip basting, running stitch, back stitch and hem stitch to finish four sides of the sample fabric.
2. Make different constructive (temporary and permanent) stitches on the sample.
3. Paste them on the chart sheet and write where they are used.
4. Label them.

CHECK YOUR PROGRESS

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

1. _____stitch forms part of a stitched garment.
   (a) Temporary
   (b) Permanent
   (c) Constructive
   (d) Hem
2. stitch is of equal length about ¼ inch on both sides of the fabric.
   (a) Uneven basting
   (b) Slip basting
   (c) Diagonal basting
   (d) Even basting
3. Stitch is used for hems on medium or light weight fabrics.
   (a) Hem
   (b) Back
   (c) Run and back
   (d) Decorative

B. Short answer questions

1. Write short notes on the following
   (a) Decorative stitches
   (b) Buttonhole stitch

C. Long answer questions

1. Describe how to make temporary stitches.
2. Describe how to make permanent stitches.

SESSION 2: DIFFERENT TYPE OF SEAMS

Seams refer to the stitching line where two pieces of fabric are stitched together. It is the basic building unit of any garment or stitched article. It is an application of a series of stitches or stitch types to one or several thickness of material. Seams mainly construct the structure of the garment or stitched article. It is also used for decorative purpose. Decorative seams are mainly used for decorative purposes while functional seams are used mainly for the purpose of construction. An example of decorative seams is a tucked seam, and example of functional seam is flat seam, French seam, etc. Good appearance in a seam normally means smooth fabric joins with no missed or uneven stitches and no damage to the material being sewn. Alternatively, it means regular gathering to form a style feature, or a varying but controlled amount of ease to ensure a good fit of the garment to the body. With the wide variety of fiber types and fabric construction available, good seam appearance during manufacturing requires different techniques. Once it has been achieved, it should be maintained throughout the lifetime of the garment, despite the many problems that arise during wearing, washing and dry-cleaning. Performance of the seams means the achievement of strength, comfort, durability and elasticity. Seams should be as strong as the fabric. Following are the points to be considered while making seams:

- Seams are commonly machine stitched but one can hand stitch a seam using backstitch.
- Before making a seam, ensure that the needle and thread used are appropriate for the fabric weight and texture.
- Because the seams of a garment must withstand wear and tear, the beginning and the end of the line of stitching should be secured with a few back stitches.
- To prevent fraying, enough quantity of fabric should always be left between the line of stitching and the fabric edge.

There are different type of seams, and the type of fabric and garment should determine the one you select. Some commonly used seams are given below:

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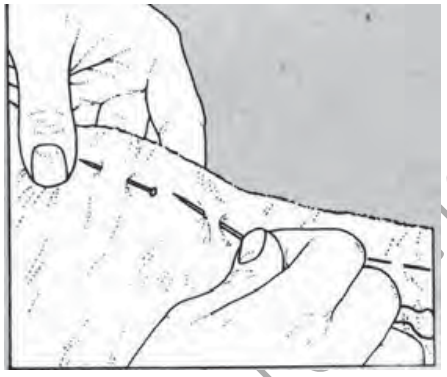
Plain seam

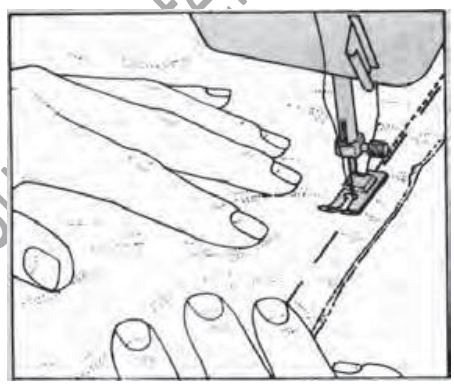
It is the basic seam (functional seam), joining the edges of two pieces of fabric. This seam is used on medium weight fabrics where there is no special strain on the seam. Mostly, plain straight stitch is used to stitch the seam. Plain seam can be used on most of the garments and the seam edges should always be finished as appropriate for the type of fabric. Although a plain seam is always made with the right side of the fabric facing each other, some other

seams will require to be initiated with the wrong sides of the fabric facing each other. For constructing a plain seam:

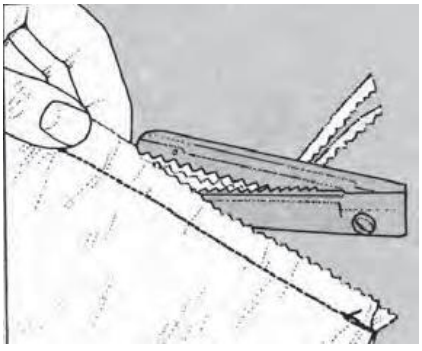
- With the right sides of the fabric facing each other, pin the fabric together at both the ends of the seam line and at intervals along the seam line leaving an allowance of about ¾ inches properly, close to the seam line.
- Then stitch along the seam line, back stitch a couple of stitches at each end to secure the seam, and remove the pins.
- After removing the pins, finish the seam edge by pinking it or as necessary for the fabric.
- Press the seam as stitched and then press it open, using a pressing cloth between the iron and the fabric.



(a)



(b)



(c)

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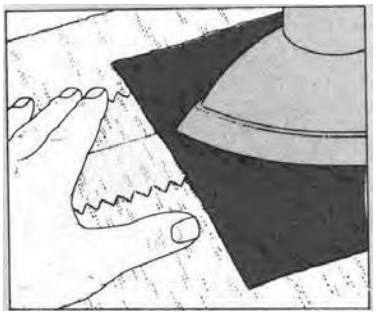


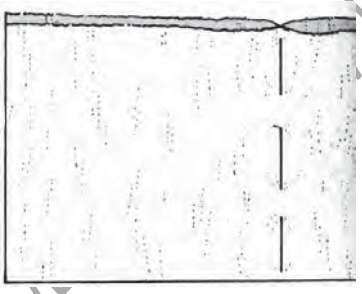
(d)

Fig.3.13 (a, b, c, d) Plain seam

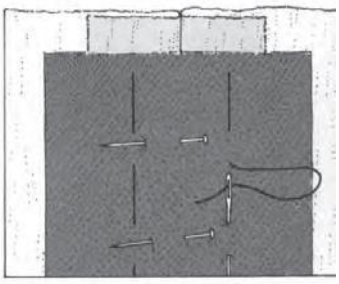
Channel seam

This is a decorative seam mostly used in trousers, pockets of jeans, jackets, etc.. It has a strip of fabric behind it which is visible through the seam fold. It can be made of contrasting fabric, if desired. For constructing a channel seam:

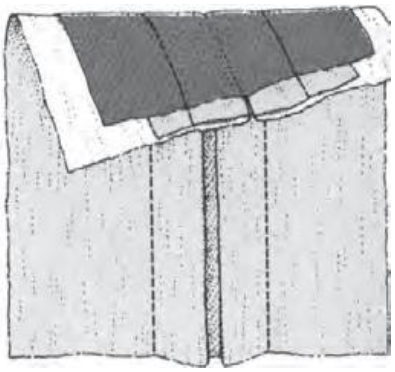
- With the right sides of the fabric together, pin and tack along the seam line.
- Press the seam open and cut an underlay of the same or contrasting fabric 1 inch wider than the two seam edges.
- With the wrong side of the work facing you, centre the right side of the underlay on the seam and pin in the position.
- Pin and then stitch an equal distance, each side from the seam depression.
- Remove the pins and tacking, then press as stitched.



(a) Tacked fabric together



(b) Underlay pinned to seam



(c) Completed seam

Fig. 3.14 (a, b, c) Channel seam

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Lapped seam

This seam is used for joining sections of interfacing to avoid bulking, that is a mass of fabric getting thick. To construct a lapped seam:

- Lap one edge of the fabric over the other with the seam lines directly over each other.
- Tack and then stitch along the seam line with a wide zigzag stitch or a straight stitch.
- Trim the seam edges (Fig.3.15).

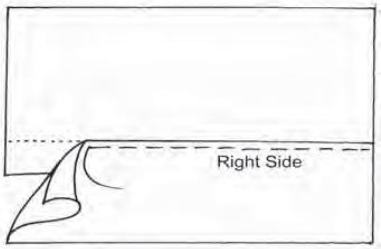
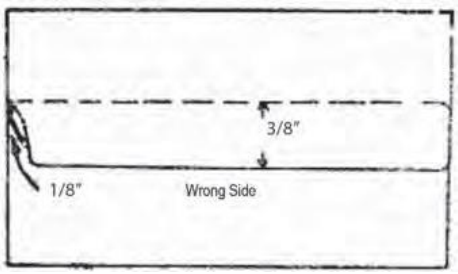


Fig. 3.15: Lapped seam

Flat felled seam

This is a flat, durable and strong seam used mainly on men's sports shirts, work clothes, children's clothes and pajamas. It is time consuming and difficult to make on curved edges and on bulky fabrics. To construct a flat felled seam:

- Place the fabric pieces to be joined at the wrong side facing each other, and then stitch on the seam line.
- Press both seam allowances together in the same direction and trim the under seam allowance to ⅛ inch and the upper one to ⅜ inch(Fig.3.16a).
- Turn under the raw edge of the wide seam allowance so as to make a smooth fold of ¼ inch wide.
- Stitch close to the folded edge on the right side of the garment.
- The right side of the seam shows two rows of stitching and wrong side shows only one row of stitching (Fig. 3.16b).



(a)

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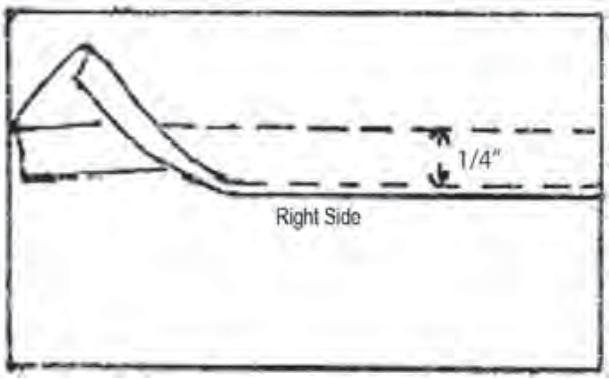


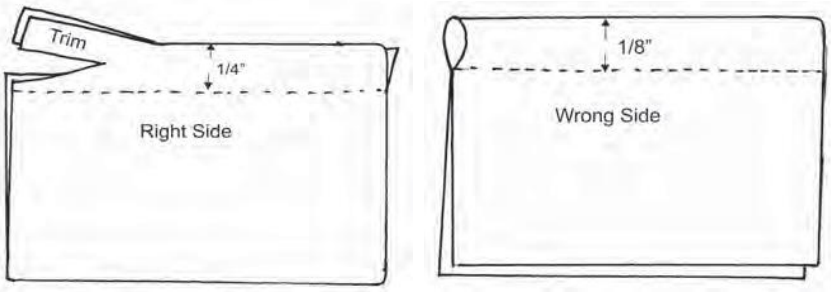
(b)

Fig. 3.16 (a, b) Flat felled seam

French seam

It is a narrow seam generally used for fine fabrics or for those fabrics which fray easily. It is a seam within a seam. When finished, it should be about¼ inch or less in width. To construct a French seam:

- Place the wrong sides of the fabric together (Fig. 3.17 a).
- Pin and tack in position close to the seam line.
- Stitch¼inchtotherightoftheseamline to the end of the seam.
- Press as stitched.
- Pressing can be done using hands to form a crease or using a heat pressing iron.
- Then trim the seam allowance to ⅛inch.
- Press the seam open.
- Then turn the right sides of the fabric together.
- Fold on the stitch line and press.
- Tack in position.
- Stitch along the seam line and press as stitched (Fig. 3.17b).



(a) (b)

Fig.3.17 (a, b) French seam

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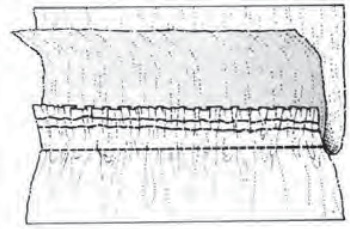
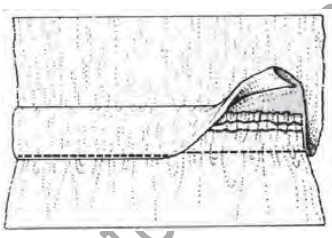
Mantua maker's seam

It is used to attach a frill to a straight piece of fabric. To construct this seam:

- With the right sides of the fabric together, tack along the seam line and stitch.
- Trim the frill seam allowance to ¼ inch.
- Double fold the other seam allowance over the raw edge down to the seam line.
- Stitch very close to the seam line then remove tacking and press the seam upwards, keeping away from the frill.



(a)



(b)

Fig. 3.18 (a, b) Mantua maker's seam

Double stitch seam

It is used mainly for sheer fabrics. To construct this seam:

- Take the right sides of the fabric together, tack and stitch along the seam line and press as stitched.
- Sew another line of stitching in the seam allowance ¼ inch from the first line, using a fine multi stitch zigzag or straight stitch.
- Then trim the raw edge using a scissors or a pinking shear to prevent the fabric from fraying.

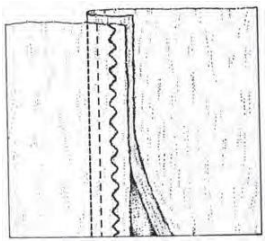


Fig. 3.19: Double stitch seam

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Lingerie seam

It is used mainly for making very fine seams. It is so named because of its use in lingerie. To make the seam:

- With the right sides of the fabric facing; pin, tack and then stitch along the seam line.
- Then press as stitched.
- Finish the seam edges with pinking scissors and press both seam allowances to one side.
- Stitch seam edges on the right side with small zigzag stitches.

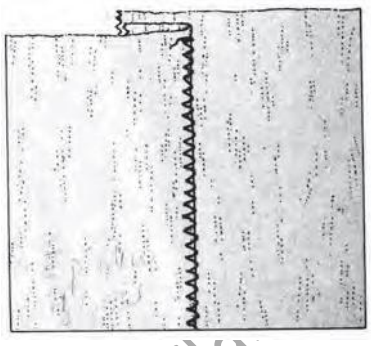
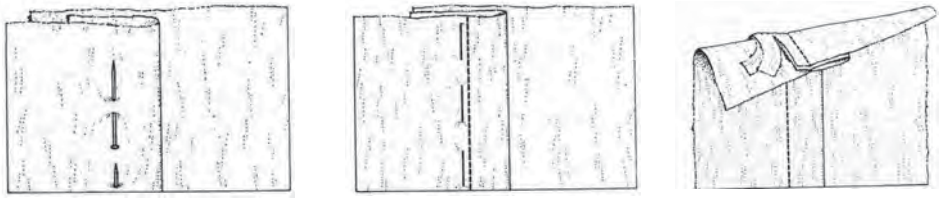


Fig. 3.20: Lingerie seam

Tucked seam

It is a decorative seam and generally used as a design feature on a garment. If a tucked seam is used on a fabric which frays easily, the seam edges should be finished by over sewing. To make a tucked seam:

- With the right side of the fabric facing you, turn under the seam allowance on one piece of fabric, and then pin into place.
- Place the folded edge of the seam line on the right side of the second piece of fabric, putting the edges together.
- Tack and stitch the desired width from the folded edge.
- Remove tacking threads and trim off the seam edge underneath the seam.
- Press as stitched.



(a) (b) (c)

Fig. 3.21 (a, b, c) Tucked seam

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PRACTICAL EXERCISES

Activity 1

To identify the various seams used on a pair of denim jeans, pillow covers, shirt, skirt, frock, bloomer and blouse.

Materials Required

1. A pair of denim jeans
2. Pillow covers
3. Shirt
4. Skirt
5. Frock
6. Bloomer
7. Blouse
8. Writing material

Procedure

1. Place each of the above items in front of you.
2. Begin by observing and identifying the seams used in each of these. Make a note of your observations.
3. Now take an A3-sized chart sheet and draw out a table.
4. While preparing the chart, remember to refer to the notes you made earlier.
5. List the names of the items you observed such as frock, shirt, blouse, etc., on the left side. Now write your observations on the kind of seams used in each of these on the right side of the table.

Activity 2

Prepare samples of different seams as given in this session.

Materials Required

1. Cotton fabric to prepare samples (12" x12")
2. Needle, thread and scissors

3. Writing material
4. Adhesive
5. Sewing machine
6. Bobbin/bobbin case

Procedure

1. Prepare samples of different seams.
2. Finish the edges of the samples.
3. Attach them in the practical file and write where they are used.
4. Label them.

Check Your Progress

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

1. Channel seam is a_____seam.
   (a) decorative
   (b) functional
   (c) temporary
   (d) None of the above
2. _____seam is used for joining section or parts of interfacing to avoid bulk.
   (a) Welt (b)Lapped
   (c)Channel (d)French
3. Tucked seam is a_____seam.
   (a) functional
   (b) decorative
   (c) temporary
   (d) None of the above
4. _____ is a seam within a seam.
   (a) Flat (b)French
   (c)Lapped (d) Channel

B. Short answer questions

1. Write short notes on the following
   (a) Double stitch seam
   (b) Lapped seam
   (c) Lingerie seam

C. Long answer question

1. Describe the various type of seams in detail along with a diagram.

SESSION 3: SEAM FINISHES

Seam finishes are made to prevent fraying of the raw edges of the fabric or garment and thus, make the fabric edge more durable and attractive. They also provide a neat appearance to the inner side of the garment. Although seam finishes are not essential for completion of the garment, it can add durability to a garment's life. There are various types of seam finishes. They may be carried out by hand stitches or by sewing machine. Some of the common seam finishes are described in this session.

Different type of seam finishes

Pinked finish

This is a quick method of finishing done with pinking shears(a kind of fabric cutting scissors).To finish the seam in the garment using pinking shears:

- After stitching, trim the edges, preferably at a distance of ⅛ inch by using pinking scissors (also called pinking shears).

This type of seam finish is not suitable for fabrics that ravel badly (Fig.3.22).

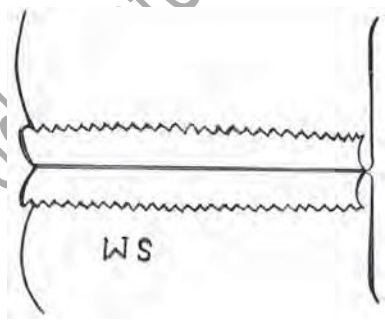

Fig. 3.22: Pinked finish

Edge stitched finish

This is a neat finish for light to medium-weight, non- bulky fabrics. In this finish:

- The seam is stitched and pressed open.
- Then turn under ¼ inch on each seam edge. Stitch close to the fold without catching the garment (Fig. 3.23).

Edge stitched finish is a bulky type of finish and is not suitable for deeply

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curved seams. This finish is mostly used on unlined coats and jackets where the seam allowance is wide.

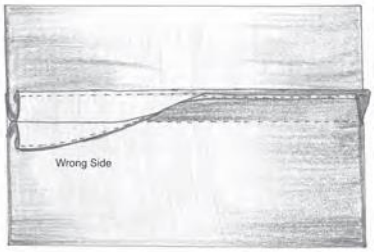

Fig. 3.23: Edge stitched finish

Double stitch finish

This type of finish is commonly used on sheer fabrics. This is done for a plain unfinished seam or pinked seam. It is not suitable for bulky fabrics. After making a plain seam, to carry out double stitch finish work an extra line of stitching is made about¼ inch from the raw edge of the fabric or garment (Fig. 3.24).

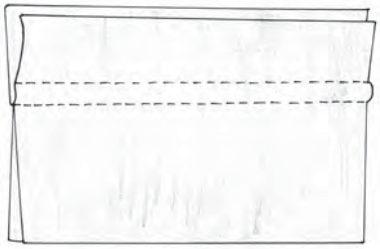

Fig. 3.24: Double stitch finish

Herringbone finish

This finish neatens the raw edges of heavy material like flannel, brocade, tweed, etc. It also holds down the turning, making the seam flat, avoiding the bulkiness. To achieve this finish:

- After pressing the seam open, herringbone stitches are worked on the two raw edges (Fig.3.25).

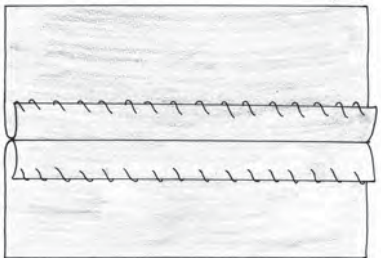

Fig. 3.25: Herringbone finish

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Bound seam edge finish

In this method, the seam is pressed open and a separate piece of binding (a double folded bias strip) is attached to both the seam edges(Fig.3.26)and tacked. It is often used on lightweight fabrics like silk, chiffon, etc.

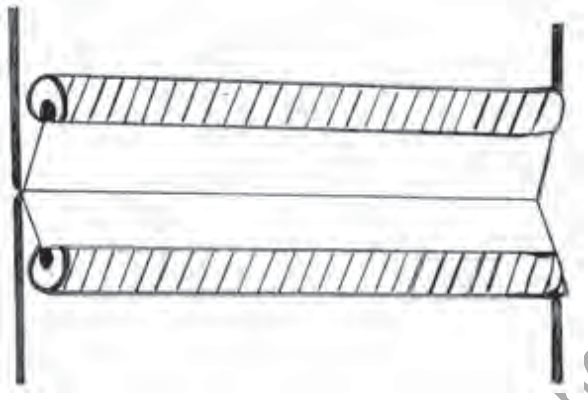

Fig. 3.26: Bound seam edge finish

Overlocked or serged finish

This is a versatile seam finish which is suitable for all types of fabrics. These are specially used to finish the raw edges of sheer fabrics so that the inside of the seam appears neat through sheer fabrics. This is done by an overlock machine. The overlock machines can be of two types: 3 thread and 4 thread. Depending on the desired appearance the edge can be concealed using either of the two machine.

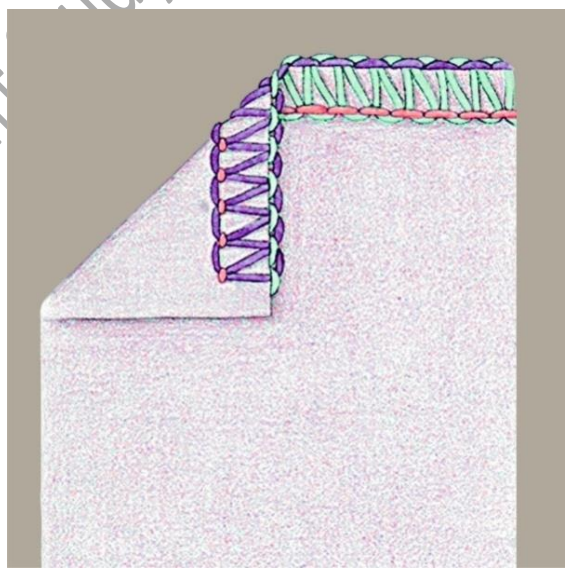

Fig. 3.27: Overlocked or serged finish

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PRACTICAL EXERCISES

Activity 1

Prepare samples of seam finishes as given in this session.

Materials Required

1. Cotton fabric to prepare samples(12"X12")
2. Needle and thread
3. Writing material
4. Adhesive
5. Pinking scissors
6. Sewing machine
7. Bobbin/bobbin case

Procedure

1. Prepare samples of seam finishes.
2. Paste them on a chart sheet.
3. Label them.
4. Place the chart in the classroom or practical lab.

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Check Your Progress

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

1. seam edge is trimmed with pinking shears and gives a zigzag appearance.
   (a) Pinked finish
   (b) Herringbone
   (c) Double-stitch finish
   (d) None of the above
2. In_____, a separate piece of binding is attached to both seam edges.
   (a) Pinked edge
   (b) bound seam edge finish
   (c) herringbone finish
   (d) double stitch
3. _____ finish is suitable for heavy fabrics.
   (a) Pinked edge
   (b) Edgestitch
   (c) Herringbone
   (d) None of the above
4. _____ finish is commonly used on sheer fabrics.
   (a) Herringbone
   (b) Double stitch
   (c) Bound seam edge
   (d) Edgestitch
5. Seam finishes are made to prevent _____of the raw edges of the fabric/garment.
   (a) Basting
   (b) Hemming
   (c) Fraying
   (d) None of the above

B. Short answer questions

1. Write short notes on the following
   (a) Bound seam edge finish
   (b) Herringbone finish
   (c) Pinked seam
   (d) Edge stitch finish
   (e) Overlocked or serged finish
2. Explain the double stitch finish.

C. Long answer question

1. Describe various type of seam finishes and their use in detail along with diagrams.

SESSION 4: DISPOSAL OF FULLNESS

FULLNESS

A good fitted garment conforms well to the three dimensional body of the wearer. For a two dimensional fabric to fit a three dimensional body, fullness (extra amount of ease in the form of darts, pleats, gathers, tucks etc.) is added in the garment.

Fullness is introduced into garments for various reasons such as,

- To give preciseshape,
- Exactfit to the garment,
- To allow freedom of movement,
- Comfort to the wearer,
- To make the garment look attractive.

Darts, tucks, pleats, gathers etc. are some of the techniques for introducing fullness in the garment.

1. Pleats

These are folds of fabric that provide fullness in some parts of a garment. They can be placed single or in a series and can be pressed flat or left un-pressed, according to the style of the garment. Pressed pleats give a smooth, slimming line to a garment, whereas, un-pressed pleats provide a softer and fuller shape.

There are different types of pleats that can be used in garment construction. Among more commonly used are:

i. **Knife pleats:** are usually about 1/2 inch to 1 inch wide and are turned towards the same direction. Following are the steps for adding knife pleats in a garment:

- Make all the pleats in the same direction.
- Press them.
- Pleats can be top stitched in place to produce the slender effect.

The main function of a knife pleat in a tailored garment is to provide fullness at the bottom of the garment.

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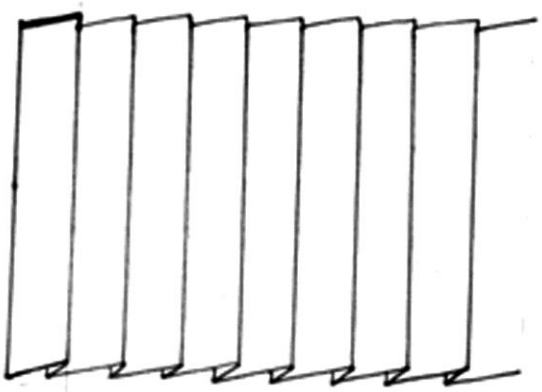

Fig.3.28: Knife pleat

ii. Box pleats: two knife pleats turned away from each other (one to the left and one to the right) form a box pleat. These are mostly used for uniforms.

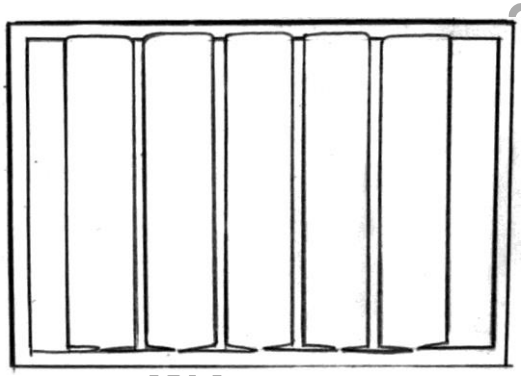

Fig.3.29: Box pleat

iii. Inverted pleat: is the opposite of a box pleat. It is made up of two knife pleats turned towards each other so that the folds meet in the middle on the right side of the garment. It is usually designed at centre front or centre back.

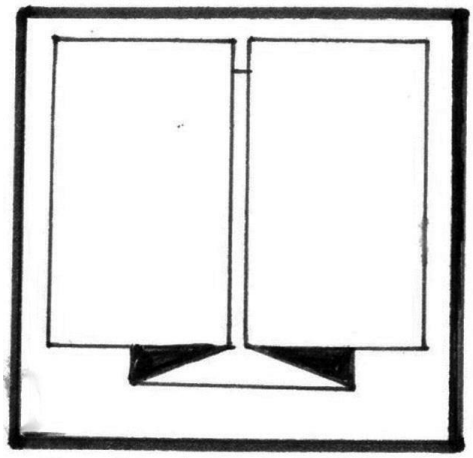

Fig.3.30: Inverted pleat

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2. Darts

These are used to shape a flat piece of fabric to fit the curves of a figure. Darts are classified into two types;

i) **Single Pointed Dart:** is also called a standard dart and is triangular in shape i.e.wide at one end and pointed at the other end.

Fig.3.31: Single pointed dart

ii) **Double Pointed Dart-**is wide in the middle and pointed at both ends. They are used at the waist line of one-piece dresses.

Fig.3.32: Double pointed dart

3. Tucks

These are folds of fabric which are stitched in place by straight rows of machine stitching. A tuck is similar to a pleat. The only difference between a pleat and a tuck is that a tuck is stitched at the base to keep the fold secure. It is introduced in the garment to:

- Shape the garment to the body
- Add fullness to the garment
- Add decorative effect on different parts of garment such as shoulders, waistlines, yokes, pockets or cuff of sleeves etc.

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Tucks add body to thin fabrics and textural interest to plain fabrics. There are different types of tucks that can be used in garment construction. The commonly used tucks are:

i. **Pin tucks:** are narrow folds of fabric that are stitched to the base. Pin tucks are usually used to add design feature to a garment. To stitch each tuck, fold along the middle of the markings and tack or machine stitch about 1/8 inch wide from the fold.

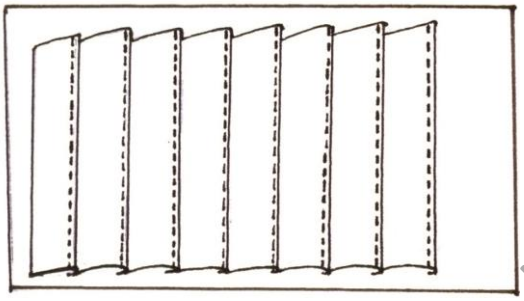

Fig.3.33: Pin tucks

ii. **Piped or Corded tucks:** are made by placing cord on the wrong side of the fabric at center of tuck before stitching the tuck. Stitching is done close to the cord.

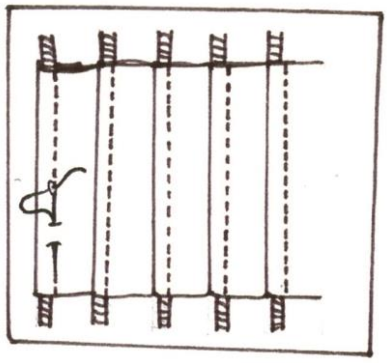

Fig.3.34:Piped or corded tucks

iii. **Cross Tucks:** are stitched along the fabric in both horizontal and vertical directions, the decoration is called cross tucking. First, stitch the vertical tucks and press them to one side. Then stitch the horizontal tucks.

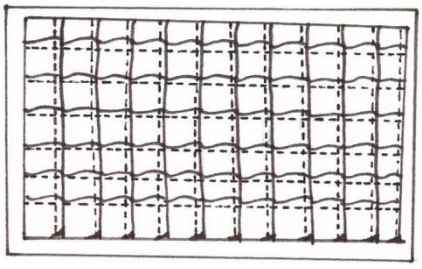

Fig.3.35:Cross tucks

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4. Gathers

Gathering is an effective and decorative way of distributing fullness over a given area. Gathers are graceful folds of fabric that provide fullness, suggesting a soft look, which can be made using machine or hand stitches. These are formed by drawing the fabric together on a line of stitching and may be used to control the fullness at yoke lines, waist lines, neck lines and upper and lower edge of sleeves.

i. **Gathering by hand: is done by** working one row of running stitches above the seam line. Draw the ends of threads until the section measures the desired length and secure the thread.

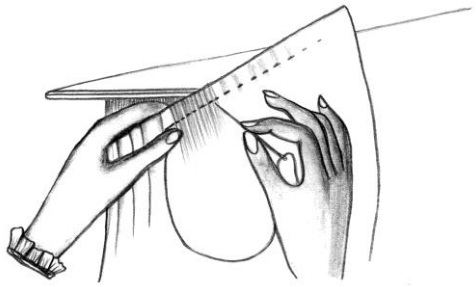

Fig.3.36: Hand gathering

ii. **Gathering by machine:** is done by making a seam line on the right side of the fabric by adjusting the machine for long stitch and loosen the upper tension slightly. Now work two rows of machine stitches, one above the seam line and another below the seam line, distribute the fullness evenly by pulling both bobbin threads together.

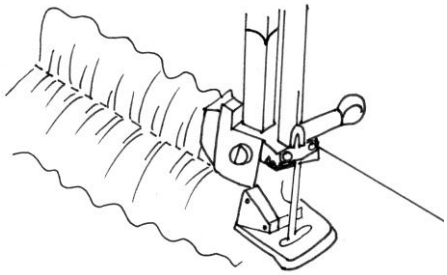

Fig.3.37: Machine gathering

iii. **Gathering by using elastic:** can be made by stretching a narrow strip of elastic and stitching on the part of the garment which is to be gathered.

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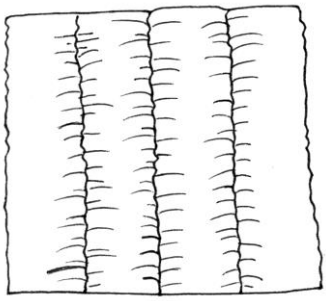

Fig.3.38: Gathering using elastic

5. Shirring

When several rows of gathering (3 or more) are used for a decorative finish these are termed as shirring. The rows should be evenly spaced. Shirring appears as a decorative feature at the shoulder, waistline, at the lower edge of a sleeve and usually at the narrower parts of garment. Shirring can be done by these methods: (i) Thread shirrs – here thread is used to form gathers, (ii) Elasticised shirrs – here elastic is used to form gathers.

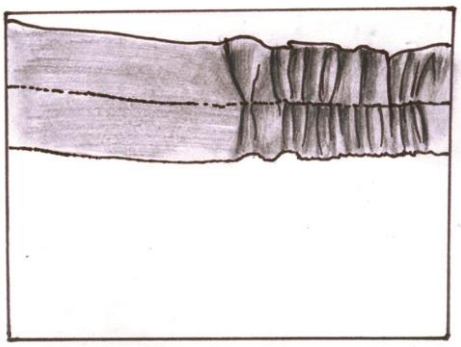

Fig.3.39: Shirring

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PRACTICAL EXERCISE

Activity 1: Prepare a collage of pictures of different types of pleats, darts, tucks, gathers, and shirring.

Materials Required

- Writing material
- Chart sheet
- Pictures of different types of pleats, darts, tucks, gathers and shirring
- Adhesive

Procedure

- Collect pictures of different types of pleats, darts, tucks, gathers and shirring
- Cut pictures very neatly and accurately
- Paste them on the chart sheet for prepare a collage
- Place collage in your classroom or practical lab.

Activity 2: Prepare samples of different fullness techniques like pleats, darts, tucks, gathers and shirring given in this session.

Materials Required

- Writing material
- Cotton Fabric to prepare samples (Ready sample size-7" X 7")
- Adhesive
- Sewing machine
- Machine needle and thread

Procedure

- Prepare samples of pleats, darts, tucks, gathers and shirring
- For pleats- Add width of fabric according to the desired width of pleat. A pleat consumes three times of its width. For example if the width of pleat is 1", it consumes 3" of width of fabric.
- Finish the edges of samples
- Attach samples in practical file, label them and write where they are used.

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CHECK YOUR PROGRESS

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

1. Darts are used to shape a flat piece of fabric to fit the _____ of a figure.
   a) Measurement
   b) Curves
   c) Silhouettes
   d) None of the above

2. _____ is a type of pleat in which two knife pleats turned towards each other so that the folds meet in the middle
   a) Knife pleat
   b) Inverted pleat
   c) Box pleat
   d) None
3. _____ are folds of fabric that provide _____ is some parts of a garment.
   a) Darts, gathers
   b) Pleats, shirring
   c) Pleats, fullness
   d) Tucks, gathers
4. The main function of a _____ pleat in a tailored garment is to provide fullness at the _____ of the garment.
   a) Knife, bottom
   b) Box, top
   c) Inverted box, middle
   d) None of the above
5. _____ pleats are used quite often for uniforms.
   a) Box
   b) Inverted box
   c) Knife
   d) Kick

B. Short answer questions:

1. Explain how fullness is introduced in garments.
2. Define tucks. Explain the types of tucks along with diagrams.
3. Describe pleats with diagrams.
4. Write shorts notes on the following with diagram:
   a) Darts
   b) Shirring
5. Discuss in detail about gathers.

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SESSION 5: FASTENERS, PLACKETS AND TRIMS

A placket is an opening in the garment which aids in easy slip on and slip off garments on body.

Fasteners, like buttons, hook and eye, Velcro, zippers are used to hold the garment at its desired place on the body. These are generally added along with the plackets for easy wear and taking off garments.

Trims are used as a part of garment design to enhance its overall look without overpowering it. It is essential that the trims used should structurally relate to the garment design and increase its potential for sale. Use of trims varies for different apparel categories and these are more frequently used for children's wear and women's wear.

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FASTENERS

All garments need openings so that they can be put on and taken off easily. These openings can be closed in a variety of ways using fasteners. These are also called closures. In general, fasteners are fixed on to double material for strength.

Historically it is believed that the women of the upper classes got themselves dressed by their house helps and hence for the ease of putting on the garments by house helps the fasteners were placed such that the right hand of the house helps could easily reach the fastener. Due to which the fasteners on women's garments were placed such that the right side of the garments lapped over the left side of the garment. Since then the fasteners are generally fixed in such a way that the right side of the garment laps over the left side for women and the left laps over the right for men. Fasteners are selected to suit the colour, design and texture of the fabric, the style and use of the garment and the position of the placket. One should also consider the age and sex of the wearer. For women the bust area is fuller than men, the fasteners for women's garments are exposed to more stretch as compared to men's garments. Hence, fasteners like hook and eyes are favourable to be added on women's garments. Similarly button and button holes serve the purpose of fastener in men's garments. Fastener should also be chosen according to age of the wearer. It becomes difficult for elder people and infants to open the fasteners of their garments, hence, fasteners such as snap tape, snap buttons etc. which can be easily fastened and opened should be used in their garments.

Following are the common types of fasteners:

TYPES OF FASTENERS

1. Hooks and Eyes

Hooks and eyes are small but comparatively strong fasteners. Though they are mostly applied at single point of a garment opening, such as waistband or neckline, they can also be used to fasten an entire opening. There are several types of hooks and eyes, each designed to serve a particular purpose.

i. Hook: is always sewn on to the back of the overlap of the garment. Work overcasting stitches around the rings and across the bar of the hook.

Fig.3.40:Hook

ii. Eye : It is of two types

- **Metal Eye:** to fix metal eyes (round or straight) work buttonhole stitches around the rings along the fabric.

Fig.3.41:Metal eye

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- **Thread Eye:** is done by marking two points by positioning the hook. A thread eye is sewn as long as the space between its two placements marks. Insert needle into fabric at one mark and bring it up at the other mark. Apply 2 -3 more stitches in the same way. Cover all the strands with closely spaced blanket stitches, taking care not to catch the fabric beneath. When finished, bring the needle and thread to the wrong side and fasten securely.

Fig.3.42: Thread eye

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2. Buttons

Buttons should be selected carefully to suit both the weight and colour of the fabric. The advantages of using buttons as closures are numerous. They are both functional and decorative. They should be sewn securely by a strong matching thread in such a way that it allows the buttonholes to close under the button without puckering the fabric. The fabric on which the button is attached should be reinforced to prevent tearing or pulling under strain.

Buttons may be made of fabric, glass, metal, plastic, etc. There are two types of buttons: Buttons with holes and shank type buttons.

Fig.3.43: Buttons

i. Sewing buttons with holes: Sew this type of button using double thread bringing the needle up and down through the holes in the buttons. After working enough stitches, lift the button and wind the thread around the strands tightly 2-3 times. Now fasten the thread on the wrong side.

Fig.3.44(a,b): Four and two hole button

iii. Sewing fancy or shank buttons: bring needle to and fro through the fabric and shank. Stitch through fabric and shank until button is secure. Fasten thread on underside.

Fig.3.45: Sewing shank buttons

3. Sewing Press Buttons or Snaps

Press buttons or Snaps are a kind of small fasteners having less holding power than hooks and eyes. It is best to use them where there is not much strain on the opening. Each press button has two parts -- a ball and a socket. The socket is placed on the underlap of the placket while the ball is attached to the overlap of the placket. To attach press buttons or snaps to the fabric, work buttonhole stitch around the holes of the press buttons along the fabric.

Fig.3.46: Sewing press buttons

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4. Buttonholes

Buttonholes are slits cut in garments to hold buttons in place. The raw edges of the slits are finished with buttonhole stitches, zigzag stitches or fabric binding made of self or contrasting material. These have functional as well as decorative uses. Button holes are worked on the overlap before the buttons are fixed. They may be placed vertically or horizontally on the garment. Horizontal buttonholes are worked on the crosswise grain and hold the front securely even on tight fitting garments whereas vertical buttonholes are worked on the lengthwise grain and exactly on the centre front line parallel to the centre front edge. They are used for shirts, pants, fly openings etc. where there is no great strain across the garment.

There are two types of buttonholes:

i. **Worked Buttonholes:** can be made by hand or by machine (ordinary machine or with an automatic machine which has a buttonhole attachment). Hand or machine worked buttonholes are made on the face of the garment after the garment is completed.

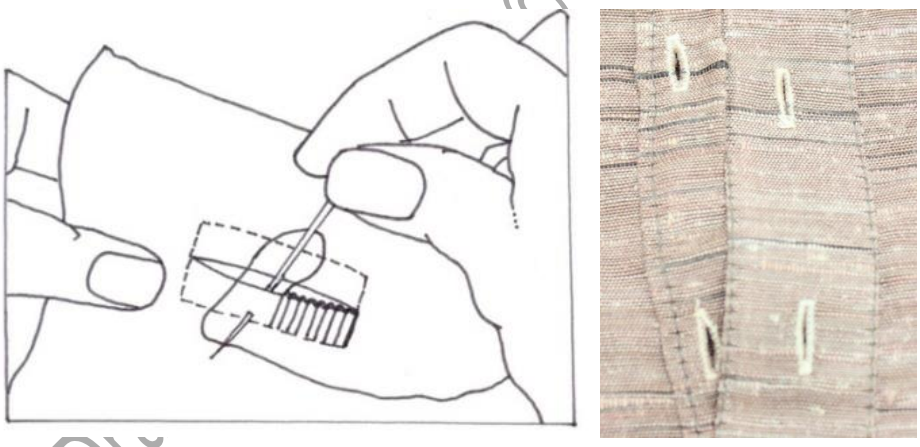

Fig.3.47 (a,b): Worked buttonholes by hand and machine

ii. **Bound Buttonholes:** are made of separate strips of fabric and are suitable for jackets, coats, sherwani, woollen dresses.

Fig.3.48: Bound buttonhole

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5. Button Loops

They are made of bias tubing, thread or cord. They are placed in the seam or fold edge.

Fig.3.49: Button loops

6. Eyelets

Eyelets are mainly used for lacing front openings decoratively. To make an eyelet cut a circular hole and work buttonhole stitches around it.

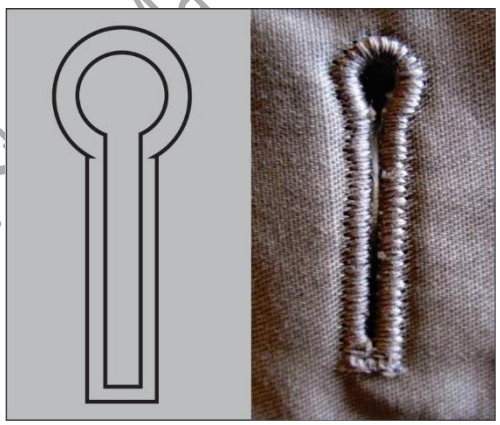

Fig.3.50: Eyelet

7. Zippers

These are made of metal or nylon chains. The nylon chain is lighter in weight and more flexible than the metal chain. There are six basic types of zippers and it is important to select one designed for your particular purpose. Some of these commonly used zippers are explained below:

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Fig.3.51: Zippers

Skirt zipper: is available in 7 or 9-inch length and opens at the top.

Dress zipper: is closed at the upper edge with a bridge top stop, available in 10, 12 and 14-inch lengths. Use the longest length in tight - fitting dresses.

Neckline zipper: opens at the top and used for necklines, sleeves, housecoats or underarm blouse plackets.

PLACKET

These are an opening in upper or lower part of the garment, mostly at the neck, waist of skirt, pair of a trouser and cuff of sleeve. They are used to allow putting on or removing garment easily. In modern times plackets are also used as a design element.

It is generally a double layer of fabric that holds the fasteners in a garment. Plackets are finished edges of a garment opening. They give support and strength to stressed fasteners. Two sides of plackets generally overlap each other to protect rubbing of fasteners against the skin and also to hide the underlying clothing.

Types of plackets: There are different types of plackets such as French placket, concealed placket, classic front placket, partial button placket, bound placket etc. some of the plackets are shown in figures:

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a) French placket

A French placket is type of placket which is made by folding the placket edge inwards and no stitching is visible on the outer side of the garment. This gives a neat look to the placket. These are generally used in shirts.

Fig.3.52: French placket

b) Concealed placket

A concealed placket is a placket where the fasteners are hidden under the top layer of the placket. This type of placket can be used in kurta, shirts, skirts, dresses etc..

Fig.3.53: Concealed placket

c) Classic front placket

A classic front is a type of placket in which either a separate strip is added to create a placket or the fabric is folded and stitched to create a visible strip of raised fabric. This placket gives symmetry to the garment. It can be majorly be seen in formal shirts.

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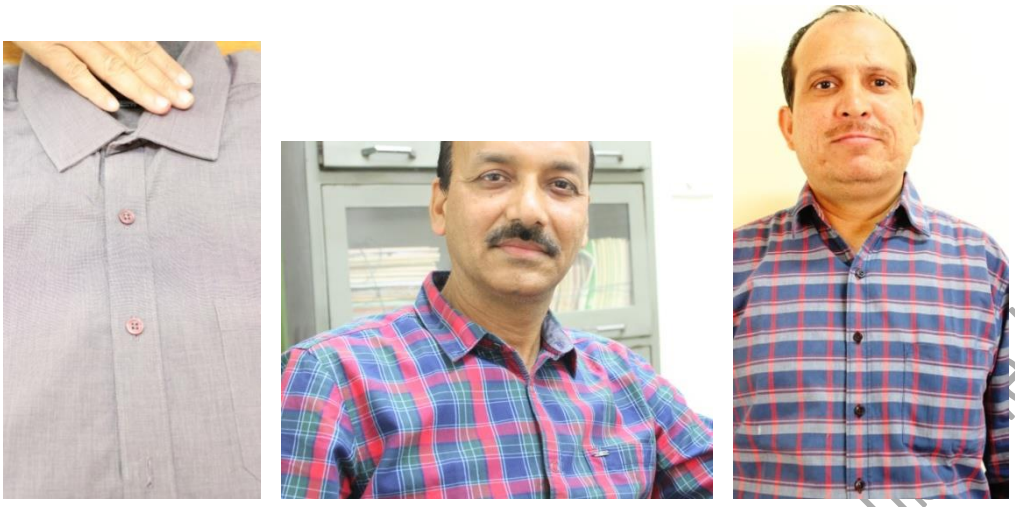

Fig.3.54: Classic front placket

d) Bound placket

A bound placket is a type of placket which is added in the garment as a finished edge of a slit. These are generally seen in sleeves, children wear, women's wear.

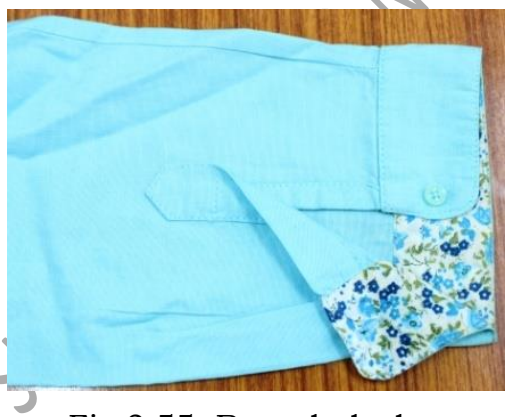

Fig.3.55: Bound placket

e) Partial button placket

A partial button placket is a type of placket which extends to a short distance instead of full length of the garment. This is generally seen in kurta.

Fig.3.56: Partial button placket

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Construction process of placket is given below:

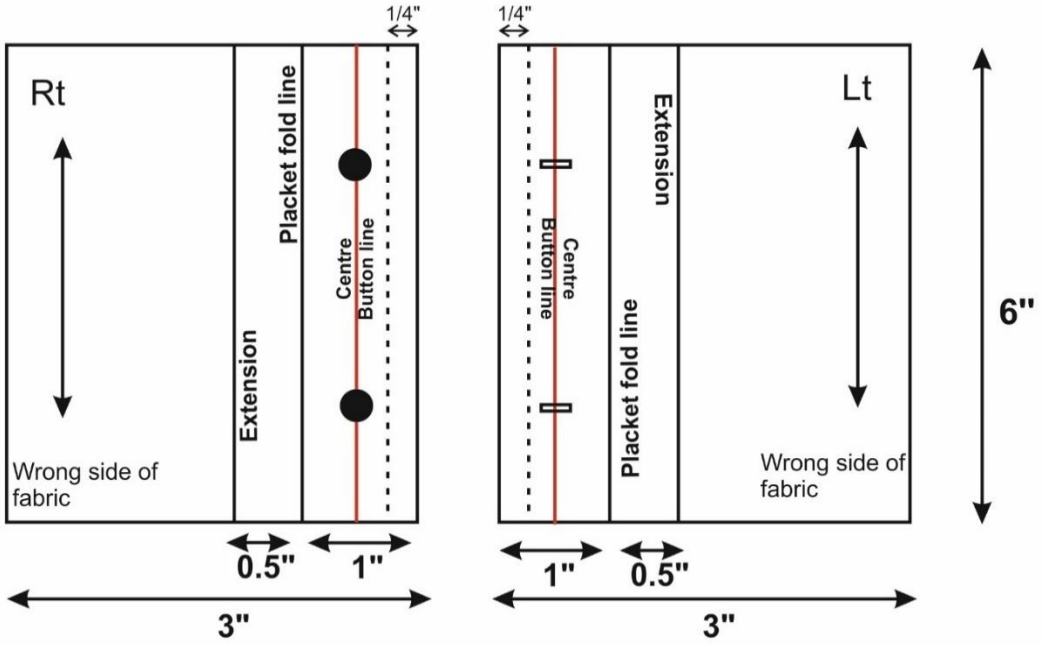

Fig.3.57: Preparation of sample for placket

Sample size- 6inch X 6inch

Placket fold- 1inch

Placket extension- 0.5inch

Preparation of sample:

1. Take a sample of 6inch X 6inch.
2. Divide the width of the sample into two equal parts i.e 3inch each.
3. The size of each piece is 3inch X 6inch.
4. On the wrong side (WS) of fabric of one piece mark it as right side(Rt) and mark other as left side (Lt).
5. Mark placket extension line on both the pieces 1.5 inches from the edge as shown in figure.
6. Mark placket fold line 1 inches from the outer edge as shown in figure.
7. Now, mark the button line and hem line on the placket fold as shown.

Placket construction:

1. Fold the pieces on the wrong side at the placket fold line.
2. Place the folded pieces as shown in figure (Rt over Lt).
3. Make sure that the button of both the pieces coincide each other.

4. Finish the placket by hem stitching at the ¼ inch mark from the outer edge of the placket fold.
5. Attach buttons on the button line of right side of placket and make buttonholes on the button line of left side of the placket.

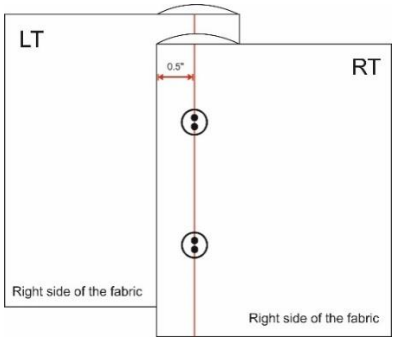

Fig.3.58: Construction of sample for placket

TRIMS

Trimming material is the material used to provide functionality and/or decoration to the garments or any other article. Trims are mainly the decorative material, surface treatment, or detail such as braids, laces, tassels, piping, ribbons, sequins etc. that are used to embellish a garment or an article. There are various types of trims. Decorative trims are like tassels, embroidered appliqués, patch, and lace etc. These are purely used to increase the garments appeal, enhance the aesthetics of the garment**.** Functional trims like label, binding, edging etc. are also used in a garment. There are many trimming material available in the market, it can be selected as per the requirement of the garment or article some of them are given below:

Tassels

1. These are used to add design element to the garment.
2. It is a soft trim which is used at various places in a garment to create emphasis.
3. These are used at the necklines, sleeve edges, borders, side slits etc.

Fig.3.59: Tassels

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Laces and braids

Laces

1. The term lace refers to the type of open structure. It was earlier made by hand but now machine-made laces are commonly available.
2. Laces are soft trims.
3. Lace is used both for decorative and functional element in clothing
4. Scalloped edge laces are also available
5. Laces are used in blouses (top), dresses, lingerie (women undergarment), bed linen, napkins, handkerchiefs etc.

Braids

1. Braids are both detachable and fixed
2. Braids are narrow flat fabric or type of narrow tube structures similar to shoe laces.
3. Braids are produced by interlacing yarn /twisted fabric diagonally in a form of plaiting.
4. Can be used in binding around medium and heavy weight garments.
5. Can be made from polyester, wool and acrylic.

Fig.3.60: Laces

Binding: are functional trims and are used to the finishing of edge of the garment. Like Hem finishing, Necklines, Armholes, Opening.

Fig.3.61: Binding

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Edgings: are applied on the edge in the garments like hem, ruffles, piping, laces, ribbons, tapes, etc. These are commonly used to finish bottom hem, sleeve edges, neck openings etc.

Fig.3.62: Lace edging

PRACTICAL EXERCISE

Activity 1: Identify type of fasteners and plackets on any 3 garments.

Materials Required

1. Writing material
3. Pictures of 3 different garments
4. Adhesive

Procedure

1. Collect pictures of 3 different types of garments from internet
2. Cut pictures very neatly with scissors.
3. Paste them on the chart sheet.
4. identify type of fastener and placket on the garment.
5. Label the pictures for the fastener and plackets.
6. Place the chart in classroom/practical lab.

Activity 2: Prepare samples of fasteners and plackets.

Materials Required

1. Writing material
2. Cotton fabric to prepare samples (7" X 7")
3. Adhesive, Scissors

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4. Sewing machine
5. Sewing needle and thread

Procedure

1. Prepare samples of different types of fasteners and placket.
2. Finish the edges of the sample.
3. Attach samples in practical file.
4. Label them and write where they are used.

Activity 3: Prepare a chart of trims.

Materials Required

1. Writing material
3. Pictures of different types of trims.
4. Adhesive
6. Scissors

Procedure

1. Collect pictures of different types of detachable accessories and fixed trims.
2. Cut them very neatly with scissors.
3. Paste them on chart sheet.
4. Label them.
5. Place the chart in classroom/practical lab.

CHECK YOUR PROGRESS

A. Fill in the Blanks:

1. _____ are slits cut in garments to hold buttons in place.
2. Trimming material may be _____ or _____.
3. _____ are applied on the edge of the garments.
4. Braids are produced by _____ yarn/_____ fabric diagonally in a form of plaiting.

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B. Find the following words in the given maze:

(a) fold (b) stitch (c) lacing (d) hook (e) zipper
(f) button (g) shank (h) snaps (i) studs (j) placket

p	z	i	p	p	e	r	m	n
l	o	q	s	h	a	n	k	k
a	r	s	t	o	l	m	o	n
c	z	b	u	t	t	o	n	j
k	a	r	d	n	h	x	y	m
e	j	l	s	t	i	t	c	h
t	o	n	l	a	c	i	n	g
f	m	r	s	n	a	p	s	j

C. Short answer questions:

1. Explain different types of fasteners and write their uses.
2. Explain different types of plackets with diagram.
3. Write short notes on:
   a) Eyelets
   b) Zippers
   c) Worked button holes
   d) Laces and braids
   e) Tassels
4. Explain the different types of trims.

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SESSION 6: GARMENT COMPONENTS

To construct a garment, different parts are sewn together. These different parts are known as garment components. For example: front, back, neckline, sleeves, collar, yoke, cuffs, placket and pocket.

DIFFERENT GARMENT COMPONENTS

1. FRONT

The section that covers front body of the garment is called front. Its shape depends on our measurement and garment design.

2. BACK

The section that covers back body of the garment is called back.Its shape depends on our measurement and garment design.

3. NECKLINES

A neckline is the opening in a garment that creates space for the wearer's head to slip into the garment.

Necklines are finished mainly in two ways: One by facing and other by binding. Piping or binding can be of the same or contrasting colour and can be used on neck of any shape. If one is not using a piping then in round necks a bias strip is used, which is stitched and turned inside and hemmed. For rest of the necks facing is necessary.

For the garments with lining stitch the lining at neck with its right face touching right face of fabric, and turn it inwards. In this finishing, there is no need of piping or facing. In this case, after turning inwards the lining gives a fine stitching on the edge of the neck. Neckline in width is taken as 1/12 chest (folded fabric) is total 1/6 chest - in depth according to the 1/6 chest +1.3mm However, it differs according to the choice of the customer.

Necklines are classified as-

- Standard or Basic

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- High or Raised
- Scooped (Widthwise, lengthwise or both)

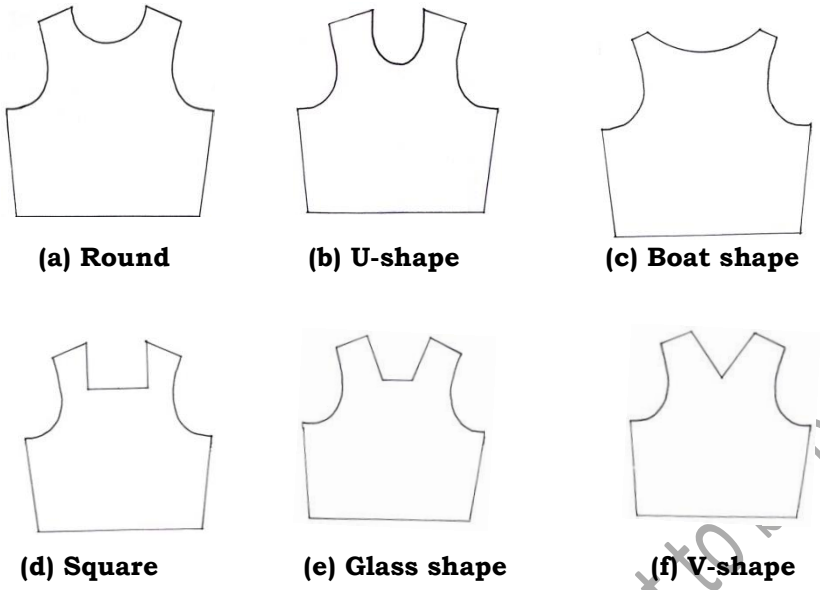

Fig. 3.63 (a-f): Different type of necklines

4. SLEEVES

It is the part of a garment which covers the arm at different levels. The sleeve joins the garment in an armhole that encircles the arm over the shoulder. Varieties of sleeve designs are available, and each variation requires different sewing techniques. Variation can be created by changing its length, width and adding fullness.

Change in length develops sleeves like cap, short, elbow length, three-quarter length and full length. Change in width develops sleeves like fitted, bell or loose. Whereas addition of fullness in sleeves develops sleeves like puff, bell, draped, or gathered style. A wide range of sleeve designs are developed from the basic sleeve sloper.

Sleeves have been used as a device for changing the silhouettes of a garment. It is a part of a garment which wholly or partly covers a person's arm. Sleeve length varies from barely over the shoulder (cap sleeve) to floor-length. It can be classified in two categories one is Set-in-sleeves and another is Bodice combination sleeves.

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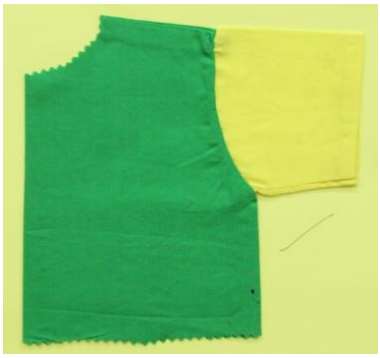
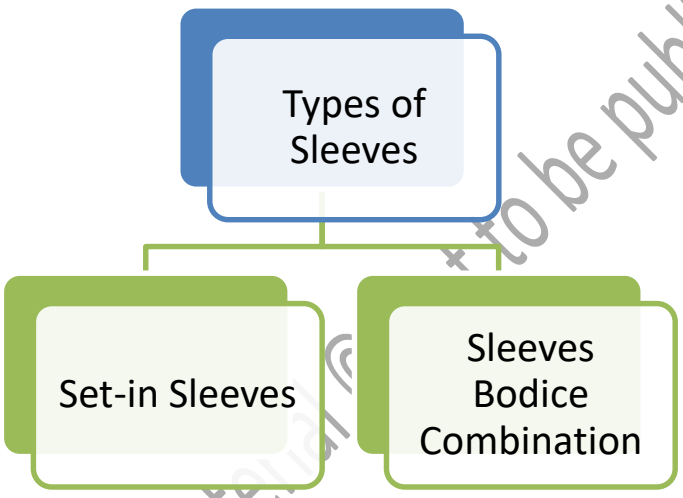


Fig.3.64:Plain sleeve



Set-in-sleeves: is a sleeve that is attached with the armhole of the body of the garment. They are eased, gathered and stitched into the bodice armhole seam to create variations in the sleeves. Design modifications in the sleeves are possible like length, amount of fullness, and hemline finishes creating variety of sleeve styles, they can be fitted or flared, and cut to any length. Puff, petal, bell, cap, bishop, leg-o-mutton, cowl etc. are the type of set-in-sleeves.

(a) Puff sleeve: is a sleeve with gathers/fullness either on both top and bottom or only at top or bottom. There are three types of basic puff sleeves, those with fullness at hem, fullness at cap and at both hem and cap.

Fig. 3.65: Puff sleeve

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(b) Petal sleeve: is joined at the top two edges overlapping. There will be no underarm seam for this sleeve. It resembles a petal as the sleeve sections cross over each other at the cap. This is also known as tulip sleeve, crisscross sleeve or overlapped sleeve.

Fig. 3.66: Petal sleeve

(c) Bell sleeve: has a full flare at the hem giving it a bell shape. It falls into flare at the lower edge creating a bell shape. Bell sleeves may have varied length; it can be finished with a facing or narrow hem.

Fig. 3.67: Bell sleeve

(d) Cap sleeve: are very short sleeves which only covers the upper part of the arm. The cap sleeve is often self-lined.

Fig. 3.68: Cap sleeve

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(e) Bishop sleeve: is a long, full sleeve which fares out at sleeve edge which is either shirred, pleated, tucked or darted into a cuff, binding or elastic, giving it a balloon like appearance at the sleeve edge.

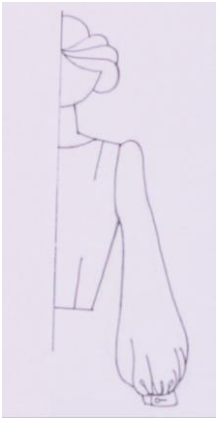

Fig. 3.69: Bishop sleeve

(f) Leg-o-mutton sleeve: is gathered at cap and tapered from elbow downwards for tight fit from elbow to wrist. The sleeve adopts puffed sleeve look at top but has a tapered fit from the elbow onwards which gives it look of the leg of mutton.

Fig. 3.70: Leg-o-mutton sleeve

Sleeve bodice combination:

Patterns may be developed with the sleeve and the bodice attached, thereby eliminating the armhole seam. Three basic sleeves in this category are the raglan sleeve, dolman or magyar and the kimono sleeve.

(a) Raglan sleeve: is a sleeve in which part of sleeve is combined with part of the bodice armhole and shoulder area. Raglan is extended to accommodate the top part of the bodice, achieving a yoke effect. This sleeve is joined to the bodice with a diagonal seam running from the underarm at front and at back to the neckline. It has many variations, from fitted to loose, from hemmed or gathered into a cuff. A raglan sleeve can be cut in one piece with a dart at the shoulder or with an outside seam to help shape the shoulder. Different cuts and fabrics affect the look of raglan sleeves.

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Fig.3.71:Raglan sleeve

(b) Kimono sleeve: is a long one piece sleeve that is an extension of the bodice and extends to the wrist. They are cut with the bodice; the bodice front and sleeve front are one pattern and the bodice back and sleeve back are one pattern. The shoulder seam extends from the neckline to the wrist line and is called the over arm seam; the side seam of the bodice and the underarm seam of the sleeve are joined in one continuous seam line.

Fig.3.72:Kimono sleeve

(c) Dolman or Magyar: In this sleeve the bodice and the sleeve are one piece of with no armhole. Sleeve is cut as an extension of the bodice. The sleeve would be best as 3-quarter length or even wrist length. Sometimes a gusset is added to the underarm for ease. When the arm is bent or is dropped, a very dramatic folds form. Dolman sleeves are similar to kimono sleeves with more fullness at the armhole seam line.

Fig.3.73:Magyar sleeve

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Construction Technique of a Sleeve

SLEEVE (Fig.3.74 a-g)	
Description	**Figure**
STEP 1: **Cut the cloth as bodice part**	
STEP 2: **Cut the sleeve**	
STEP 3: **Fold the hem of the sleeve**	
STEP 4: **Stitch the hem of the sleeve**	
STEP 5: **Sleeve hem is finished and is ready to be attached to the bodice**	
STEP 6: **Stitch the side seam and see the finished sleeve**	
STEP 7: **Attach the sleeve to the armhole and stitch**	

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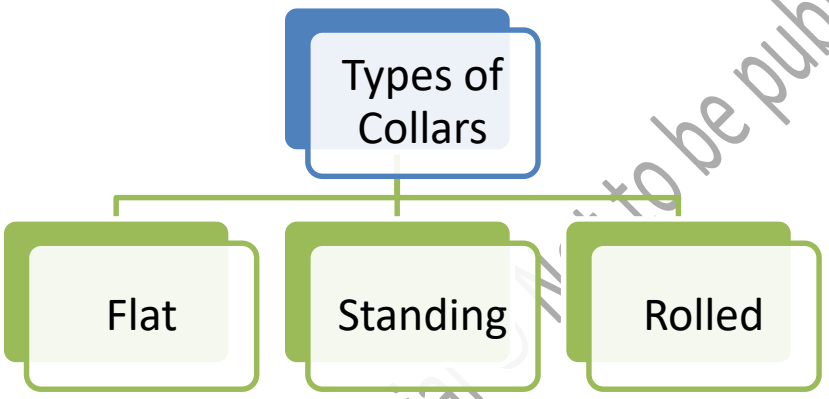
4. COLLARS

A collar is a component of a garment around the neckline. It is also one of the ways to finish a neckline. A collar is a shaped piece of fabric that is visible out of the garment neckline and adds to the design interest in the garment. It serves both functional and decorative purposes. It may vary in width and length or be one piece or two pieces, as per the desired design. Variation of collars may be added by introducing minor changes in the corners from pointed to square, round, curved, scalloped, square or in any direction. Collars require careful sewing. A well-made collar circles the neck without rippling or pulling and has a neat appearance. Pointed tips of both the sides are precise. Edges of the collar are smooth and flat.



Flat collars: are those collars that lie flat on the body regardless of the shape of the neckline. When worn they do not rise up along the neck. For this they have to be made using the shape of the neckline and have to be applied or attached on. Examples are flat peter-pan, sailor's, bertha, cape and puritan collar.

(a) Peter pan collar: is a round flat collar, which can be one piece or two pieces. It sits flat and has rounded front collar edge; however, the designer can change the outer collar edge to any shape. It looks nice and gentle on children's clothing.

Fig.3.75:Peter pan collar

(b) Sailor collar: has a wide band at the back that is tailored down to a deep 'V' neck at the front. It is a design feature of traditional sailors uniforms-

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hence it is called the sailor collar. It is often used for children's outfits and summer clothing.

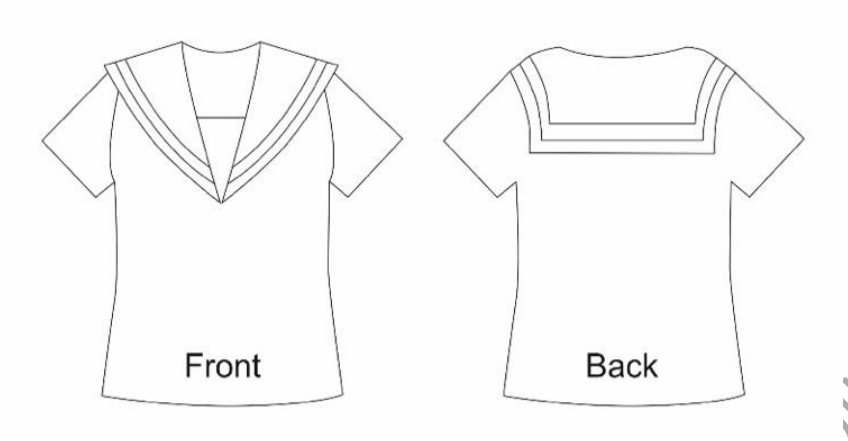

Fig.3.76:Sailor collar

Standing collars: extends above the neck seam line of the garment. This is a close fitting collar which stands up stiffly against the neck. It is cut on the bias in two pieces with an opening at the front or the back. Most standing collars are straight, but they can be curved so that they stand at a slight angle. Mandarin, stand, polo, etc. are the type of standing collar.

(a) Mandarin Collar: is slightly more shaped and fits closer to the neck; it is also called Military, Nehru Jacket and Chinese collar.

Fig.3.77:Mandarin collar

(b) Stand Collar: is a band which stands up over the neck seam line.

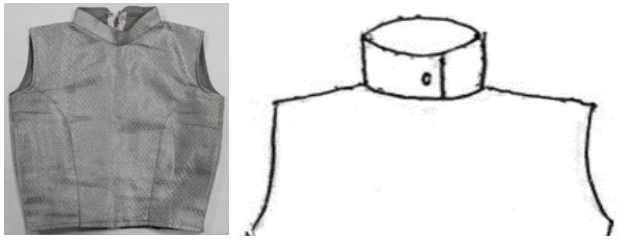

Fig.3.78: Stand collar

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(c) Polo Collar: is close fitted, round and high collar that folds over and covers the neck. It is always cut on bias.

Fig.3.79: Polo collar

Rolled collars: are different from flat collar by a roll line that breaks the collar into stand and fall areas. It is made from one piece of fabric cut on the bias and folded in half before stitching. Firsts stands up from the neck edge, then falls down to rest on the garment. The line at which the collar begins to fall is called roll line. Shirt collar, shawl collar etc. are the type of rolled collar.

Fig.3.80: Roll collar

(a) Shirt collar: with a band is composed of two separate pattern pieces the band and a collar section. A seam attaches the stand and fall of the collar along the roll line. The band or the collar stand is designed with a button and a buttonhole closures.

Fig.3.81: Shirt collar (with checks and line)

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(b) Shawl collar: is a design in which the collar is cut as an extension of front bodice and then stitched together at the center back. The collar folds over the front of the garment and rolls back to create a lapel. This collar always is worn open. The basic shawl collar is developed by attaching a full roll collar to the bodice front.

Fig.3.82: Shawl collar

Construction Technique of a Shirt Collar

SHIRT COLLAR WITH STAND (Fig.3.83 A-P)	
DESCRIPTION	**FIGURE**
STEP 1: Iron the collar fusing by keeping it on the collar fabric.	
STEP 2: Give edge stitch to the fusing with the fabric.	
STEP 3: Insert the thread into the fabric on collar point and stitch for the sharp edge.	

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STEP 4: Trim the extra fabric.	
STEP 5: Trimmed piece.	
STEP 6: Pull the thread from the fabric.	
STEP 7: Smooth the material to make it flat.	
STEP 8: Give 1/4" Stitch or edges stitch of the fabric.	
STEP 9: Give 1/4" Stitch on piece of a collar.	
STEP 10: Keep a fabric on the finished collar piece.	

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STEP 11: Attach both the collar pieces together.	
STEP 12: Stitch the collar pieces.	
STEP 13: Trim the extra fabric.	
STEP 14: Iron the collar.	
STEP 15: Finished collar.	

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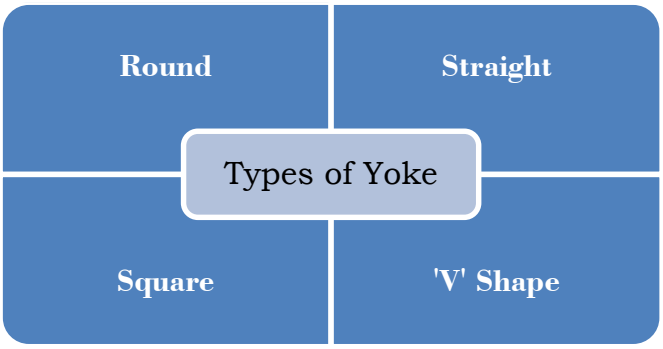
5. YOKE

A yoke is a shaped pattern piece that forms the part of garment. It is placed around the neck and shoulders, or around the hips and waist. It provides support to a gathered skirt or the body of a shirt. It is one of the design elements that can eliminate dart intake and stabilise the upper part of garments. The yoke opens the potential for decorative effects with shaped seams, dart equivalents, and details like topstitching. Design options expand with the addition of a yoke at the shoulder and hip. It can be decorative and functional.



1. Round Yoke: is a round shape yoke. Mostly used on curved areas in a garment such as necklines.

Fig.3.84: Round yoke

2. Straight yoke: is a straight piece of fabric which is attached to the garment in form of a yoke.

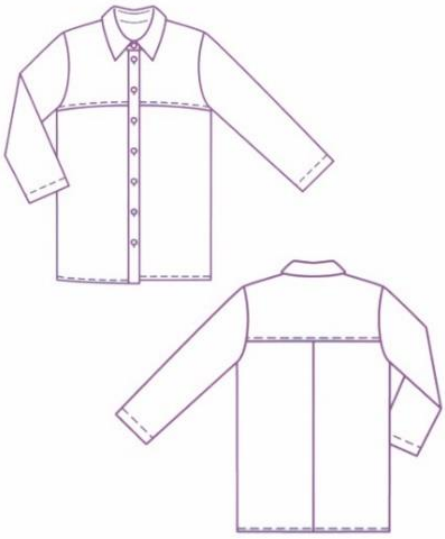


Fig.3.85: Straight yoke

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3. Square yoke: is a square piece of fabric which is attached to the garment in form of a yoke. It is mostly used at the necklines.

Fig.3.86: Square yoke

4. 'V' Shape yoke: is a V-shaped piece of fabric which is attached to the garment in form of a yoke. This yoke is mostly used at waistline or midriff.

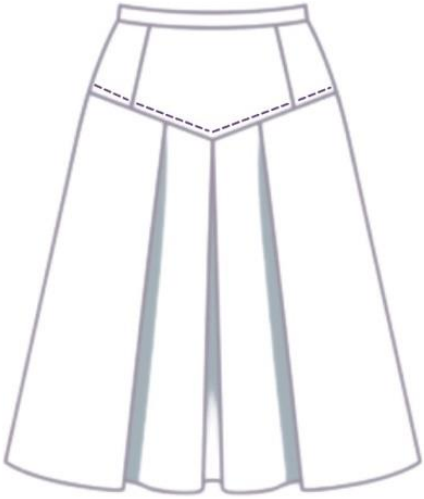

Fig.3.87: 'V' Shape yoke

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Stitching technique of a yoke

The following steps are involved in stitching of yokes:

- Cut two identical pieces of yokes
- Start by stitching the inside yoke piece to the back of the shirt. Take the wrong side of the shirt facing the right side of the yoke piece, and then baste them together with a 0.6 cm seam allowance.
- Attach the outer yoke piece with the right sides of the yoke facing shirt back stitch through all three layers grade them to avoid bulky seam allowances.

- Press both yokes up away from the shirt back and topstitch along the center back seam.
- To top stitch center back yoke seam flatten the shirt back with yoke pieces and iron.
- Pin the center front pieces to the outer yoke with right sides together and stitch.
- Cut the yoke seam allowance and press seam towards yoke.
- Fold under the seam allowance of the inside yoke and press.
- Top stitch along the yoke seam line
- Stitch the two layers of the yoke together in the seam allowance along the neck and armhole edges.

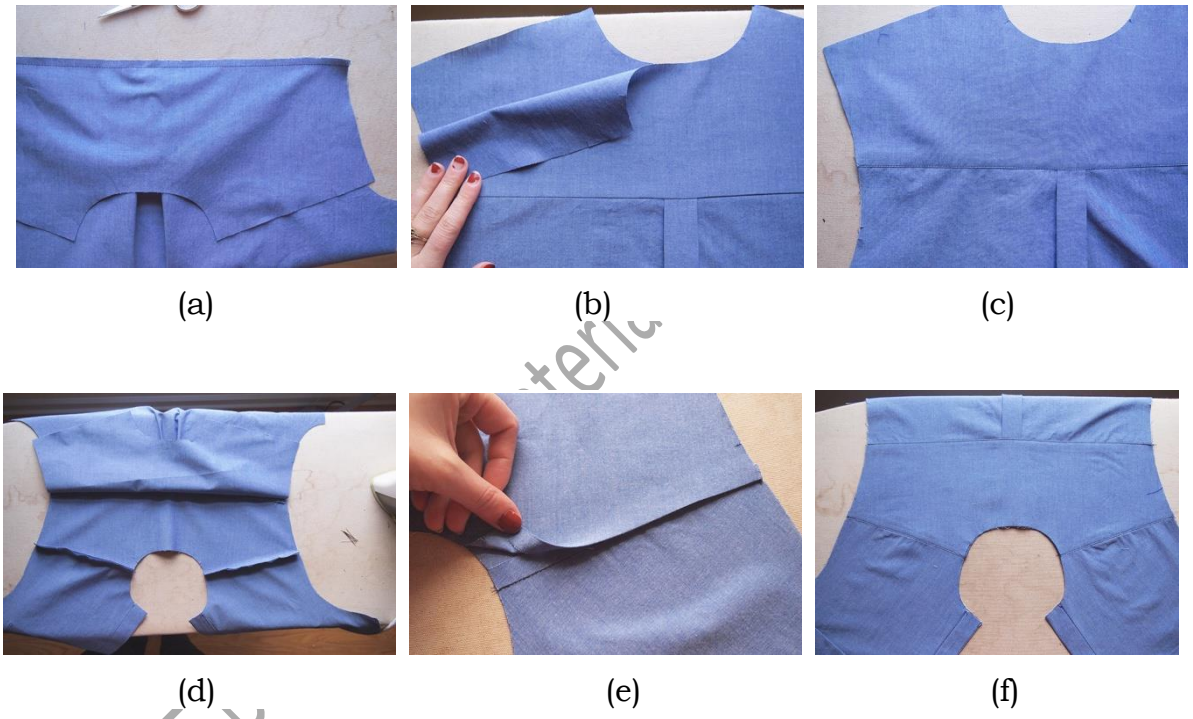


Fig.3.88 (a-f): Steps of yoke preparation

6. CUFF

Cuffs are the banded or turned-back finishes at the lower edges of sleeves and pant legs. Crisp, well-constructed cuffs contribute to the overall appearance of a garment's quality.

Cuffs are made by turning back (folding) the material or garment by attaching a separate band of material. A cuff may be made with ornamental border or it may be decorated with some other trimming.

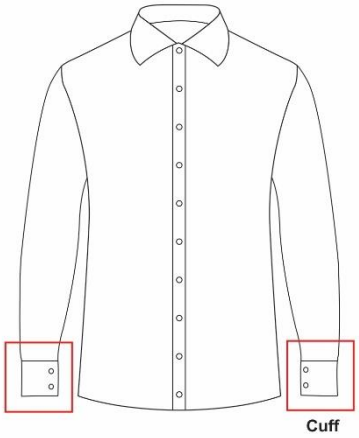
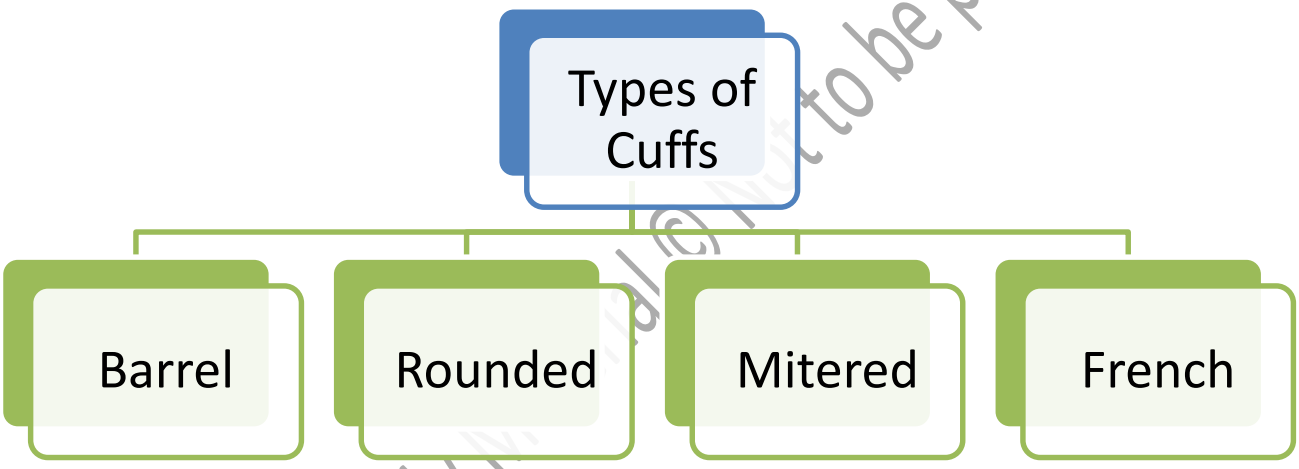


Fig.3.89: Cuff



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1. Barrel cuff: is the most common type of cuff which is straight, open-band cuff style. Long sleeved shirts and blouses usually feature barrel cuffs. The barrel cuff laps and buttons at the wrist.

(a) One button barrel cuff: More subtle and shorter in length.

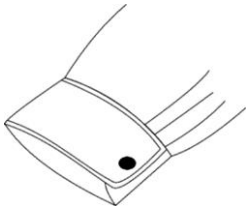

Fig.3.90: One button barrel cuff

(b) Long one button barrel cuff: More formal and longer in length.

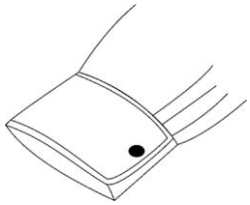

Fig.3.91: Long one button barrel cuff

2. Rounded cuff: It is used for formal wear.

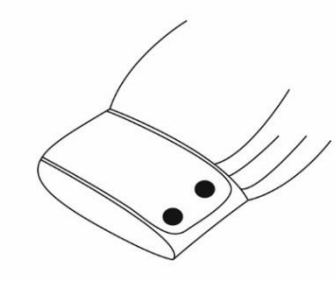

Fig.3.92: Rounded cuff

3. Mitered cuff:

(a) One button mitered cuff: The one button mitered cuff is a dressy cuff. It has elegant mitered angled at the button closure.

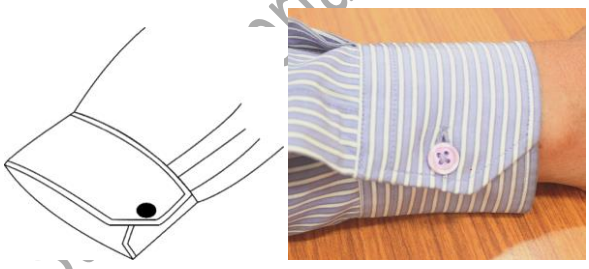

Fig.3.93: One button mitered cuff

(b) Two button mitered cuff: The two-button mitered cuff is a popular dress shirt cuff.

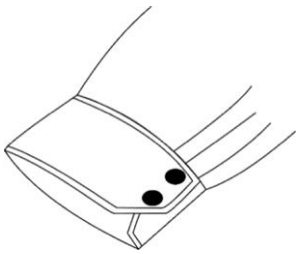

Fig.3.94: Two button mitered cuff

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4. French cuff: It is the most formal style of open- band cuff. The French cuff is constructed like the barrel cuff but twice as wide. The cuff is folded back on itself so the cuff is doubled. The opening edges are superimposed rather than lapped and fastened with cufflinks or studs through the buttonhole in each layer.

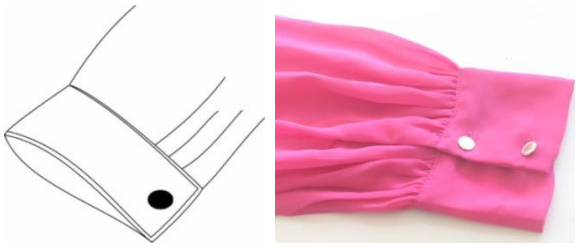
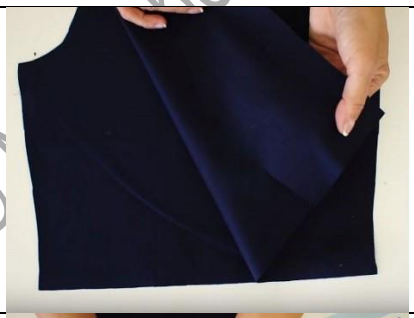


Fig.3.95: French cuff

STITCHING TECHNIQUE OF A CUFF (Fig.3.96 A-I)	
DESCRIPTION	**FIGURE**
Cut two pieces of fabric for the sleeve and another two pieces for the cuff/interfacing. Cuff pieces should be exactly of the same size as sleeve. Put an extra length on the sides for the seam allowance	
Cut a slit on both the pattern pieces	
Put the pattern piece and interfacing together. Put the interfacing on top of each pattern piece with the right sides together.	
Stitch the top edge of the cuff with a half inch seam allowance. Turn from where the slit is and stitch the top of it.	

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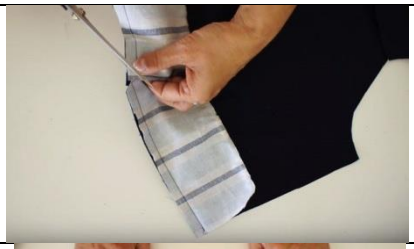
Cut right on the top of the slit and on the corners.	
Turn the cuff right sides out and iron it.	
To lock or close all the way along the sides, put the right sides together of the cuff and sew along the sides.	
Sew the sides of the cuff right on the seam allowance. After sewing, iron the cuff. To make the cuff stay in order, look for the seam allowance of the cuff and sleeve on the sides. Pin it and sew.	
Turn the right sides out.	

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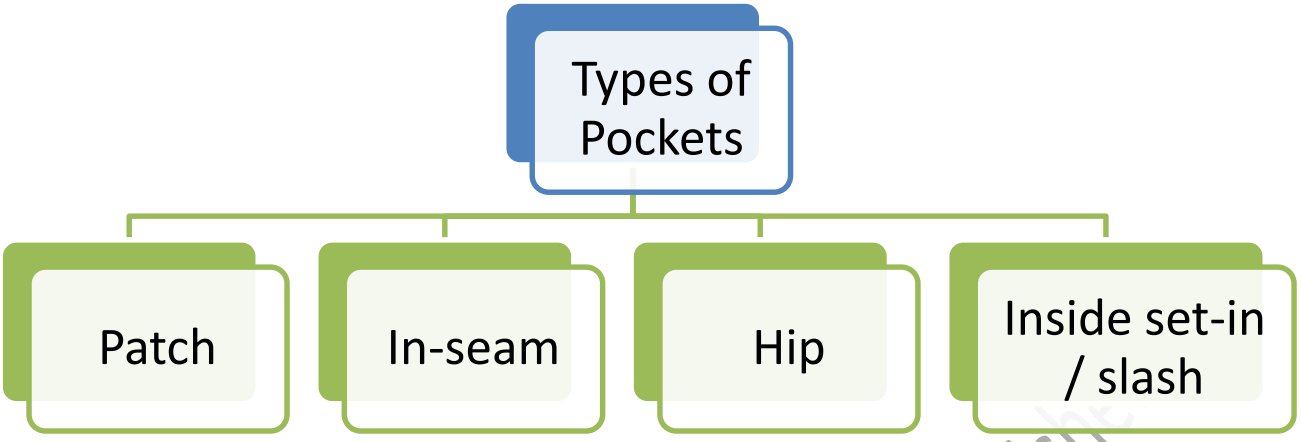
7. POCKET

A pocket is a piece of fabric attached on the outside of a garment or into a garment seam or opening. They are used to carry small articles, such as handkerchiefs or coins. Besides being functional, they add style to the design of the garment. Pockets are designed in a variety of sizes and shapes.

Fig.3.97: Flap Pocket



1. Patch Pockets: are stitched on the outside the garment and can be functional and decorative. It may have rounded or square corners at the base. A patched flap for the pocket can be made to match. Patch pockets can be applied on pants, shirts, skirts, blouses, jackets, or coats.

Fig.3.98: Patch pocket

2. In-seam pockets: are sewn inside a seam. They can be placed anywhere along the seam. The in-seam pocket needs to be stitched neatly into the side seam of a garment. It is not visible when the garment is worn. Usually, they are placed inside the side seam of the waist to hipline, because the hands naturally fall at that length and accessing the pockets is easy.

Fig.3.99:In-seam pocket

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3. Hip pockets: are the curved pocket design on the back side of the pants, trousers and skirts. It is stitched into a cut opening made with a single or double welt, with or without a pocket flap. These are usually referred to as “bound” pockets. They differ only in the style of the welts and/or flaps that are sewn into the slashed opening. The four most common bound pockets are:(a)The welt bound pocket, (b) The one-piece bound buttonhole pocket, (c)The lined bound buttonhole pocket, (d)The bound flap pocket

Fig.3.100:Hip pocket

4. Inside set-in pocket or slash pocket

It is stitched into a cut opening made with a single or double welt, with or without a pocket flap. These are usually referred to as “bound” pockets. They differ only in the style of the welts and/or flaps that are sewn into the slashed opening. The four most common bound pockets are:

- The welt bound pocket
- The one-piece bound buttonhole pocket
- The lined bound buttonhole pocket
- The bound flap pocket

Fig.3.101: Slash pocket

Construction Technique of a Patch Pocket

PATCH POCKET (Fig.3.102 a-e)	
DESCRIPTION	FIGURE
STEP 1: Cut the pocket in the desirable shape and size from a piece of fabric.	

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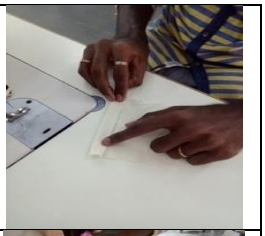
STEP 2: Turn the pocket opening 1” at the inner side. Turn all the other sides by ½”.	
STEP 3: Iron the pocket piece.	
STEP 4: Attach the pocket piece to the bodice part & give edge stitch.	
STEP 5: Finished pocket.	

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PRACTICAL EXERCISE

Activity 1: Prepare a scrapbook for different types of garment components.

Materials Required

1. Writing material
2. Pictures of different types of garment components.
3. Adhesive
4. Scissors

Procedure

1. Collect pictures of different types of garment components.
2. Cut them very neatly with scissors.
3. Paste them on the scrap book
4. Label them and write where they are used

Activity 2: Prepare samples of different garment components.

Materials Required

1. Writing material
2. Cotton fabric to prepare samples (7" X 7")
3. Sewing machine, thread and needles (sewing machine and hand sewing)
4. Adhesive, scissors, ruler

Procedure

1. Prepare samples of different types of garment components
2. Finish the edges of the samples
3. Attach samples in practical file

CHECK YOUR PROGRESS

A. Fill in the Blanks

1. _____ is the part of the garment which covers the arm at different levels.
2. A collar is a component of a garment around the_____.
3. A yoke is a _____ pattern piece that forms the part of a garment.
4. ____ - ____ pockets are sewn inside a seam.

B. Short answer questions

1. Write the uses of collars and explain their different types?
2. Explain different types of sleeves.
3. Explain cuffs and its different types.
4. Explain pockets and their types.
5. Describe the different types of yokes.
6. Explain different types of necklines with diagram.

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MODULE-4: MEASUREMENT TECHNIQUES

In the clothing industry, sizing quality refers to the dimensional accuracy of the finished garment and as such, the checking of measurements is an integral part of quality control procedures in most factories. However, the fundamental issue of sizing quality is not whether the garments are dimensionally accurate but rather, if the given measurements are in themselves correct. An important part of the pre-sewing process is taking accurate measurements to make sure of the correct fit. This unit gives instructions in the method and importance of body measurements and the technique of recording measurements.

After taking measurements, comes the drafting of the basic bodice block to create an upper garment and skirt or pant block for lower garment. This unit, also deals with the principles of drafting and the basic bodice block which will help in pattern making for any measurement of draft.

Learning Outcomes
After completing this module, you will be able to: • Describe importance and methods of taking body measurements • Explain pattern making methods • Understand importance and principles of drafting
Module Structure
Session 1: Importance and Method of Taking Body Measurements
Session 2: Pattern Making Methods
Session 3: Importance and Principles of Drafting

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SESSION 1: IMPORTANCE AND METHOD OF TAKING BODY MEASUREMENTS

The development of a garment comprises of various processes. Fit is the most important factor leading to the final acceptance or refusal of any garment. The key for correct garment fitting is the adequate and precise measuring of a body.

Body measurements and their importance

A garment looks aesthetically pleasing only when it fits the curves of the body. A good fit can be achieved by accurate body measurements. Custom made or tailored garments requires a lot of attention to the size and measurements. Hence ,to exercise utmost care and accuracy, a tailor must have the knowledge of techniques of taking body measurements and recording them as per the requirements of designs and cuts in a garment.

While the body measurements are subjective to every individual, garment sizes are standardized based on the anthropometric studies. Such studies classify people into different groups based on the body shape and size. As a result the sizes are standardized by grouping individuals with similar body measurements. Standard sizes are adopted for mass production.

Based on these standard measurements commercial patterns are made available for garment construction. A tailor may use these patterns and alter them for individual requirements or he may create new personalized patterns.

Preparation for measuring

Since the overall look and fit of a garment are dependent on the accuracy of body measurements, it is important for the tailor to take accurate measurements. For taking measurements following points must be considered:

- A superior quality measuring tape must be used, which is strong and will not stretch.
- The metal end of the tape supposed to be used for vertical measurements and the other end for horizontal and circumference measurements.
- The measurements should be taken over a smooth fitting foundation garment and never over bulky garments.
- Comfortable measurements should be taken rather tight or loose ones.
- Hold the tape parallel to the floor for horizontal measurements, and perpendicular to the floor for vertical measurements.
- While taking measurements one should record them in the books.

A tailor must take following precautions while recording measurements:

- While recording measurements a tailor must make sure that the customer or the person whose measurements are to be taken is standing straight up right and not slouching.
- Careful and silent observation on customer style, fit or other deviation in figure proportion to be observed and to be noted in diary.
- One must stand erect in front of the mirror while measurements are to be taken.
- For taking round measurements he must ensure that the measuring tape snugs the body and there is no slack.

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- He must also make the customer feel comfortable while giving his/her measurements.
- He must know when to take straight measurements and when to take circumference measurements.
- While taking circumference measurements, a tailor must make sure that the measurements are taken from the fullest part. For example: round chest or round bust measurements must be taken at the fullest part the chest or bust respectively.
- The measurements must be immediately written on paper so that the chances of forgetting them decreases.

Measurements needed for the construction of garments

Body measurements are taken according to the requirements based on the desired fit and style of the garment. However ,some measurements like round chest/bust, round hip, round waist, round neck, across back, crotch depth, skirt/pant length etc. are crucial for making every garment and hence must be measured for everyone. Some measurements are specific to females (round bust, round under bust, distance between bust points etc.) which must be considered while taking measurements for females. Such measurements are not required for males and hence can be avoided. Measurements for children are however similar for both girls and boys and hence need no special attention while measuring a girl or a boy. Similarly, some measurements can be specific and subjective for each individual according to their individual requirements, especially for differently abled people. For transgenders, the measurements depends on the their individual choice to present themselves as male or female in alignment to societal norms.

Measurements Needed for the Construction of Children's Garments

The measurements needed for the construction of children's garments are given below in Table.4.1.

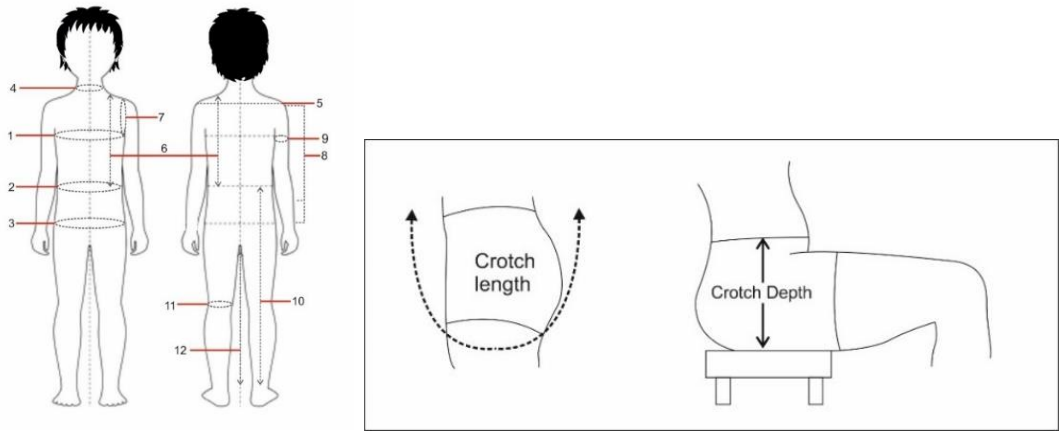

Fig.4.1: Measurement for construction of children's garment

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Table 4.1: Measurements for Construction of Children's Garments

S.NO.	MEASUREMENTS NEEDED
1	Round chest
2	Round waist
3	Round hip
4	Round neck
5	Across shoulder
6	Back and front waist length
7	Armscye depth
8	Short or full sleeve length
9	Round Upper Arm
10	Waist to ankle
11	Round knee
12	Inseam
13	Shirt length
14	Pants or shorts length
15	Crotch length
16	Crotch depth
17	Frock or skirt length

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Measurements Needed for the Construction of Garments for males:

The measurements needed for the construction of men's garments are given below in Table.4.2

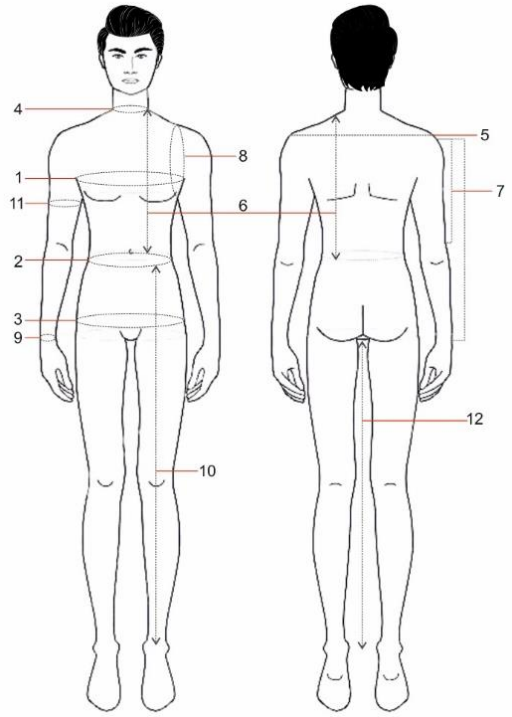

Fig.4.2 Measurement for construction of male's garment

Table 4.2: Measurements for Construction of Garments for males

S.NO.	MEASUREMENTS NEEDED
1	Round chest
2	Round waist
3	Round hip (seat)
4	Round neck
5	Across shoulder
6	Back and front waist length
7	Short or full sleeve length
8	Armscye depth
9	Round cuff
10	Waist to ankle
11	Round upper arm
12	Inseam
13	Crotch length
14	Crotch depth
15	Pant length
16	Shirt length

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Measurements Needed for the Construction of Garments for females:

The measurements needed for the construction of women's garments are given in Table.4.3.

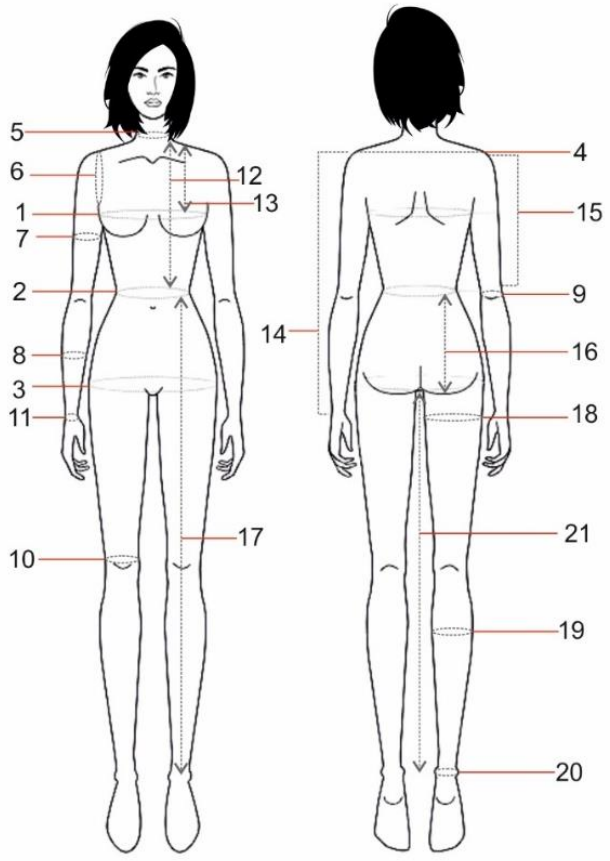

Fig.4.3 Measurement for construction of female's garment

Table 4.3: Measurements for Construction of Garments for females

S.NO	MEASUREMENTS NEEDED
1	Round bust
2	Round waist
3	Round hip
4	Across shoulder
5	Round neck
6	Armscye depth
7	Upper arm circumference
8	Lower arm circumference
9	Elbow circumference
10	Round knee
11	Wrist
12	Back and front waist length
13	Shoulder to bust
14 and 15	Sleeve length (full/half)
16	Waist to hip
17	Waist to ankle
18	Round thigh
19	Round calf
20	Round ankle
21	Inseam
22	Skirt length
23	Body rise(crotch length)
24	Crotch depth
25	Distance between bust points

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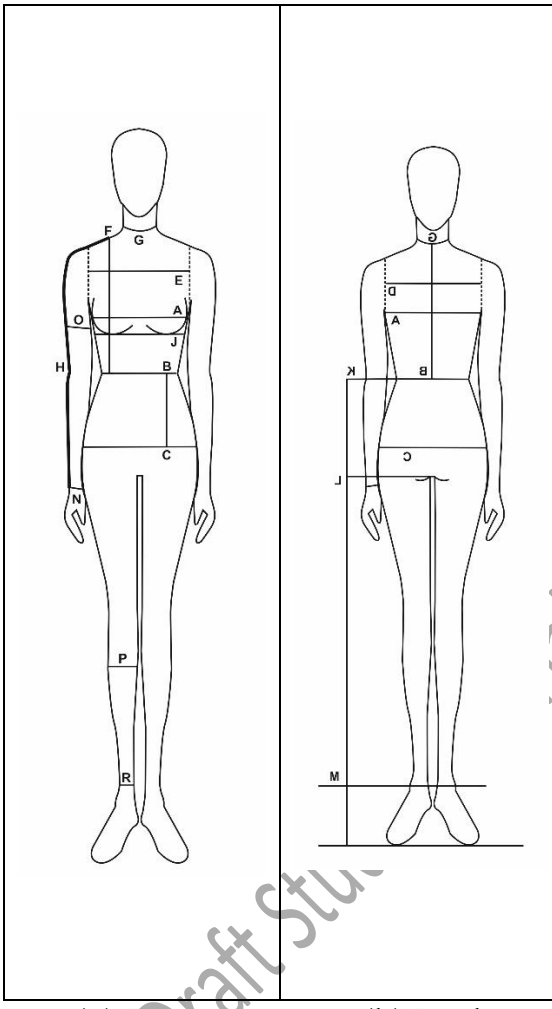
METHOD AND SEQUENCE OF TAKING BODY MEASUREMENTS

The various positions on the body where measurements are to be taken are described below.

1. Female body measurements



Bust	A
Waist	B
Hips	C
Back width	D
Front chest	E
Shoulder	F
Neck size	G
Sleeve	H
Under bust	J
Wrist	N
Upper arm	O
Calf	P
Ankle	R
Nape to waist	G-B
Waist to hip	B-C
Front shoulder to waist	F-B
Outside leg	K-M
Inside leg	L-M

(a) Front (b) Back

Fig.4.4(a,b):Female body measurements

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Bodice Measurements

1. **Bust:** Measure around the fullest part of the bust placing the tape just below the shoulder blades at back (Fig.4.4aA).
2. **Waist:** To be measured around the waist where the pants or bottoms to be worn (Fig.4.1aB).
3. **Hips:** To be measured around the fullest part of the hip (Fig.4.4aC).
4. **Back width**: To be measured across from center of armscye to armscye on back side (Fig.4.4bD).

5. **Front Chest:** To be measured across from center of armcye to armscye (Fig.4.4aE).
6. **Shoulder:** Measure from the neck joint to the arm joint along the middle of the shoulder (Fig.4.4aF).
7. **Neck:** To be measured at the round of neck at just above the collar bone in the front (Fig.4.4aG).
8. **Sleeve:** To be measured with arm bent from highest point of shoulder to wrist Fig.4.4aH).
9. **Under the Bust:** To be measured around the under the bust (Fig.4.4aJ).
10. **Wrist:** To be measured around (Fig.4.1aN).
11. **Upper arm:** To be measured around the upper arm (Fig.4.4aO)
12. **Calf:** To be measured around the calf just below the knee (Fig.4.4aP)
13. **Ankle:** To be measured around the narrowest part of ankle (Fig.4.4aR)
14. **Nape to waist:** To be measured from nape of neck from to waistline passing through the center of the bust (G to B in Fig.4.4a).
15. **Front waist length:** To be measured from edge of neck from shoulder to waistline passing through the fullest point of the bust (F to B in Fig.4.4a).
16. **Shoulder to bust:** Measure down from highest point of shoulder to tip of bust (F to A in Fig.4.4a).
17. **Distance between bust points:** Measure in the horizontal direction, the distance between the two bust points from A in Fig.4.4a).
18. **Back width or across back measurement:** Measure across the back from armhole to armhole about 3 inches below base of neck on line A (P to Q in Fig.4.4b).
19. **Back waist length:** To be measured from the centre point of back neck to the centre point of waistline (G to B in Fig.4.4b).
20. **Armscye depth:** Measure from base of neck at centre back to a point directly below it an in level with the bottom of the arm where it joins the body.
21. **Upper arm circumference:** To be measured from the fullest part of the arm (O in Fig.4.4a).
22. **Lower arm:** Measure around the arm at desired level corresponding to lower edge of sleeve.
23. **Elbow circumference:** Measure around the arm elbow (at H in Fig.4.4a).
24. **Wrist:** Measure around the wrist (N in Fig.4.4a)

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Skirt Measurements

Waist: Same as for bodice (Fig.4.4a)

Hip: To be measured to the fullest part of hip in round. (This level will be about 7 to 9 inches below the waist for an average figure) (C in Fig.4.4a)

Waist to hip: Measure down from waist at centre back to fullest part of the hip (B to C in Fig.4.4b).

Skirt length: As per requirement the length is to be measured from waistline to the desired length.

Leg Measurements

Round thigh: It is measured around the thigh in Fig.4.5

Round knee: To be measured by keeping the measuring tape on the round knee and then folding the leg (calf touches the thigh) to get the correct measurement (Fig.4.5)

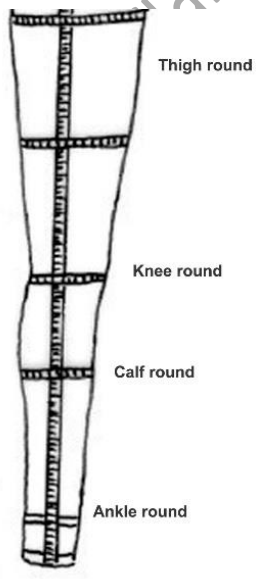

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Fig.4.5: Ladies leg (circumference) measurements

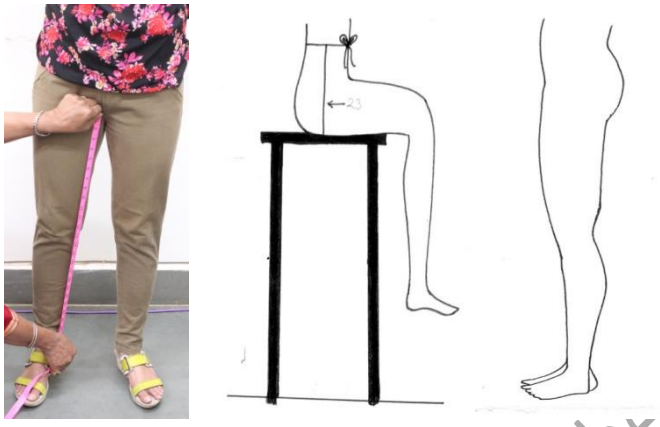
Round calf: It is measured around the fullest part of calf in Fig.4.5

Round ankle: It is measured around the ankle in Fig.4.5

Inseam: Measure down the inner leg seam from crotch to the bottom of the leg as shown in Fig.4.6a.

Body rise: Measure at the side seam from the waistline to the base of a chair/flat surface when seated as shown in Fig.4.6b.

Leg Length: Measure at the side from waist to the foot as shown in Fig.4.6c.



(a) (b) (c)

Fig.4.6(a,b,c) : Ladies leg (length) measurements

2. Male Body Measurements

Many measurements are common for both female and male garments. In addition to women's measurements fewer measurements are required for men's garments which are listed below:

Shirt Length

Shirt length should be measured from base of the neck to desired length usually just below where the seat meets the legs (Fig.4.7).

Fig.4.7: Shirt length

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Pant Length

Pant length is measured from waist to ankle along with side of the body (Fig.4.5)

Fig.4.8: Pant length

Round Cuff Measurement

Cuff measurement is estimated by measuring the wrist loosely and adding ½" overlap extension to it (Fig.4.9).

Fig.4.9: Cuff measurement

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PRACTICAL EXERCISE

Activity 1: Prepare a measurement chart including all the measurements required to construct a female kurta.

Materials Required

1. Writing material
2. Measuring tape
3. A female dummy or a person whose measurement is to be taken

Procedure

Take the female body measurements for the construction of a kurta and fill the details in the following table:

S. No.	Measurements Required	Measurements(in inches)
1.	Full length	
2.	Across shoulder	
3.	Round bust	
4.	Round waist	
5.	Round hip	
6.	Neck depth (front and back)	
7.	Neck width	
8.	Sleeve length/bottom	
9.	Round armhole	
10.	Side slit length	

Activity 2: Prepare a measurement chart including all the measurements required to construct a female skirt.

Materials Required

1. Writing material
2. Measuring tape
3. A female dummy or a person whose measurement is to be taken

Procedure

Take the female body measurements for the construction of a skirt and fill the details in the following table:

S. No.	Measurements Required	Measurements(in inches)
1.	Skirt length	
2.	Round waist	
3.	Round hip	

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CHECK YOUR PROGRESS

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

1. _____ is the measurement from the base of neck at the centre back to waist line

(a) Front waist length

(b) Across back

(c) Back waist length

(d) Armscye depth

2. Round cuff measurement is needed for the construction of _____.

(a) Shorts

(b) Full Sleeve Shirt

(c) T-Shirt

(d) None

3. The key for correct garment fitting is the _____ and _____ measuring of a body.

(a) Accuracy, perfection

(b) Adequate, precise

(c) Variety, style

(d) None of the above

4. Shirt length is measured from _____ of the neck to desired length

(a) Base

(b) Nape

(c) Both a and b

(d) None of the above

5 _____ measurement is estimated by measuring the wrist loosely and adding ½ inch overlap extension to it.

(a) Wrist

(b) Round Cuff

(c) Round Neck

(d) Collar

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B. Short answer questions

1. Explain the importance of body measurements.
2. Write the method and sequence of taking body measurement for females.
3. Write the method and sequence of taking body measurement for males.
4. Write short notes on (a) body measurement (b) preparation for measuring.
5. What are the precautions that need to be taken while taking body measurement.

SESSION-2: PATTERN MAKING METHODS

Pattern making is a template or a blueprint for the garment on the basis of which we cut the fabric. It is created to transform a designer's basic idea for a garment into a real piece of apparel. Pattern making is a highly skilled technique, which calls for technical ability, and a sensitivity to interpret a design with a practical understanding of garment construction. For successful dress designing, pattern making forms the fundamental step. This function connects design to production by producing paper templates for all components.

A basic pattern can be prepared by one or two methods by either drafting or draping.

(a) Drafting

(b) Draping

(c) Flat Pattern Making

(a) Drafting

Drafting may be defined as a system of drawing patterns on paper with mechanical precision on the basis of body measurements. This is an effective and economical method, which can be learned easily. Drafting is a full scale plan of a garment based on an individual's direct body measurements, which along with some proven formulae are used to develop the shape and fit of a particular garment. This plan or outline is known as draft, which is then transferred on to the cloth to be cut. Drafts are also referred to as blocks, sloper, and master or foundation pattern. It consists of five pattern pieces – Bodice front, bodice back, skirt front, skirt back and sleeve. The basic pattern can have only a minimum number of darts and seams and it should fit the body comfortably without being tight or loose. It does not have any seam allowances.

Advantages

1. A usable draft of the precise size, which has been adjusted to suit your individual requirements will enable you to obtain a good fit.
2. A pattern draft on thick paper or card board can be preserved for a long time and can be used over and over again.
3. It is particularly helpful in the garment industry where more than one piece is made of the same pattern.
4. By manipulating the basic sloper pieces, it is possible to produce patterns for complicated and original designs. (For example, the basic sleeve can be adapted for a puff sleeve or a bell sleeve.)

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5. A draft of a particular size can be used to grade drafts of proportionately larger or smaller sizes by following a systematic procedure called “grading”.

Disadvantages

1. It is a time consuming process as it takes lot of time to construct the drafts.
2. Unless the techniques and principles of drafting are known, it is difficult for the persons to prepare them.
3. If only one garment of one pattern is made then constructing of the draft may seem less useful.

(b) Draping

Designers prefer to use the draping methods to create their original and new designs. A designer can easily see the proportion, fit, balance, and style lines of a design, exactly as it will look on the bodice. Working with actual materials gives a designer greater inspiration and a better indication of the flow and performance of a fabric.

Fig.4.10: Draping dresses

Draping is a technique used to prepare a 3-dimensional pattern with the help of a dressform by pinning and placing the fabric on the dressform to create a garment. Muslin is mostly used fabric by the designers for draping because it is cost efficient and available in variety of weights.

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Advantages

1. Various styles can be tried over the model using draping.
2. Very simple to work once when the technique of draping is learnt.

Disadvantages

1. Draping skill is required.
2. It requires a model or a mannequin or a dummy.

3. It requires lot of fabric in meters.
4. Laborious process as it takes time.
5. Not economical as fabric consumption is more.

(c) Flat Pattern Making

Flat pattern methods provides the versatility to create designs according to the changing fashion. This method requires a basic sloper with comfort ease to fit a person. A sloper is the starting point for flat pattern designing. It is a simple pattern that fits the body with just enough ease for movement and comfort. Five basic pattern pieces are used for clothing's for females. They include a bodice front and bodice back with basic darts, sleeve and a basic skirt front and back with darts. However, as fashion changes frequently women's styles fluctuate frequently. These basic slopers are then manipulated to create fashions. A basic sloper has no seam allowances, which facilitates its manipulations to various styles. It has no design interest, only construction lines are marked on it. It is necessary that the basic structure of a sloper should be such that adjustments can be introduced easily. The flat pattern making method is widely used in the ready-to-wear market because it is fast and accurate.

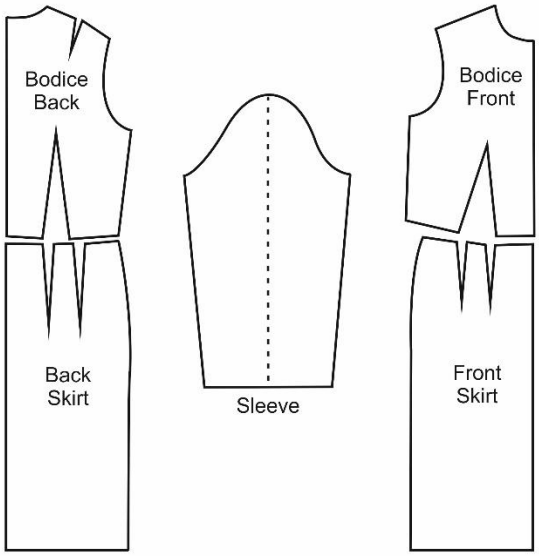

Fig.4.11:Basicsloper

Advantages

1. Basic blocks can be adapted for a particular design.
2. Pattern alteration is very easy in case of flat pattern technique. Patterns can be altered by creating and shifting darts to new places, by adding or deleting darts, by adding pleats, gathers, yokes etc.

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3. The important advantage of this technique is that the newly developed designer pattern retains the size of original basic pattern.
4. It is very useful for mass production of garments as it based on standard measurements.
5. One basic pattern or sloper can be used again and again to develop several designs, and every time we don't need to take measurements.
6. All paper patterns have seam allowances and detailed markings. It makes it easy to work.
7. Provide better understanding and use of commercial patterns.

Disadvantages

1. It is only useful for mass production of garments.
2. Its use is limited to commercial patterns.

TYPES OF PAPER PATTERNS

There are different types of paper pattern. They are:

1. Standardised paper pattern
2. Individual paper pattern
3. Block paper pattern
4. Graded paper pattern
5. Commercial paper Pattern.

1. Standardised paper pattern

Paper pattern prepared using standardized body measurements are standardized paper patterns. This method is being followed in the training and tailoring schools.

2. Individual Paper pattern

The measurement of a particular person is taken and pattern is prepared using these individual measurements. The pattern prepared for a particular person will not suit other person. These are usually done at home and in some tailor shop.

3. Block paper pattern

Generally, these are made with standard sizes with thick cardboards. These are mostly used in garment industries. The garment made out of these block

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patterns will fit for those who have measurements equivalent to that of the standardized body measurements.

In garment industry these type of pattern will be helpful to cut bulk amount of garment in less time.

4. Graded paper pattern

Pattern of five consecutive sizes (e.g. 30", 32", 34", 36", 38" chest size) are marked in one single pattern. The required size according to the individual body measurement is traced separately, cut and used.

5. Commercial paper pattern

Commercial patterns are usually done on tissue paper. Since tissue paper is not bulky, it allows many pieces of pattern to be packed compactly in an envelope. The front side of envelope contains front view, side view and back view of garment design along with the body measurement. While choosing a commercial pattern one must choose according to the body measurement. In commercial patterns, seam allowances are included for safety. Patterns of established companies are usually printed and marked clearly with straight grain lines, seam lines, cutting lines, darts, centre lines and all the necessary construction details. Good patterns are carefully labeled with the following information: the pattern size, name of each pattern (back, front, sleeve etc), number of pieces to cut from each pattern piece etc. In addition, some companies provide instruction sheets explaining the steps involved in using the pattern to cut out the garment, transferring pattern markings, and guidelines for constructing the garment is given in sewing instruction sheet inside the pattern envelope.

USES OF PAPER PATTERNS

The paper patterns for various styles, designs and cuts can be prepared and stored easily to reuse for a new design. The basic pattern with alterations at points can be prepared which can be used later to develop other styles. A number of styles can be developed in a short time and used comfortably even if the person using paper patterns do not have any idea of drafting patterns. They are the cheapest ways of designing used for constructing garments of varied styles.

Uses of Paper Pattern in Apparel Industry

Pattern making is a highly skilled technique which calls for technical ability, to interpret a design with a practically understanding of garment construction. For successful dress designing, patternmaking forms the basic step. This connects design to production by producing paper pattern for all components such as pockets, collar, sleeves etc. which have to be cut for

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completing a specific garment. Pattern making is the art of manipulating and shaping a flat piece of fabric to conform to one or more curves of the human figure. It is a bridge between design and production. The patterns which are used in garments industry are as follows:

A. Basic block or Block pattern: It is the individual component of garments without any style or design. It is produced according to the exact dimension of standard body measurement for different age groups and gender. In case of basic block pattern, no allowance is considered.

B. Working pattern or garment pattern: Garments pattern or working pattern is made on the basic of block. Individual block pattern are drawn on hard paper or mount board. Alternate; sewing allowance, trimming allowance, button hole, centre front line, center back line, button attaching, dart, pleat, notch, shrinkage of the fabric, etc. are added with the copied pattern. Working pattern are needed for each and every part of the garments.

Once the pattern meets the designer's approval, a small production run of selling samples are made and the style is presented to buyers in wholesale markets. If the style has demonstrated sales potential, the pattern is graded for sizes, usually by computer with an apparel industry, when the pattern is approved for production. the manufacturing company is ready to manufacture the style.

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PRACTICAL EXERCISE

Activity 1: Make a small 20 -word dictionary for pattern making.

Materials required:

1. writing material

Procedure

1. Write terms related to pattern making.
2. Arrange it alphabetically.
3. Write the meaning of the terms.

Activity 2: Prepare a flat pattern cutting layout

Materials required

1. Writing material
2. Scissors
3. Brown paper

Procedure

1. Prepare the flat pattern of bodice front, bodice back, sleeve, front skirt, back skirt.
2. Arrange different basic parts on the pattern layout.

CHECK YOUR PROGRESS

A. Fill in the blanks

1. Drafting is a full scale plan of a garment based on an individual's direct _____ .
   a) Garment measurements
   b) Body measurements
   c) Waist measurements
   d) None of the above
2. Commercial patterns are usually done on _____ paper.
   a) Tissue
   b) Brown
   c) Hard board
   d) All of the above
3. Garment patterns or working patterns are made on the _____ of block.
   a) Advance
   b) Basic
   c) Both a & b
   d) None of the above
4. Draping allows the fusion designer to work in _____ dimensions.
   a) One
   b) Two
   c) Three
   d) Five

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B. Short answer questions

1. What is pattern making? Explain briefly the pattern making methods.
2. Differentiate between drafting and draping.
3. Which of the pattern making method is most preferable for creating patterns for a dress that includes a specific drape or a flowy drape such as a cowl? Support your answer with appropriate reason.
4. Explain the types and uses of paper patterns.

5. Explain advantages and disadvantages of drafting and draping.

SESSION 3: IMPORTANCE AND PRINCIPLES OF DRAFTING

Pattern Drafting requires immense skills and practice. It is where pattern pieces are drawn on paper according to body measurement, which becomes the foundation for designers to create garments. Pattern drafting is an important part of fashion designing as :

- It minimises the chances of any fault during cutting on the fabric, which could prove to be irreversible.
- Correct estimate of the material required can be made.

PRINCIPLES OF DRAFTING

Drafting can be done either on ordinary brown paper or a chart paper, which should not however be too thin.

- To draw an accurate draft, use a pencil, and a ruler for drawing straight lines.
- To get the corners at right angles, keep an L-scale or set squares ready.
- Before drafting, it is essential to understand the procedures and instructions clearly, and to have practice in drawing a well-balanced pattern with smooth curves and straight lines.

One must understand the following principles before starting to attempt drafting:

1. Patterns are to be made slightly larger than body measurements to allow for freedom of movement, ease of action and comfort in wearing.
2. As the left and right sides are same so half part of front and half part of back is to be drafted. Drafting is to be started with back part. For sleeves, full pattern must be drafted.
3. Basic blocks include- plain bodice, plain sleeve, and plain skirt without seam allowances should also be made, as they also help in making variations in designs. While cutting, paper patterns are placed on fabric and seam allowances are left.

STEPS for DRAFTING BODICE AND SLEEVE PATTERN for a CHILD

Sample measurements

Chest = 22”

Waist length = 10 ½”

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Waist = 23”

Shoulder= 10”

Sleeve length = 5”

Sleeve width = 5”

Basic Bodice Front and Back

i) Bodice Pattern

For children, back and front pattern can be drafted within the same rectangle.

Construct rectangle ABCD with the following measurements

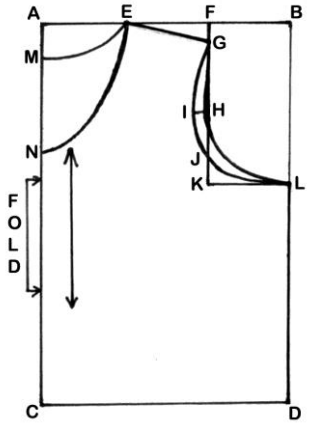

Fig.4.12: Basic bodice pattern

AB= CD = ¼ chest + 2” (ease) = 7.5”

AC = BD = waist length + 1”= 11.5”

Mark AF = ½ of shoulder = 5”

AE = Neck = 2 ½” (standard for kids)

AM = 1” for back neck depth

AN = 3” for front neck depth

Give a shape to back neck line by joining E-M.

Give a shape to front neck line by joining E-N.

F-G = ½” (standard)

Join E-G for a shoulder slope line.

Mark B – L = ½ of shoulder = 5”

H = Centre point of F-K

H- I = ½”

J-K= 1”

Give a curve to front armhole by joining GIJL

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Give a curve to back armhole by joining GHL.

ii) Basic Sleeve pattern (Fig.4.10)

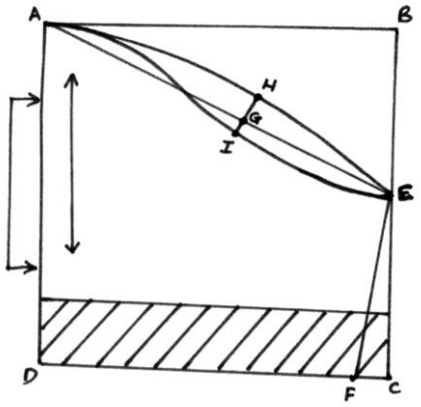

Fig.4.13 Basic sleeve pattern

A- B = ½ of shoulder=5”

A- D = 5”

F- C = ½”

B- E = 2 ½” (standard for a child)

Join E – A

G is centre point of A- E

G- H = ½”

G- I = ¼”

Give a curve to front armhole.

Join AHE for back armhole

Join AIE for front armhole

Keep 1” hem allowance at the lower edge of the sleeves.

STEPS OF DRAFTING a BODICE AND SLEEVE for an adult

Sample measurements:

Full length: 14”

Shoulder: 14”

Bust: 34”

Waist: 28”

Armhole: 15”

For Drafting:

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Full length = 14” + 1”(seam allowance) =15”

Shoulder = ½ of shoulder=14”/2” = 7”

Bust = ¼ of the bust + 1.5” =34”/ 4 = 8.5” + 1.5”= 10”

Waist = ¼ of waist + 1.5” =28”/4 = 7”+1.5”=8.5”

Armhole = 15”/2= 7.5”

Basic bodice block (front and back)

i) Bodice pattern (Fig.4.11)

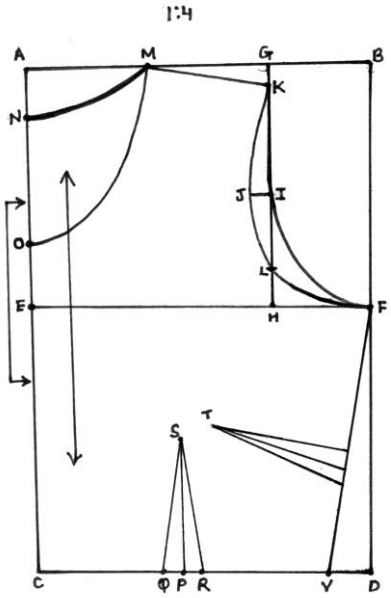

Fig.4.14: Adult’s bodice pattern

A- C = B – D is full length + 1” for seam allowance

E-F = 1/4th bust + 1½”

A-E & B-F = ½ of around the arm

A-G &E-H = ½ of shoulder

A-M = 3 ½”

A-N = 3” for back neck

Join M – N for back neckline

A-O = 5”

Join M- O for front neckline.

G- K is ¾” Join M to K for shoulder slope.

I is the center point of G- H

I – J = ¾”

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L- H = 1”

Give a curve to front armhole by joining KJLF

Give a curve to back armhole by joining KIF.

C-V = ¼ of waist + 2” (28”/4+2”=7+2=9”)

Join F- V

Darts

C-P = 4”

Total dart width is 1”.

P – Q and P- R is ½” on each side

P- S is 4” Join Q-S and R-S

F- U + 5”

S – T = 1”

Join U – T. Keep dart width 1/2”

u-w and u-x is ½” on each side.

Join w-t and x-t

Basic Sleeve Pattern

A-B & C- D = ½ of Armhole (15”/2=7.5”)

A-C&B-D = 7” for sleeve length

B – E = 4”

Join A- E with straight line. G is the centre point of A-E.

G-H = ¾”

G – I = ½”

Give a shape to front armhole by joining AIE

Give a shape to back armhole by joining AHE

C – F = ½ of around the arm + 1”

Join E-F with straight line.

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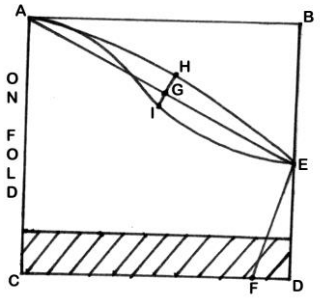

Fig.4.15: Adult's sleeve block

PRACTICAL EXERCISE

Activity 1: Preparing a basic bodice block for a child.

Materials Required

1. Writing material
2. Drafting scale
3. Brown paper
4. Scissors

Procedure

1. Draw the draft given above (in the session) on the brown paper
2. Mark the numbers appropriately.
3. Cut the draft neatly and place it on a sheet with proper and complete markings of - grain line, cutting lines, scale used for draft and the measurements referred for draft.
4. Place the sheet in your practical file.

Activity 2: Prepare a draft of adult basic block and sleeve.

Materials Required

1. Writing material
3. Measuring tape and drafting scale
4. Brown paper
5. Scissors

Procedure

1. Draw the draft given above (in the session) on the brown paper
2. Mark the numbers appropriately.
3. Cut the draft neatly and place it on a sheet with proper and complete markings of - grain line, cutting lines, scale used for draft and the measurements referred for draft.

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4. Place the sheet in your practical file.

CHECK YOUR PROGRESS

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

1. _____drawn on paper according to body measurement becomes the foundation for designers to create garments.

   (a) Drafting

   (b) Draping

   (c) Pattern pieces

   (d) None

2. _____are to be made larger than body measurements to allow for freedom of movement, ease of action and comfort in wearing.

   (a) Patterns

   (b) Grade

   (c) Notches

   (d) None

3. Drafting is to be started with _____ part.

   a) Front

   b) Side

   c) Back

   d) None of the above

Questions:

1. Explain the importance and Principles of pattern drafting.
3. Write steps of drafting bodice block with sleeves for a child.
4. Draw the steps of drafting bodice block with sleeves for an adult.

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MODULE - 5: CONSTRUCTION OF GARMENTS FOR CHILDREN AND FEMALES

Drafting and sewing are two major steps in garment construction. Knowledge of drafting helps in making feasible designs. Without the knowledge of drafting, a designer does not know how to develop designs for garments. Fashion designers also need to instruct the tailors about the new types of designs. Hence the basic knowledge of drafting is essential. In this unit student will gain the knowledge of selection of the fabrics as per their use, pattern markings, pattern layout for different type of fabrics and garments and drafting, cutting, stitching of children and women's garment

.

Learning Outcomes
After completing this module, you will be able to: • Demonstrate selection of fabric as per its use • Explain pattern markings and layout • Demonstrate the construction of Jabla and Jangia • Demonstrated rafting and construction of Baby Frock • Demonstrate drafting and construction of plain skirt, petticoat and nighty • Demonstrate drafting and construction of Salwar, Kurta and Blouse
Module Structure
Session 1: Selection of the Fabric as per the Its Use
Session 2: Pattern Markings and Layout
Session 3: Construction of Jhabla
Session 4: Drafting and Construction of Baby Frock

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Session 5: Drafting and Construction of Plain Skirt, Petticoat and Nighty
Session 6: Drafting and Construction of Salwar, Kurta and Blouse

SESSION 1: SELECTION OF THE FABRIC AS PER ITS USE

Fabric is the basic raw material used to construct garments, home furnishings etc. Most fabrics are made from yarns, but the basic components of textile fabrics are fibers. These may be natural fibers like, wool, linen, cotton, silk etc. or synthetic fibers like, acrylic, polyester, acetate etc. Fabric is formed using variety of techniques like, weaving, knitting, felting and netting are the four basic ways of constructing fabric. All the natural fibers (with the exception of silk) are short in length and are called staples. The long continuous strands of silk and manmade fibers are called filaments. These staple and filament lengths are then twisted into yarns. The appearance and durability of the yarn is affected by the degree of twist. Gently twisted yarns are suitable for napped fabrics which are soft and rather weak. Tightly twisted yarns are used for smooth fabrics such as gabardine. In general, the tighter the twist, the smoother and the stronger would be the yarns.

Weaving is the most common method of forming fabric where two or more yarns are interlaced to form a fabric structure. Knitting is a technique of making fabrics by inter-looping yarns. Another technique of producing fabrics is nonwoven and felts. In felting method moisture, heat and pressure are applied to short fibers to produce a matted layer. Felts do not fray but they do tend to tear when they are damp. In netting the yarns are held together by knots wherever they intersect. It can be heavy as fish net or as light as lace, depending on the fiber used.

Fabric is chosen according to the use of the end product e.g., for garments medium or light weight fabrics are suitable such as cotton, silk, georgette, terry-cot, chiffon, satin, organdy etc. Fabrics used for home furnishings are little heavy than the fabrics used for garments such as cambric, glazed cotton, raw silk, jute, velvet etc.

Choosing fabric for garments is the most important step for construction of a garment. Fabric selection is one of the most crucial step in designing garments. A fabric used for one purpose, may not be appropriate for another use. Therefore, selecting the suitable fabric is the first step for garment manufacturing. Designers specify the fabric as part of their design concept. The quality of fabric not only influences the quality of the garment but also affects the smoothness of the production process. The fabric specifications for different end-use requirements are different, and the selection of an appropriate fabric is one of the most difficult jobs for the clothing manufacturer. Hence, understanding the fabric properties that affect the manufacturing process and the final garment quality is essential.

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Types of Fabric commonly used for Garment Construction

Each fabric carries a unique name in order for it to be identified among others based on their textures, designs, weaving patterns, aesthetic values, fiber source, the place where the fabrics are originated, etc.

Brocade: is a woven fabric having a raised floral or figured design that is introduced during the weaving process, usually by means of a Jacquard attachment. The design, appearing only on the fabric face, is usually made in a satin or twill weave. The elaborate brocade fabrics are produced by weaving with warps and weft threads of different colours and different materials.

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

Canvas: is generally made of cotton, linen, or synthetic in heavyweights with an even firm weave. It is heavy-duty plain weave fabric, often used in bags or accessories but suitable for structured garments where not much drape is required. Generally used for tents, motor hoods, belting, packaging's, sneakers, painting canvases, tents, sandbags.

Chiffon: is a lightweight, sheer, shiny, and plain-weave fabric. It is made from highly twisted yarns. It has good drape and is used for making evening wear and party wear garments. It is a light plain weaved sheer fabric with a soft drape. Chiffon fabric can be manufactured using different fibers like silk, synthetic, polyester, rayon, cotton, etc. but it is generally associated with fibers like nylon or silk. It is used for bridal gowns and also in evening dresses, Saris and scarves.

Corduroy: is a woven fabric with a distinct ribbed pattern in varying widths (or wale). The fabric is ribbed throughout the length and the ribs are cut and sheared so that a smooth velvety surface appears.

Cotton: is a fabric made from cotton which is obtained from the cotton plant. It is soft, smooth and absorbent. Cotton is suitable for garments worn close to the skin to keep the body cool in summers, since it aids air circulation. A large variety of kurta, lehenga-choli, Sari, salwar-suit, shirt, kurta-pajama, jackets, safari suit, trousers and children's clothes are made of cotton. It is also used for home furnishings like bed sheets, pillow covers, table cloths, table runners, curtains, etc.

Crepe: is a light-to-medium weight fine fabric and is used for making flowing garments since it drapes very well. It has crinkled surface due to the high-twist silk yarn or chemicals. This look can also be given by a special weave

called the crepe weave. Crepe fabric was originally made using only silk, but nowadays different kind of fabrics, such as chiffon, cotton, and rayon, etc., are commonly used to create crepe fabric. Fur, silk and original leather, blended silk, crepe, linen, chiffon, etc. are being liked and used in the fashion industry. Among the contemporary fabrics, crepe is well-liked by customers and designers. Mostly, crepe has a creased or grain surface that has very small folds or ridges.

Denim: is a tough fabric, heavy in weight with very little drape or stretch. It is a strong fabric made with twill weave, may include spandex for stretch. Traditionally made in indigo, but now available in a wide variety of colours. Most of the jeans are made of this fabric.

Drill: is a type of twill woven fabrics made out of cotton fibers, generally termed as Khaki, used for uniforms, work-wear, sailcloth, upholstery, tents, etc. due to its durability.

Felt: is a strong nonwoven material made from either natural fiber like wool, or synthetic fibers like acrylic. Felt is constructed by matting and pressing fibers together to form a whole piece.

Flannel: is a soft, lightweight fabric, suitable for cold temperature. It's a fabric that is typically brushed for extra softness and warmth.

Gabardine: is a twill-weave fabric made of a variety of natural and synthetic fibers. It is a medium-weight fabric made of fine yarns. Gabardine is commonly used for making garments, such as coats, jackets, skirts and trousers, due to its nature of holding a steady crease. Even though it is thick and stiffer than materials described earlier, it is comfortable and soft to wear. The fabric is produced by maintaining higher twist on warp yarns resulting in a fine, prominent twill line. Since the fabric is durable, gabardine is widely used in making pants, shirting and suiting.

Gauze: is a plain weave fabric constructed with more spaces between the threads than regular fabric. It is usually made of cotton, rayon or their blends of soft texture spun yarns. Though not suitable for durable applications, it is used in apparel, home furnishing like curtains and is popular in medical uses for bandages.

Georgette: is a thin, transparent, lightweight fabric and is mainly made of highly twisted silk yarns. The twisted yarns are used in both warp and weft directions. Like silk and satin, this also has a soft feel and drape well. It is a sheer lightweight fabric that provides utmost comfort. It is a strong silk or

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polyester fabric that often comes with a dull, creped surface. As compared to chiffon, it is opaque and slightly heavy.

Knit Fabrics: are several types of knit, varying from lightweight to medium weight. Knit fabric is for any garment that needs to have a great deal of stretch. Patterns are designed for either woven fabric or knit fabric, and patterns sized for knit fabric will often specify the degree of stretch needed in the fabric.

Linen: is relatively soft, smooth, lustrous and is very strong textured. It is a medium-weight fabric with little elasticity. Linen fabric is made with linen fibers, very absorbent and feels cool in hot weather. It tends to wrinkle easily, but has a great drape.

Muslin:is a plain unbleached cotton fabrics made in a wide range of thickness ranging from light to heavy.

Organdy: is a thin, light and transparent cotton fabric in plain weave with a stiff finish. It is made from good quality combed spun yarns. The yarn is made from long staple cotton and is spun with many twists. This, along with the finishing process, produces its characteristics of transparency and crispness. It is used for making Sari, kurtis, tops, and other children's garments. This fabric is mostly used for summer and evening wear. The fabric is characterised by stiffness and crispness.

Organza:is a thin, plain weave, and a sheer fabric which is made out of continuous filament of silk, nylon and polyester yarns.

Oxford Fabric: is made with loosely constructed weaves such as rib weaves, basket weaves, and half basket weaves out of soft fine yarn. Since basket weave is a loosely constructed weave, the fabric is porous. Fine and closely packed warp and coarser weft make the fabric lustrous. It is one of the most popular shirt fabrics.

Polyester:is a synthetic fabric which is made from synthetic polymers. Polyester fabrics are less absorbent and uncomfortable in comparison to cotton or wool, however they are preferred due to their durability, colour retention, wrinkle/shrink-resistance and they are also inexpensive. It is commonly used for home décor, shirts, trousers, jackets and Saris.

Poplin: is a fine and tightly woven cotton fabric of plain weave. It is the fabric with fine cross-ribs created by finer warp yarns and heavy weft yarns. Poplin

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is mainly used for making shirts, kurtis and children's garments. Many times, it is used for home furnishing items also. It is made of cotton; coarse weft yarns are used.

Rayon:is a semi-synthetic fiber and extremely versatile material that's often used to substitute natural fibers in clothing. Although soft, comfortable, smooth and absorbent, rayon has an extremely low elastic recovery and fails at insulating heat, so it is best suited for hot weather.

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

Satin: It is a fabric woven in warp-faced satin weave and has a smooth and shiny surface. Satin is a smooth, delicate and medium-weight fabric. It has a lot of shine, which makes it suitable for use as garments as well as home furnishing. Satin can vary from lightweight to heavyweight, depending on the type of satin. It has a glossy appearance like silk. Satin is also said to be the most elegant fabrics. It is used in a variety of apparels like a blouse, gowns, and many other kind of clothing, including furnishings like, bed sheets, curtains, and decorative purposes.

Silk: The strength, luster and softness of silk makes it the most attractive textile. It is considered to be the perfect natural substance in all respects for yarn making. Silk is the longest of all natural fibers and is very smooth. It is said to be the most lavish, lustrous and rich fabric. Itis one of the most popular fabrics for designer party wear because of its rich look and is soft and comfortable, hence suitable for draping. It has a slightly shimmery appearance. Silk can be soft flowy and a slippery fabric.

Taffeta:is a crisp, soft and smooth plain-woven fabric with slight sheen manufactured out of different fibers like rayon, silk or nylon. It is generally made, fine warp yarns, and heavier filling yarns. It is widely used in the manufacturing of garments for females.

Terry: is generally used for towels (commonly known as terry bath towels). Itis a woven fabric, usually made of cotton or a blend with a synthetic fiber and has a loop pile on one or both sides. The loops may cover the entire surface or may form stripes, cables, checks, or other patterns, referring to the pile loops.

Velvet: is a medium-weight silk or synthetic filament yarn fabric with a cotton backing. It has a short, soft, thick warp pile surface that stands up vertically.

There are various varieties of velvet fabric differing in their weight. In velvet, the cut thread fibers are evenly distributed over the surface, with a short and very dense pile weave which gives it a unique and lustrous feel. Velvet can be made from synthetic or natural fibers. It's nap (the layer of fibers ends raised from the ground weave of the fabric) gets damaged when pressure is applied on it. Velvet is used for making evening wear. It is also used for home furnishing. As it has a luxurious texture, velvet was traditionally used to make wall hangings and royal robes, today it's more commonly used to create clothing, cushions, home décor items, and to line storage boxes for delicate produce like jewellery.

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

Wool:is a protein fiber obtained from the hair of sheep and other animals like goat, rabbits and yaks. The fiber is soft, wavy or curly. Wool is a warm fabric. Wool has high resiliency and low drapability.

Some common fabrics for various garments

- Bermudas: cotton, corduroy
- Blazers: wool, terry cotton, terry wool
- Caps: wool, fleece, cotton
- Dresses: cotton-voile, cotton-lawn, knit, silk, satin, linen, and wool (for colder weather)
- Evening Gown: cotton, rayon, silk, satin
- Frocks: cotton, silk, chiffon, georgette, crepes, terry-cotton, linen
- Inner Wear: knit, cotton, lyre
- Jackets: cotton, wool, flannel, rayon, leather, fleece, fur
- Kurtis: cotton, silk, chiffon, georgette, crepes, terry-cotton, linen, khadi
- Leggings: cotton, lyre
- Lehenga: silk, crepe, georgette, net, velvet, brocade
- Night Gowns: cotton, silk, sateen
- Over Coat: cotton, leather, wool, linen, velvet, corduroy
- Polo T-shirts: cotton, wool, linen
- Pajamas: cotton, silk, terry cotton, linens
- Romper: cotton, flannel, cots wool
- Sari Blouses: cotton, voile, rayon, silk

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- Shirts and T-Shirts: cotton voile, knit, silk, chambray, linen, and flannel
- Shorts: cotton, denim, corduroy
- Skirts: cotton, rayon, denim, knit, and linen
- Suits and Coats: wool, linen, terry cots, tweeds
- Track pants: cotton, lyre
- Trousers/ Pants: linen (for warmer weather); denim, flannel, and wool (for cold weather) corduroy

PRACTICAL EXERCISE

Activity 1: Collect swatches of different fabrics and prepare a scrap book.

Materials Required

1. Different types of fabrics swatches
2. Pinking shears or normal scissors
3. Scrap book
4. Adhesive
5. Writing material

Procedure:

1. Collect fabrics swatches
2. Cut fabrics swatches with scissors very neatly. Finish the edges of the fabrics (through pinking shears/edge finishes).
3. Paste swatches on scrap book and label them.

Activity 2: Prepare a chart of pictures of following garments and mention suitable fabric for them:

- Leggings
- Lehenga
- Shirts and T-shirt
- Trousers
- Frocks
- Blazers
- Skirts

Material Required:

1. Picture of above-mentioned garments
2. Pinking shears / scissors

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3. Adhesive
4. Writing material

Procedure

1. Collect picture of above-mentioned garments.
2. Cut the picture very neatly with scissors or pinking shears
3. Paste picture on chart sheet
4. Write the names of suitable fabrics
5. Place the chart in your classroom.

CHECK YOUR PROGRESS

A. Match the following:

A. Linen	1.	Crinkled surface
B. Satin	2.	Has stretchability
C. Knit	3.	Tends to wrinkle easily
D. Crepe	4.	Sheer, transparent and stiff cotton fabric
E. Organdy	5.	Glossy appearance

B. Short answer questions:

1. Describe any 10fabrics.
2. Describe brocade and satin fabric.
3. Explain felt and canvas fabric.
4. Write short notes on:
   a. Muslin
   b. Cambric
   c. Gauze
   d. Knit fabrics
   e. Wool
5. List any 10 garments and write down the names of suitable fabrics for them.

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SESSION 2: PATTERN MARKINGS AND LAYOUT

After purchasing fabric, pattern and preparing the fabric (on grain and pre-shrunk or washed), you are ready to do the pattern layout. Before cutting, fabric should be straightened using different methods suitable for the fabric. A layout is a plan for the placement of pattern pieces on the fabric. There are various categories of layout marking like grain lines, place of fold, notches etc. There are also various methods of cutting marking such as single size, multi-size, and cutting in a particular body size.

Grain line:is the direction of yarns in the fabric. The grainline parallel to the warp yarns is called lengthwise grain. Whereas the grainline parallel to the weft yarns is called crosswise grain. The grainline defines the orientation of yarns in a fabric.

Fig.5.1: Grain line

Cutting Lines: indicate where to cut the fabric to match the shapes on the pattern. They are solid lines and easy to identify. For patterns offering multiple sizes, you may see several cutting lines, each with the size printed on or near the line to help ensure you always cut the correct one for your size.

Fig.5.2: Cutting line

Pattern Adjustment Lines: another type of solid line are pattern adjustment lines. These allow you to make a garment longer or shorter based on your needs. These run across a piece and usually appear as two parallel lines. The space between the lines depends on the degree of lengthening or shortening required.

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Fold Lines: when cutting a symmetrical piece, patterns often recommend folding the fabric in half. When unfolded, the fabric forms the desired shape, takes less cutting time, and guarantees perfect symmetry. You align the fold line with the folded edge of the fabric, leaving no extra space.

Fig.5.3: Fold line

Stitch Lines: are the markings that convey the where to stitch the fabric pieces. Stitch lines are symbolized as dotted line in a pattern.

Fig.5.4: Stitch line

Notches: Diamond or trapezoidal shaped symbols along the seam line are used both in pattern layout and during construction. When you are laying out the pattern pieces to match a plaid, stripe or large design, position adjoining notches so that the fabric at the seam lines (not the cutting lines) will match when the seams are sewn.

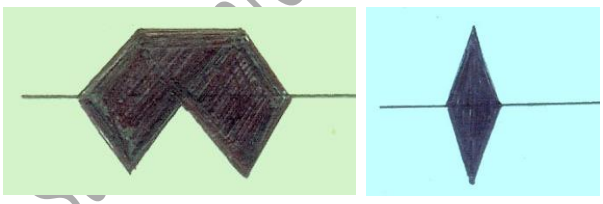

Fig.5.5: Notches

FABRIC LAYOUT

It is very important to know the requirement of the fabric for the pattern layout of different garments. Usually, the amount of fabric is calculated according to the length of garment. Generally, it is double the length plus sleeve length plus five to ten inches extra (for belts, collars, pockets etc.) for e.g., if the length of the kurta is 40" and the sleeve length is 10" than the total fabric required is 40" +40" =80" +10" +10" extra =100" or 2.5 meter.

Points to be remembered in Pattern Layout

1. Press the fabric as well as the pattern pieces flat before laying the pattern on the fabric.

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2. Use a large table or any hard flat surface for accommodating the work.
3. If an open layout is used, place the fabric right side up on the table. For all other layouts, fold the fabric right sides facing and wrong sides out.
4. The best way to cut a fabric is to keep it on fold. The fold of fabric depends on the width of fabric, type of cloth, width of pattern pieces and design of garment.
5. Before fabric cutting one must keep the pattern pieces and pin them for a trial.
6. One must remember to leave seam allowances while cutting. There must be enough fabric to cut belts, facing, pockets, etc. for which paper patterns are not prepared.
7. Fold lines on the patterns must be kept on folded edges of fabric.
8. Pin patterns to the fabric firmly**.**
9. Take care to use special layouts for asymmetric designs and for fabrics with designs striped and checked designs, designs going in one direction and fabrics with nap and pile as discussed under the heading special layouts.

Methods of Pattern Layout

It is essential to gain knowledge about different types of pattern layout before proceeding for the layout.

a) Lengthwise centre fold: Here the fabric is folded down the middle parallel to the selvedges so that the selvedges come together. This is the most frequently used fold method. This layout is common for most of the garments.

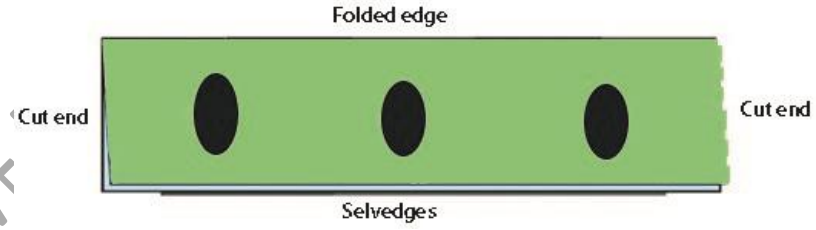

Fig.5.6: Lengthwise centre fold

b) Off centre lengthwise fold: This is used when narrow pieces have to be cut on fold. Here the fabric is folded down the middle parallel to the selvedge.

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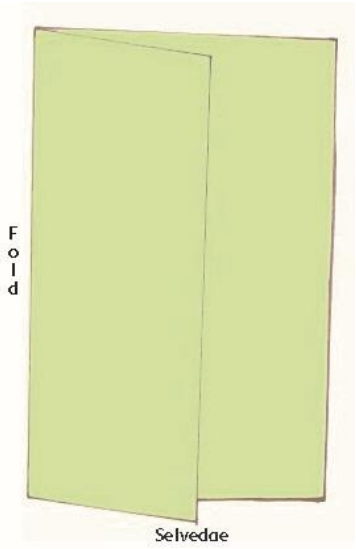

Fig.5.7: Off centre lengthwise fold

c) Crosswise centre fold: This is suitable for materials that are too narrow to accommodate the width of pattern pieces when folded lengthwise. Here the fabric is folded down the middle perpendicular to the selvedge or crosswise.

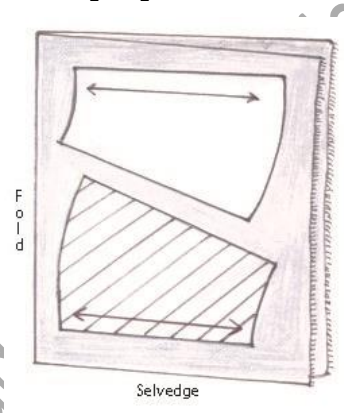

Fig.5.8: Crosswise centre fold

d) Off centre crosswise fold: When only a part of the material is required to cut pattern pieces that are too wide for lengthwise fold layout, this type of fold is used. Here the fabric is folded down perpendicular to the selvedge or crosswise as required.

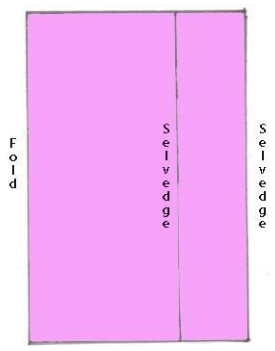

Fig.5.9: Off Centre cross wise fold

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e) **Double fold:** is used when many pattern pieces that are not too wide must be cut on fold. For garments with no opening for front and back sections, this type of fold can be used provided the cloth is wide enough to accommodate the patterns when folded this way. Here the fabric is folded in such a way that the selvedges meet at the center for e.g., kurta and tops.

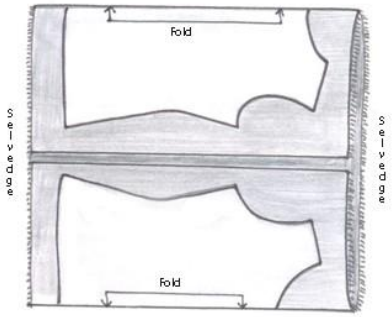

Fig.5.10: Double fold

f) Combination fold: Here, lengthwise fold and crosswise fold are combined.

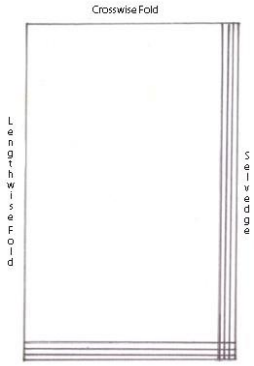

Fig.5. 11: Combination fold

g) Open layout: In this type of layout, the fabric is not folded at all. This is used especially for designs, which require right and left halves to be cut separately.

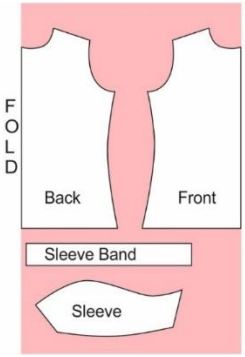

Fig.5.12: Open layout

Special Layouts

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a) Fabrics with lengthwise striped design: While cutting fabric with bold stripes, adjust the position of the pattern so that one of the prominent lines falls along the centre back of the garment and the remaining strips are identical on the two sides of the fold.

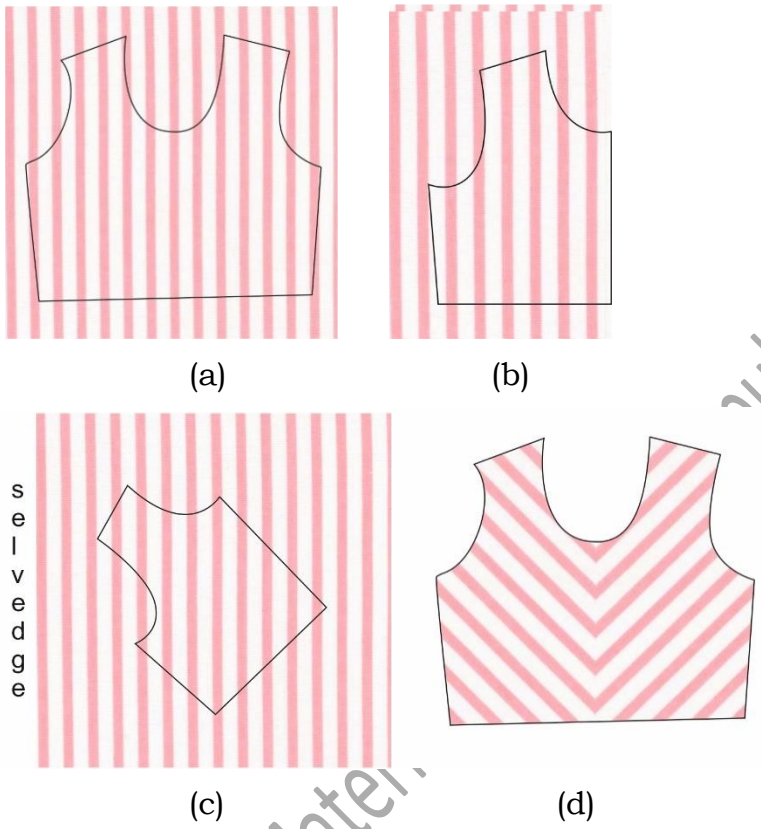

Fig.5.13(a, b, c, d): Fabrics with lengthwise striped design

Striped material can also be cut on the bias forming a chevron design (in the shape of the letter V) at the centre front or the centre back seam or opening.

b) Fabrics with bold designs such as plaids, and crosswise stripes: Match plaids and stripes so that they form continuous lines across seam openings or meet at equal angles. When you fold such fabrics to keep the pattern pieces, make sure that the stripes are matching exactly on both layers of fabric.

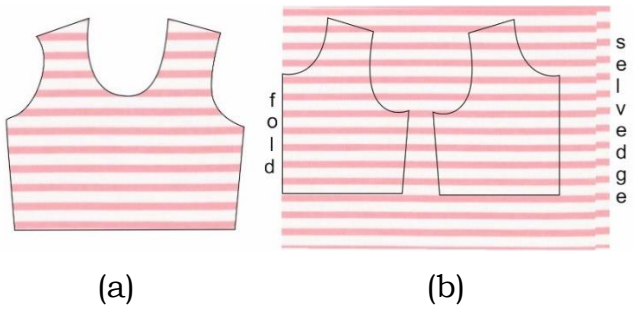

Fig.5.14(a& b): Fabrics with bold designs

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If the print is large and spaced or with sweeping curves, drape the fabric on the body and look in the mirror to see, where and how the highlighting part of the design should be placed.

c) Fabrics with one-way design: When cutting these fabrics, one must take care to see that all the pattern pieces are arranged in the same correct direction. Otherwise, the print will look upside down on sections, which have been placed wrongly. Fabrics with nap and pile have to be treated like fabrics with one-way design.

a

b

Fig.5.15 (am): Fabrics with one-way design

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PRACTICAL EXERCISE

Activity 1: Prepare a sheet on pictures of different types of fabric layouts

Materials Required

1.Writing material

2. Chart sheet

3. Scissors

4. Adhesive

Procedure

1. Collect pictures from internet of any three types of fabric layouts
2. Paste it on the chart sheet and keep it in the practical file

CHECK YOUR PROGRESS

A. Fill in the Blanks

1. Fold lines of the patterns must be kept on _____ edges of fabric.
2. _____the fabric and pattern pieces before layout.
3. _____ the pattern firmly on fabric.

4. When lengthwise and crosswise folds are combined it is called as_____ folds.

B. Short answer questions

1. Explain fabric layout.
2. Enlist any two types of special layouts for fabric and explain the same with diagram.

SESSION 3: CONSTRUCTION OF JHABLA AND JANGIA

DRAFTING AND CONSTRUCTION OF JHABLA

Garment Description

Jhabla is a comfortable baby's wear. It is always better if it is stitched with thin soft cotton fabric. Pastel colours look good. Neck is finished with a casing through which a draw string is passed. It is advisable to tie the draw string near the shoulder to avoid baby from pulling it.

Measurement required: (Age: 0-2 years)

Measurements:

Length = 15"

Width = 18"

First fold the length into half and then, the width into half, paper now measures 18"X15". Place the single fold on the top and double fold on the left-hand side.

Drafting

1. Mark corners ABCD

   AB & CD = width

   AC & BD = length
2. Measure from B to E= 4"

   along the BD line

   AF is the neck opening

   A-F =2 ½"

   A-G= 3"
3. Shape the front and back neckline by joining F-G.

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Sewing process

1. Run and fell seam at the sides.
2. Finishing the neck and armholes by bias binding or facing.
3. Fold and hem 1" at the bottom.

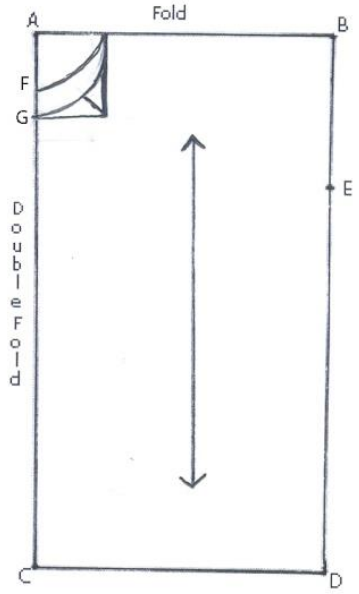

Fig.5.16: Drafting of Jhabla

Fabric required

Mulmul or soft cambric or lawn and the amount of the fabric required is ¾ meter.

DRAFTING AND CONSTRUCTION OF JANGIA

Garment Description

Jangia, with casing at the waist, it is used as underwear along with frock, skirt, pajama, shorts, pants etc. It is cut either in one piece, with a side fold or in two pieces with a side seam. When the front and back are cut separately, seam allowance should be kept at the back side seam.

Measurements Required: Age: 0-2years

Round hips=18"

Length of the Jangia 9" ($^{1}/_{2}$ hip – 1")

Size of paper

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Length = 18” (twice the length)

Width = 9” ($^{1}/_{2}$ of round hips)

Fold width into half first. Then fold length into half.

Construction Lines: Place paper with double fold to the left and single fold at the bottom. Divide length into three equal parts, because the length of the leg curve is 1/3 of the full length. Divide width into two equal parts, because the width of the leg curve is 1/4 of the full width.

Drafting

A-B & C-D= 9”

B-H= 1”

A-C & B-D= 9”

C-D is on fold

C-F= 2 ½”

F-D= 6 1/2”

D-E= 3 ½”

Join E-F with a curve

Waistline:

B-H= 1”

A-G= 1”

Join G-H with a curve.

Join H-E

Back:

A-B & A-C same as front

E-L = ¾”

B-J & L-K= 4” join FILK for back curve for leg.

Side Seam: Join H-E with a straight line.

Sewing Process

1. Side seam run and fell ¼” wide when finished. (Hemming on back side.)
2. Leg curve can be bound of faced, or turned down a very narrow hem. A lace can also be attached.

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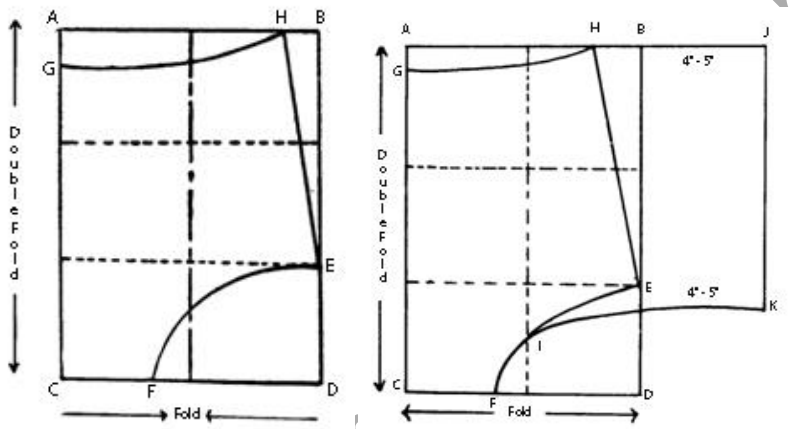
3. Put a facing round the waist ½" when finished with elastic.

Fabric required

Mulmul of soft cambric or lawn and the amount of the fabric required is ¾ meter.

Adaptation

The Jangia drafting is placed on another brown paper. AJ is the new waistline and JK new side seam – Both these lines are straight. For this gathered panty join I, L and K with a curve for the leg. Put elastic round the waist and round the leg.



(a) (b)

Fig.5.17(a, b): Drafting of Jangia

PRACTICAL EXERCISE

Activity 1: Construct a Jhabla

Materials Required

1. Writing material
2. Chart sheet, brown paper
3. Drafting scale
4. Inch tape
5. Tailor's chalk
6. Thread, needle
7. Scissors
8. Sewing Machine

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Procedure

1. Half fold the brown paper
2. Use proper measurements and prepare the draft of Jhabla on the brown paper (Follow the instructions as given in the session above)
3. Paste the draft in your practical file
4. Use this draft for cutting the fabric
5. Construct a well-finished Jhabla.

Activity 2: Construct a Jangia

Materials Required

1. Writing material
2. Chart sheet, brown paper
3. Drafting scale
4. Inch tape
5. Tailor's chalk
6. Thread, needle
7. Scissors
8. Sewing Machine

Procedure

1. Half fold the brown paper
2. Use proper measurements and prepare the draft of Jangia on the brown paper (Follow the instructions as given in the session above)
3. Paste the draft in your practical file
4. Use this draft for cutting the fabric
5. Construct a well finished Jangia

CHECK YOUR PROGRESS

A. Fill in the blanks:

1. Jhabla and Jangia both are types of _____ garments.
2. Jangia is a type of _____ wear.

B. Short answer questions:

1. Write about the Drafting of Jhabla and its stitching process.
2. Explain how a draft of a Jangiais made and its stitching process by drawing the draft.

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SESSION 4: DRAFTING AND CONSTRUCTION OF A BABY FROCK

FABRIC LAYOUT, MARKING AND CUTTING OF a BABY FROCK

Layout of a Baby Frock

Fabric layout or pattern placement for baby frock is given below. Here lengthwise fabric fold is made. The layout for a frock with bodice and gathered skirt is shown below. The pattern pieces are numbered as follows.

1. Back Bodice
2. Front Bodice
3. Front Skirt
4. Back Skirt

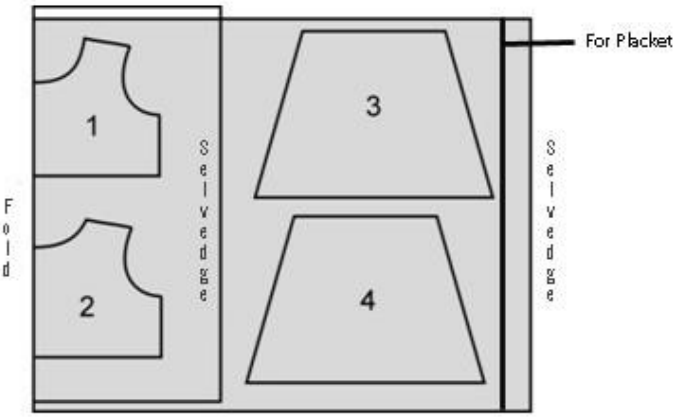

Fig.5.18: Fabric layout of a baby frock

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Fabric Marking and Cutting of a Baby Frock

Fabric Marking

1. Lay out the pieces along the grain.
2. Secure the pattern, either with weights or pins. Weights do not ripple the pattern paper like pins do.

3. Using fabric marking tool trace around the pieces.
4. Mark all notches.
5. Now transfer darts and other details on the fabric by using carbon and tracing wheel or tailors chalk or any of the method seeing to the nature of fabric.
6. Now the fabric is ready to cut.

Fabric Cutting

Fabric cutting scissors can be used to cut out the pattern pieces. By taking care to align and cut your pieces accurately, will avoid mistakes later on during sewing. Cut away the tracing line meant for cutting.

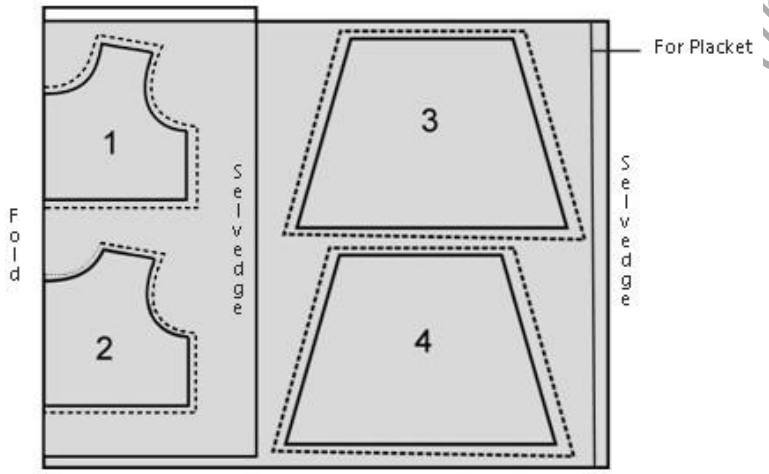

Fig.5.19: Cutting line for baby frock

DRAFTING OF A FROCK

Garment Description

This is stitched in one piece up to the knee length or top and skirt cut separately and stitched together. The suitable fabric may be cotton, terry cotton, satin etc. Its upper part is known as bodice or yoke and the lower part is the skirt. It is prepared with or without collar. It may decorative by using lace, frill, smoking, embroidery, appliqué, etc.

Fashion features:

(1) Pin tuck or lace on the front yoke.

(2) Opening at back up to half the full length or up to full length.

(3) Skirt joined to the yoke by gathering or tiny pleats.

(4) Puffed sleeve.

(5) Decorative stitches by coloured threads at the bottom round.

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Measurements

1. Chest (24”)
2. Shoulder (5”)
3. Bodice length (Yoke) (5”)
4. Frock length (22”)

INSTRUCTIONS FOR DRAFTING

Yoke drafting (upper portion of the frock)

1-2= yoke length =6”

1-3= ½ of shoulder=5”

1-4= 2 ½” (neck width)

1-6=1”

1-7= 3”

Give a shape to back neckline by joining 4-6

Give a shape to front neckline by joining 4-7

3-5=1/2”

Join 4-5 for shoulder slope

2-8=1-3 or ½ of shoulder

8-9= ½”

Join 5-8 with a slight curve for front armhole

Join 5-9 for back armhole

2-10=1/2”

Join 2-8 for front yoke line

Join 10-9 for back yoke line

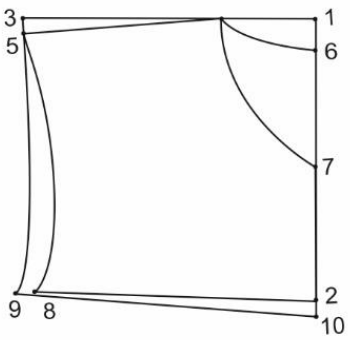

Fig.5.20: Drafting of bodice (yoke) for frock

Skirt drafting (lower portion of the frock)

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Full length of frock less bodice length = skirt length.

The bottom round of skirt is generally kept double the chest measure plus about 25 cm (10”).

Take two layers of material (the upper for the front and lower for back), with a fold at 11-12.

11-12 = Skirt length plus 2”

11-13 and 12-14 = one- fourth chest, extra material for gathers or pleats.

13-15 = one-fourth chest plus 4 cm (1 ½”).

14-16 = one-fourth chest plus 6.5 cm (2 ½”) or 12-16 = one- fourth bottom round plus 1 cm (1/4”)

Join 15-16

16-17 = 1.5 cm(1/2”)

Shape bottom 14-17

15-18 = 2.5 cm (1”)

13-19 = same as 2 to 8 of bodice.

Shape front scye 19-18.

19-20 = 1.5 cm (1/2”). Shape back scye20-18. Keep 5 to 10 cm (2 to 4”) below 12-14-17 for in turns.

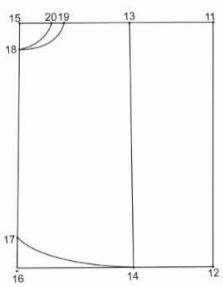

Fig.5.21: Drafting of flare of frock

CONSTRUCTION FOR a FROCK

Cut both the frock panels along the outer line meant for cutting.

Neckline Finish

- The neckline can be finished either with facing or binding. Here the frock is finished using shaped facing.
- The shaped facing is cut to the exact shape of the garment edge to which it is applied leaving 1-1 ½” all around and cut.

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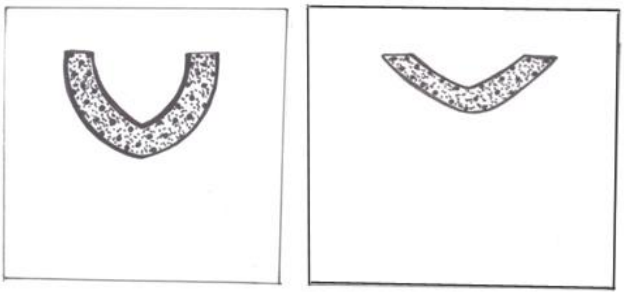


(a) (b)

Fig.5.22(a, b:) Facing for front and back neck

- Place the Facing for front and back neck respectively on the neck. Make sure that the right sides of both the fabric are facing each other. Stitch the facing and frock panel together for front and back necklines.

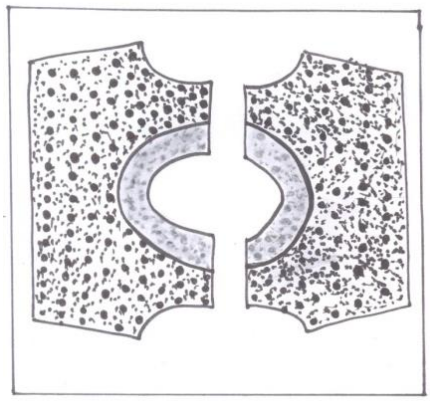


Fig.5.23: Attachment of facing (front and back)

- The pattern pieces for front and back should be interfaced. Match them up at the shoulder seams, pin together and stitch.

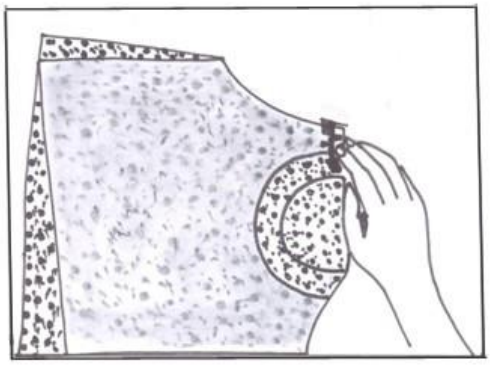
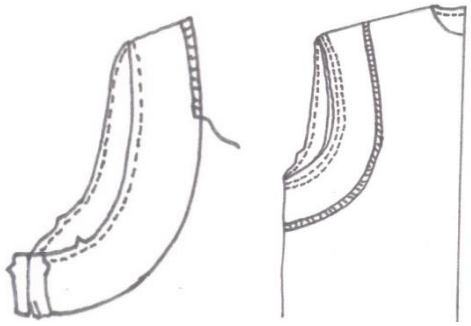


Fig.5.24: Joining of shoulders

- The armhole can be finished either with facing or binding.



a b

Fig.5.25 (a, b): Armhole finish

- Attach placket at the back side of the frock

- Place both the bodice (right sides facing) and complete by a side seam

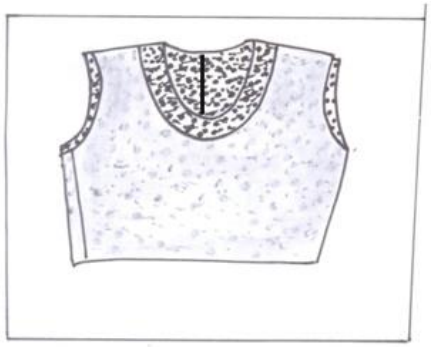


Fig.5.26: Side seam finish

- Skirt Finishing: Stitch the two-skirt piece together along the sides after forming gathers.

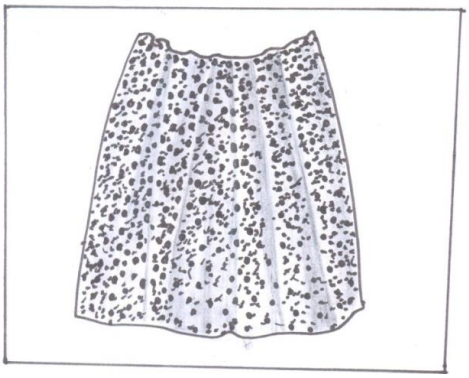


Fig.5.27:Finishing of skirt

- Complete skirt by placing together the upper body and lower skirt and join by stitching them together.

Fig.5.28: Joining Bodice with Skirt

- The finished look of Frock

Fig.5.29: Finished Frock

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PRACTICAL EXERCISE

Activity 1: Draft a Baby frock

Materials Required

1. Writing material
2. Chart sheet, brown paper
3. Drafting scale
4. Inch tape, Scissors
5. Tailor's chalk

Procedure

1. Half fold the brown paper
2. Use proper measurements and prepare the draft of baby frock on the brown paper (Follow the instructions as given in the session above)

3. Paste the draft in your practical file
4. Use this draft for cutting the fabric

Activity 2: Construct a Frock

Materials Required

1. Writing material
2. Chart sheet, brown paper
3. Drafting scale
4. Inch tape
5. Tailor's chalk
6. Fabric for preparing Baby frock
7. Thread, needle, Scissors
8. Sewing Machine

Procedure

1. Half fold the fabric
2. Lay the draft of frock on the fabric and cut all the pieces (Follow the instructions as given in the session above)
3. Construct the baby frock (As explained above in the session)
4. Finish the garment when it is complete
5. Collect pictures from internet for different frock styles and paste it in the file.

CHECK YOUR PROGRESS

A. Fill the blanks

1. The suitable fabrics that may be used to prepare a baby frock are _____ terry cotton, satin etc.

B. True or False

1. To join the shoulders of bodice, keep the wrong sides of the fabric facing each other.

C. Short answer questions

1. Explain the drafting paper patterns for a baby frock.
2. Write the sequence for constructing a baby frock.

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SESSION 5: DRAFTING AND CONSTRUCTION OF A PLAIN SKIRT, PETTICOAT AND NIGHTY

Plain Skirt

This skirt, with two darts at each side of back, is very popular nowadays. It is plain at the waist, as there are no gathers at the belt-join. If wider bottom is required, increase the bottom width accordingly.

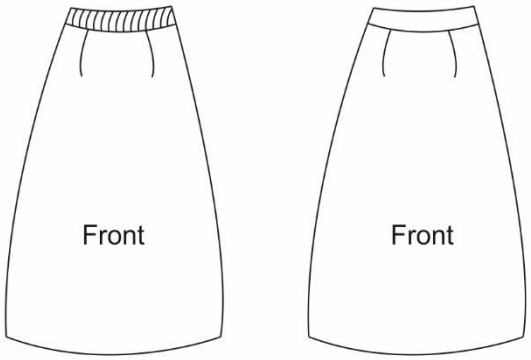

Fig.5.30: Plain skirt

MEASUREMENT

Round Waist = 28”

Round Hip = 36”

Waist to Hip = 8”

Waist to Knee = 18”

Back

Square both ways from0

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0-1 Skirt length + 2”

0-2 Waist to hip =8”

2-3= ¼thhip + 1½”

0-6 = ¼thwaist + 1½”

0 – 7 =1/2”

Join 6 and 7 with a curve

5-8 = 1”

Draw side Seam 6, 3, 8

Curve hipline outward and blend with 3 to 8

9 is midpoint of 6 and 7

Construct a dart ¼” or ½” at this point and the length of the dart is 4”

Curve hemline ½” at point 8

Join 8-1 for hem line with a slight curve

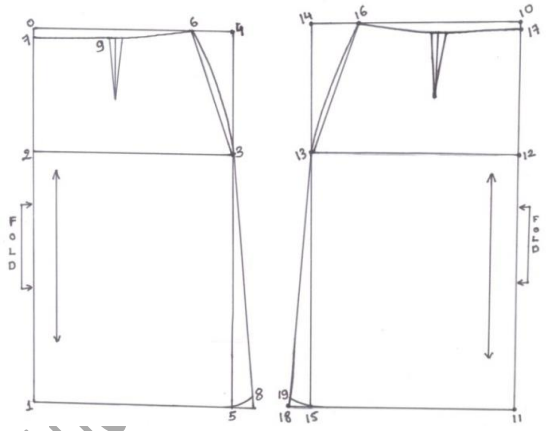

Fig.5.31: Drafting of plain skirt (back and front)

Front

Square both ways from 10

10 – 11= skirt Length +2”

10-12 = waist to Hip =8”

12-13 =1/4th hip + 1½”

10-16= 1/4th Waist + 1 ½”

10-17 = ½”

Join 16 and 17 with a curve

15-18 = 1” Draw side seam 16,13,18

Give a curve at hip line & Blend with 13 to18

18-19 =1/2”

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Join 19-11 for hemline

20 is midpoint of 16-17

Construct a dart width ½" or 1" and the Length of the dart is 4"

STEPS OF CONSTRUCTION

1. Stitch the darts
2. Join the front and back with a side seam leaving the placket opening at one side
3. Finish the placket
4. Join the waist belt with a backing
5. Finish the lower hemline.

Six Piece Sari Petticoat

Petticoat is used inside a Sari. It is prepared with six pieces, which are narrow at the waist and broad at bottom. If lace or frill is to be attached at bottom, reduce the length accordingly. A casing (nefa) is attached at the waist, for inserting a cloth, drawstring (nadi). The front opening should be 10 to 12.5 cm (4 to 5") long. The total girth at the top is 10 to 12.5 cm (4 to 5") more than the waist measure and the bottom round is about twice the full length.

Measures

Round waist	=	28"
Round Hip	=	36"
Full Length (waist to floor)	=	40"
Casing Width	=	1.5" or 2" (Belt)

Instructions for Drafting

0-1 & 2-3 = full length+2"

0-2 & 3-1 = ½ of round waist + 4"

0-4 = 1/12 of hip

3-5 = 1/6 of hip

Join 4 -5

4-6 & 5-7= ½"

Join 1-7 & 2-6 with a slight curve for lower hemline of petticoat.

Belt drafting

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0-1 & 2-3= 2” width of the belt

0-2 & 1-3 = ½ of waist = 2” for length of the belt

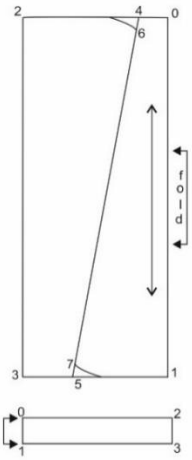

Fig.5.32: Drafting of six-piece Sari petticoat

Steps of construction

1. Cut two center pieces and 4 side pieces (kali)
2. Join 1 center piece with 2 side pieces for both front and back
3. Give a top stitch to all six pieces
4. Join the side seams leaving space for placket opening at one side
5. Finish the placket
6. Attach the nefa/casing
7. Finish the lower turning of petticoat

NIGHTY

This is a loose-fitting garment which is worn during the night before going to bed that is why it is called Nighty or Night dress. It is a chemise type of garment with or without sleeves. The full length varies according to choose. A Nighty can also made by giving some gathers and yoke at front and back with ample of ease allowance for making it more comfortable. Cotton fabric is preferred for Nighties.

Measurements

1. Chest .....34”
2. Waist ..... 28”
3. Full length ..... 50”
4. Shoulder .....14”
5. Hip.....36”

Instructions for Drafting of an A-line Nighty

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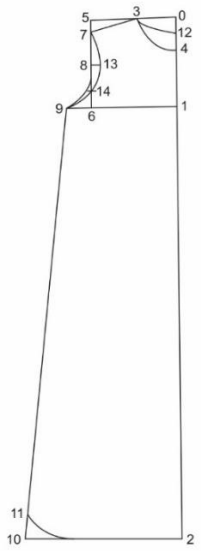

Fig.5.33: Drafting of nighty

0 – 2 = Full length + 2” (fold)

0 – 5, 1-6 = ½ of the shoulder

0-1, 5-6 = ½ of armhole

1- 9 = ¼ of bust + 2”

2 – 10= ¼ of hip + 3”

Join 9- 10, 10- 11 = 1”

Join 11 – 2

Neckline

0 – 3 = 3 ½”(standard)

0 – 12 = 1” (as per requirement)

0 -4 = 5” (as per requirement)

Shape back neckline by joining 3 – 12

Shape front neckline by joining 3 – 4

5 – 7 = ¾”. Join 7 – 3 for shoulder slope.

8 is the centre point of 5 – 6.

8 – 13 = ¾”

6 – 14 = 1”

Give a curve to front armhole by joining 7 -13 -14 -9.

Give a curve to back armhole by joining 7 -8 -9.

Sleeves

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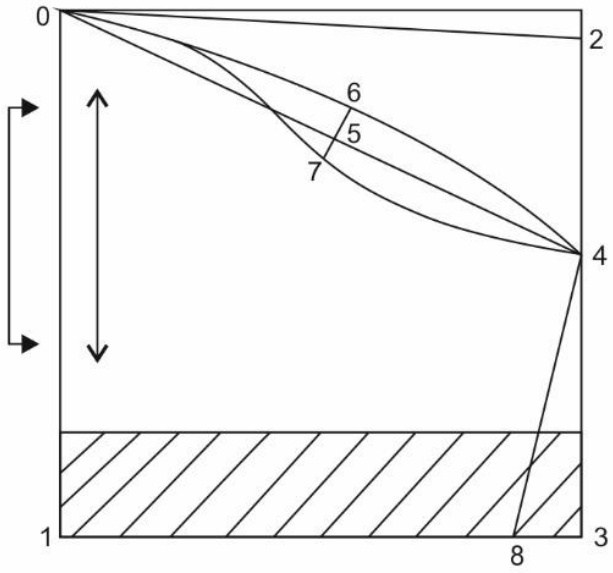

Fig.5.34: Sleeve

0 -1, 2 – 3 = 7”

1 – 3, 0 -2 = ½ of around the arm

2 – 4 = 4”. Join 4 to 0.

5 is the centre point.

5 – 6 = ¾”

5 – 7 = ½”

Give a curve to front armhole 0 -7 -4.

Give a curve to back armhole 0 -6 -4.

1 – 8 = ½ of armhole + 1”

Join 8 – 4

Fold allowance is 1” included in the sleeves.

PRACTICAL EXERCISE

Activity 1: Construct a Plain Skirt

Materials Required

1. Writing material
2. Chart sheet, brown paper
3. Drafting scale
4. Measuring Tape
5. Tailor’s chalk

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6. Fabric for preparing Plain skirt
7. Thread, needle, Scissors
8. Sewing Machine

Procedure

1. Half fold the brown paper
2. Lay the draft of plain skirt on it and trace the front and back of skirt (Follow the instructions as given in the session above)
3. Cut the fabric pieces by keeping the draft pieces on it
4. Construct the skirt (As explained above in the session)
5. Finish the garment when it is complete

Activity 2: Construct a Petticoat

Materials Required

1. Writing material
2. Chart sheet, brown paper
3. Drafting scale
4. Measuring Tape
5. Tailor's chalk
6. Fabric for preparing Petticoat
7. Thread, needle, Scissors
8. Sewing Machine

Procedure

1. Half fold the brown paper
2. Lay the draft of petticoat on it and cut it (Follow the instructions as given in the session above)
3. Cut the fabric pieces by keeping the draft pieces on it
4. Construct a well finished petticoat (As explained above in the session)
5. Finish the garment when it is complete

Activity 3: Draft a Nighty

Materials Required

1. Writing material

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2. Chart sheet, brown paper
3. Drafting scale
4. Measuring tape
5. Scissors
6. Tailor's chalk

Procedure

1. Half fold the brown paper
2. Prepare the draft of Night time on it and cut it (Follow the instructions as given in the session above)
3. Keep the draft in the practical file.

CHECK YOUR PROGRESS

A. True or False

1. A nightie or the Night dress is a garment worn at night.
2. A petticoat is an outerwear.
3. Dart is given at the waist while stitching a skirt to attain proper fitting.

B. Short answer questions

1. What is a nightie? Explain in detail the drafting of nightie.
2. With the help of diagrams explain the drafting and construction of a plain skirt.
3. Briefly explain the construction of six piece sari petticoat.

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SESSION 6: DRAFTING AND CONSTRUCTION OF A SALWAR, KURTA AND A BLOUSE

SALWAR

Salwars can be made in different patterns, like, belt salwar, plain salwar, Patiala and so on. For a Plain Salwar, there is too much fullness at the waist and seat. To eliminate bulging of material at the waist in a single length salwar, the length is divided into 2 parts, which are joined at the seat. The upper part of waist piece is converted into belt and joined with lower part of salwar which has gathers in front only, which gives a good fall to the salwar. There is different variation of salwar for e.g., dhoti salwar, Patiala salwar etc.

Measurements

Full Length = 40”

Lower waist = 30”

Hip = 36”

This garment requires 2 waist pieces (belt or upper portion of salwar); 2 center pieces; 4 side pieces(kalis) and 2 separate pieces for finishing the bottom of salwar with interfacing.

Instructions for Drafting

Belt/Waist pieces

0 – 2 = ½ of round hip + 3”

0 – 1 = 10” (includes seam allowance and fold allowance)

Lower portion of salwar

4 – 5 = (center panel) full length – belt + 2” (40 – 8 + 2 = 34”)

5 – 7 & 4 – 6 = 13” (standard)

8 – 10 = 12” (side piece or kali)

10 – 11 = 7”

8 – 9 = 34” (same length as center panel/kali)

9 – 13 = 1”

Join 13 – 11,

Cut 2 pieces of fabric of belt

Cut 2 pieces of fabric of center panel

Cut 4 pieces of fabric of side piece

Stitching process: As per the required design, the backside is kept plain, while gathers are taken at the front. One center piece is joined with two side pieces (kali) and it is done for both the portion of legs.

- Join the center panel 6-7 with side panel of 8-9 on one side and for other side join the second side piece (kali) with center panel with 4-5. Repeat the same for the other leg portion.
- After completing the stitching of both the leg potion of salwar.
- Take the gathers at the waist line at front only by keeping the machine at number 5 for long stitches which can be pulled to convert into gathers, which is adjusted in front.
- After putting the gathers at the lower portion of the salwar it is than joined with belt the upper portion of the salwar.
- Join the leg seams of both the left and right sides separately.
- Complete stitching of the upper portion and folded at the waist 2” and insert a cloth tape or elastic.

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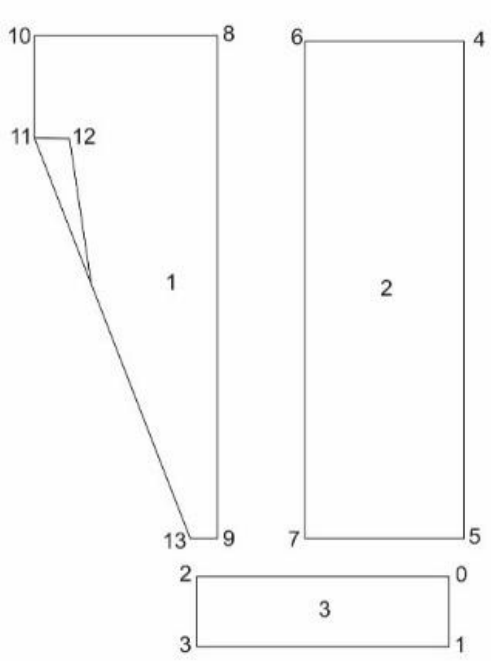

Fig.5.35: Salwar on single fold

In diagram 1 is kali piece, 2 is front piece, 3 is belt piece.

KURTA

It is perhaps the favorite outfit in India both for males and females, though its size and shape keep on changing according to the fashion. It is a comfortable dress worn in all seasons especially in the summers for comfort. It is worn with the combination of salwar, churidar, dhoti, lungi and even jeans.

Measures

Full Length = 40”

Waist length = 15 1/2”

Shoulder width = 14”

Bust = 34”

Waist = 28”

Hip = 36”

Armhole = 15”

Pattern parts Required: Front cut 1 piece on fold, back cut 1 piece on fold, sleeve cut2pieces.

Material suggested: Cotton, poplin, silk, crape, woolen, synthetic, chiffon crepe and satin.

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Material Required: 2.50 meter. Cloth width 42”

Drafting of kurta

1 – 2 = full length + 2”

1-6, 3- 7 = ½ of shoulder

1-3, 6-7 = ½ of armhole

3- 8 = ¼ bust + 1 ½ “(ease)

1-4 = waist length

4 – 15 = ¼ of waist + 1 ½ (ease)

2 – 16 = ¼ of hip +3”

Join 8 -15- 17 for side seam

16 – 17 = 1”

Join 17 to 2

Neckline for kurta

1-10 = 3 ½” (as per requirement 2” – 6”)

1 – 21 = 2” (as per requirement 2” – 6”)

1 – 5, 6 – 7 (as per requirement and shape of neckline)

Shape the back neck by joining 21 – 10

Shape the front neck by joining5 – 10

6 – 9 = ¾”

Join 9 – 10 for shoulder slope.

19 is centre point of 6 – 7

19 – 20 = ¾”

7 – 18 = 1”. Give a curve to front armhole by joining 9 – 20 – 18- 8

Give a curve to back armhole by joining 9 – 19 – 8.

Darts: can be used as per the requirement of the waistline the total length of dart is 8’ length 1” width (4” towards the bust and 4” towards the hip)

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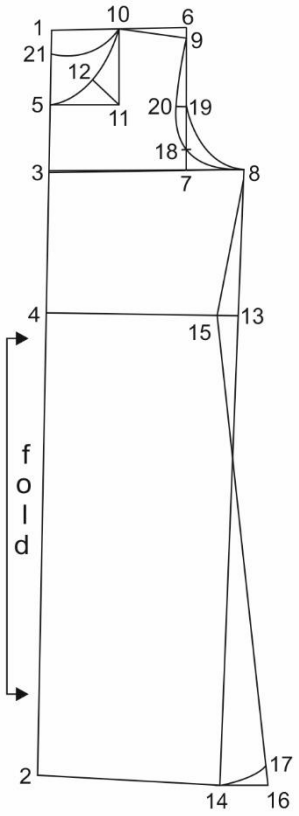

Fig.5.36:Drafting of a kurta

Sleeve: (refer fig. 5.34)

- 0 -1, 2 – 3 = 7”
- 1– 3, 0 -2 = ½ of around the arm
- 2– 4 = 4”. Join 4 to 0.
- 5 is the centre point.
- 5 – 6 = ¾”
- 5 – 7 = ½”
- Give a curve to front armhole 0 -7 -4.
- Give a curve to back armhole 0 -6 -4.
- 1– 8 = ½ of armhole + 1”
- Join 8 – 4
- Fold allowance is 1” included in the sleeves.

Steps of construction/ stitching process

1. Join the shoulders

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2. Finish the front and back neckline using a facing.
3. Give side seams leaving the slit area
4. Finish the sleeve by joining its sides and lower turning
5. Join the sleeve to the kurta sides
6. Finish the slits and lower turning of kurta

BLOUSE

The sari blouse combination is worn by women since ancient time though its designs, necklines and sleeve length and shapes kept on changing according to fashion. A plain blouse can be adapted to various designs for e.g., choli-cut blouse, katori blouses etc. Other than sari, it is also worn with ghagara or lehnga.

Note: The given drafting is of plain blouse with V neckline, plain sleeves and opening can be kept either at the front or at the back.

Measurements: Drafting of plain blouse with V neckline, plain sleeves and opening can be kept either at the front or at the back.

Bust = 32”

Waist = 28”

Shoulder = 14”

Length = 14” +1”

Sleeve Length = 10” + 1 ½” (for fold)

Sleeve width= ½ of around the arm + 1”

Armhole = 15”

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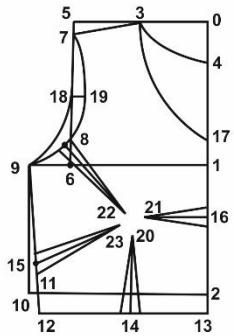

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Fig.5.37: Drafting of a plain blouse (front and back)

Instructions for Drafting

0 -2 = Full length + ½” for back

0 – 13 = Full length + 1” for front

0 – 5 & 1 – 6 = ½ of shoulder =7”

0 – 1 &5 - 6 = ½ of armhole

1 – 9 = ¼ bust + 1 ½”

0 – 3 = 3 ½”

0 – 17 = 2” (as per requirement 2” to 6”)

0 – 4 = 6 to 7” (as per requirement)

Shape back neckline by joining 3 to 17

Shape front neckline by joining 3 to 4

5 – 7 = ¾”

Join 7 – 3 for shoulder slope.

18 is the centre point of 5 – 6

6 – 8 = 1”

18 – 19 = ¾”

Give a curve to front armhole 7 -19-8-9

Give a curve to back armhole 7-18-9

2- 11 = ¼ of waist +2”

11 – 12 &2- 13 = 1” for front bodice

Join 12 – 13 for front bodice

Join 2-10 for back bodice

Darts

13 – 14 = 4” Dart width is 1” (½” on each side)

14 – 20 = 4” (waist dart)

20 – 21, 21 – 22, 22 – 23 = 1”

Draw centre front dart from 21 – 16 = dart width is ½” (¼”on each side)

9 – 15 = 5” (side seam dart)

Join 15 – 22. Dart width is ½”(¼” on each side)

Join 8 to 23. (armhole dart) Dart width is ½”(¼” on each side)

Sleeves: Same as the sleeves given in the draft of kurta.

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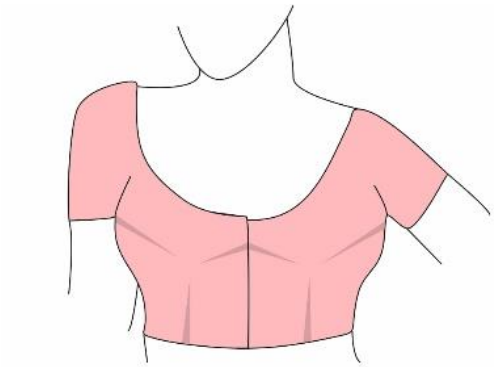

Fig.5.38: Plain blouse

Steps of construction and the stitching process

1. Join the shoulders
2. Finish the front and back neckline using a facing.
3. Give the dart seams
4. Give side seams of the blouse
5. Finish the sleeve by joining its sides and lower turning
6. Join the sleeve to the kurta sides
7. Finish the lower turning of blouse using a braid.

PRACTICAL EXERCISE

Activity 1: Construct a Salwar

Materials Required

1. Writing material
2. Chart sheet, brown paper
3. Drafting scale
4. Inch tape/Measuring Tape
5. Tailor's chalk
6. Fabric for preparing Salwar
7. Thread, needle, Scissors
8. Sewing Machine

Procedure

1. Half fold the brown paper
2. Lay the draft of Salwar on it and trace the front and back (Follow the instructions as given in the session above)

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3. Cut the fabric pieces by keeping the draft pieces on it
4. Construct the Salwar(As explained above in the session)
5. Finish the garment when it is complete

Activity 2: Construct a Plain Kurta

Materials Required

1. Writing material
2. Chart sheet, brown paper
3. Drafting scale
4. Measuring tape
5. Tailor's chalk
6. Fabric for preparing Kurta
7. Thread, needle, scissors
8. Sewing Machine

Procedure

1. Half fold the brown paper
2. Lay the draft of Kurta on it and cut the front, back and sleeves of kurta(Follow the instructions as given in the session above)
3. Cut the fabric pieces by keeping the draft pieces on it
4. Construct a well finished Kurta (As explained above in the session)
5. Finish the garment when it is complete

Activity 3: Construct a plain Blouse

Materials Required

1. Writing material
2. Chart sheet, brown paper
3. Drafting scale
4. Inch tape
5. Tailor's chalk
6. Fabric for preparing Blouse
7. Thread, needle, Scissors
8. Sewing Machine

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Procedure

1. Half fold the brown paper
2. Lay the draft of Blouse on it and cut the front, back and sleeves (Follow the instructions as given in the session above)
3. Cut the fabric pieces by keeping the draft pieces on it
4. Construct a well finished Blouse(As explained above in the session)
5. Finish the garment when it is complete

CHECK YOUR PROGRESS:

A. Fill in the Blanks:

1. _____ is a comfortable dress used in all season especially in summer for comfort.
2. In _____, there is too much fullness at the waist and seat.
3. In a Plain Blouse, the opening can be kept either at the front or at the _____

B. Short answer questions

1. With the help of diagrams explain the drafting of the following:
   - Salwar,
   - Plain Kurta, and
   - Plain Blouse.
2. Explain the stepwise construction of a blouse.

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MODULE-6: CARE AND MAINTENANCE OF SEWING MACHINE

The care and maintenance of a sewing machine helps to improve its working. This consists mainly of cleaning, oiling, and right handling, which contributes to good output, quality production and safety of the workers. Care and maintenance is also necessary in order to operate the machine smoothly and for its long term use. It is very important to identify the sewing defects such as upper thread break, bobbin (lower) thread break, bunching of threads, skipped stitches, irregular stitches and stitches that are not formed properly, etc., for proper working of sewing machine and good quality production. This Unit discusses the cause and different defects and the corrective action to be taken.

Learning Outcomes
After completing this module, you will be able to: • Demonstrate cleaning, oiling and handling of sewing machine • Identify and rectify machine and sewing defects
Module Structure
Session 1: Cleaning, Oiling and handling of sewing Machine
Session 2: Machine and Sewing defects and its Solutions

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SESSION 1: CLEANING, OILING AND HANDLING OF SEWING MACHINE

It is very important for a tailor to take care of his most important equipment i.e. sewing machine. A clean, well-oiled sewing machine is essential for good output and safety. The maintenance of sewing machine is also important in preventing stitching faults. Regular and proper cleaning, oiling, care and maintenance of sewing machine can help the tailor save time and money. Cleaning and oiling of machine should be done on regular basis at fixed intervals of time. When not in use the machine must be kept covered with a suitable cover to prevent dust from settling on it.

A tailor must adhere to following guidelines for proper cleaning, oiling, handling and maintenance of sewing machine:

Cleaning of sewing machine

While cleaning the machine, pay attention to the various parts of the machine, the machine table or stand, the work station, and even your hands, to avoid soiling the material being sewn, prevent accidents and damage to the machine. These directions mainly hold true for the lockstitch machine, but they can easily be adapted to other machine types also. The machine should always be kept covered when not in use to protect from dirt and dust. Before attempting to clean the machine, it is wise to remove the needle to avoid the danger of sewing into the finger during the cleaning process.

Material required for cleaning

1. Flat paintbrush (½" to ¾"wide)
2. Cleaning solvent or fluid
3. Soft disposable cloth
4. Screwdriver
5. Sewing machine manual
6. Small handy vacuum cleaner

All dust and dirt can be removed by wiping the part out carefully with the cloth, but if the machine is clogged, a more careful cleaning is necessary. Common tools like a small dry brush or old toothbrush or compressed air and a soft cloth are used to remove dust and lint.

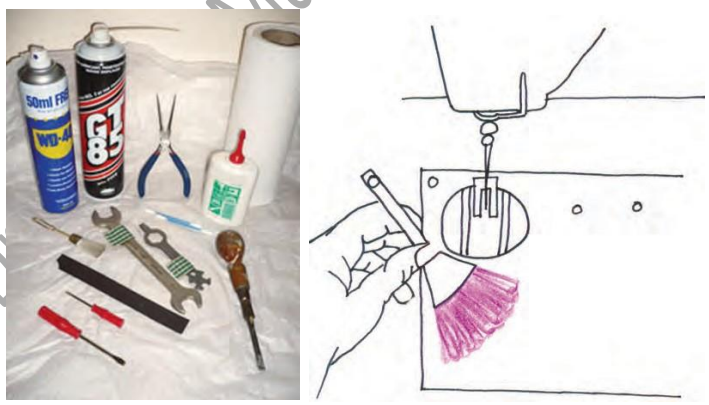

Fig. 6.1(a, b) Tools for cleaning sewing machines

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Points to be considered while cleaning

1. Before cleaning any machine it must be turned off.
2. Open the slide plate and remove the bobbin case. Then remove the throat plate. Whenever it is required, remove the face plate from the left end of the head.

3. Any lint, dust, or loose threads in the area around the feed dog and rotary hook, shuttle may be brushed or blown away. Do not use anything hard, such as a screw driver or scissors points, to remove the lint. Instead, carefully use a pointed instrument like a needle or pointed tweezers/plucker to pick out bits of thread and lint that cannot be brushed out.
4. Turn the hand wheel manually to expose any areas that might have been hidden initially. Brush again.
5. Carefully tilt the machine head back until the head rests on the post on the back of the table.
6. Brush out any lint, dust, or threads from the lower part of the machine.
7. Use a soft, thin and clean cloth to remove any lint on the machine parts.
8. Unscrew all plates and screws and the bobbin case.
9. Check the needle to be sure it is clean and the eye is not clogged.
10. Replace the needle, if necessary.
11. Wipe away any excess oil or dust on the head, machine bed, motor, table, and stand.
12. If there is lint between the tension discs and in the thread guides, use thread to floss the tension discs and remove any lint.
13. If you have oiled the machine, sew on few scraps to remove any excess oil.
14. Wash hands after cleaning and oiling the machine.
15. After completing the work, put a piece of fabric under the foot, lower the presser foot, cover the machine, and pick up any trash.
16. For cleaning the machine, it is good to clean one area at a time. Remove only those parts that are detachable, and keep in mind the position and direction of each part that is removed for cleaning. Keep the parts in order to make it easier to attach them.
17. When using a screwdriver, apply pressure on the screw, if a screw does not loosen easily. Soak it in a good quality cleaning fluid available in the market for the sewing machine. Petrol or kerosene can also be used as cleaning fluids. Then set the screwdriver in the slot to loosen the screws if required.
18. Remove all the parts that is, the needle, presser foot, slide plate, throat plate, bobbin case, and the face plate. Put them in the tray and soak in cleaning fluid.
19. Wrap the motor to protect it from oil and cleaning solvent. Ensure that the sewing machine has been unplugged.
20. To clean the feed dog, remove the needle plate of the machine and brush off all lint deposits and dirt sticking to different parts.

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21. To clean the shuttle case, remove all the screws holding the shuttle case. Take out the shuttle case and wipe its groove free of dirt, and thread bits.
22. Sometimes loose threads wind around the pivots of the treadle and make the sewing machine hard to run. Thread bits must be removed which are caught in the wheel along with all lint and dust sticking to the treadle parts.
23. Use a cloth or small brush to clean near the needle and feed dog.
24. If the machine starts to run hard, it is an indication that dirt or lint is jammed inside a bearing. In that case, remove the bobbin case to remove all lint and stray threads. Continuously run the machine and flush it with the cleaning fluid until the dirt and gummed oil are washed from the bearing.
25. The bobbin case can be removed from the sewing machine easily. Use a dry brush to clean out all lint. Remove any thread that may be wound up around the hook shaft. In some machines, the hook assembly can also be removed for complete cleaning.
26. Remove bobbin and bobbin case, and clean small thread particles from there.
27. Pull a piece of cloth soaked in the solvent, back and forth between the discs to clean it from dust, lint or any other particles. Repeat with a dry cloth to make sure that no lint or thread is caught between them. To remove any remaining dirt and oil, dip a cloth or brush in a cleaning fluid and scrub all parts of machine that can be reached. Check the lower tension of the bobbin case and the upper thread tension discs. Pull a thread under the bobbin to remove dirt.
28. Clean the hand wheel, washer, and the shaft. Lubricate the shaft with two drops of sewing machine oil and place a small amount of grease on all gears. Reassemble the handwheel and clutch.
29. After properly cleaning these areas, reassemble all the parts of the sewing machine and run it. If reassembled correctly, it should run smoothly.

Oiling the sewing machine

Always keep your sewing machine well oiled. All dust should be removed from the exposed parts atleast once every week, and the important parts of the machine should be oiled. Use good quality sewing machine oil. Always remove lint deposits, dust and thread bits before oiling any part of the machine. In order to operate the machine smoothly, it is essential to oil it repeatedly.

Material required

1. Sewing machine manual
2. Sewing machine oil

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3. Soft disposable cloth

Points to remember while oiling the sewing machine

1. Before oiling, ensure that the sewing machine is turned off.
2. Oil the machine using the directions given in the machine manual. Inspect the condition of all visible parts of the machine every time you oil it.
3. If a manual is not available, oil the machine as per the directions of the teacher/instructor as per the required frequency.
4. Locate oil holes of the sewing machine. They are mostly identified by arrows, or redor yellow paint. Put one to two drops of oil into each hole. Too much oil can clog the machine. Turn the hand wheel manually so that the oil will work its way between the parts.
5. Wipe off all dust and excess oil from the machine or table; clean up any spilled oil immediately.
6. Sew on a few fabric scraps to remove any excess oil.
7. Wash hands after oiling the machine.

Method for oiling of the sewing machine

It is necessary to oil the sewing machine periodically. If the machine is used every day, oil it once a week. If you do not use it very regularly, then oiling once a month is sufficient. The frequency of oiling depends on its use, and some times on the material sewn. To oil thoroughly:

- Remove the upper thread, needle plate, slide plate, face plate, bobbin case, and needle and presser foot.
- Put sewing machine oil in all oil holes and joints where one part rubs against another. One or two drops of oil are enough for each point.
- While oiling, turn the fly wheel back and forth to facilitate the flow of the oil to different moving parts. It is necessary to oil the shuttles case.
- After oiling the points on the head of the machine, tilt the machine head back to oil the points on the underside.
- On a treadle machine, the belt will have to be released before tilting the machine head back. Remember to oil the pivots of the treadle.
- When the machine has been completely oiled, wipe away excess oil and run it slowly for 2–3 minutes on a waste piece of material.

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- Before you close the machine, place a scrap of fabric under the presser foot and lower the needle. The fabric will absorb the excess oil that might drain down through the machine and will prevent the formation of oil spots on your work the next time the machine is used.
- If the sewing machine becomes gummed and dirty with oil, put a drop of kerosene or petrol in each oil hole and at joints, and run it rapidly for 1–2 minutes.
- Then wipe off the oil that oozes out with a soft cloth and re-oil the machine. It will require a second oiling within few hours after this treatment.
- Check the machine instruction booklet/manual to determine the types of oil lubricant to use and where to use them.
- Do not oil the tension discs, the hand wheel release or the belts and rubber rings in any machine.
- Run the machine so the oil would be distributed into all the bearings. Use oil freely because all oil has been removed in the cleaning process.
- For later oiling, one drop of oil on each bearing and in each oil hole is enough.
- After oiling the sewing machine, wipe away the excess oil and reassemble the machine.

For oiling the machine, oil used should be of good quality, preferably regular machine oil, as otherwise it may clog the bearings. Care should be taken to see that too much oil is not deposited in, as it is liable to spoil the cloth being stitched. It is advisable to do a few stitches on a waste piece of cloth until clear stitches are obtained.

Care and maintenance of sewing machine

Most sewing machines encounter problems that can be traced to poor general maintenance or neglect. But with some simple tools and just a few minutes daily, weekly, or monthly, depending on how much our sewing machine is used, we can help keep our machine running smoothly.

Handling of sewing machine

Safe handling procedure of sewing machine

The safe handling procedure of the sewing machine involves:

1. Setting up of the sewing machine
2. Adopting safety measures before starting sewing
3. Adopting safety measures during sewing

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Setting up of sewing machine

For setting up a sewing machine:

- Position the machine on a hard flat surface.
- Select and install the needle securely into the needle bar.
- Select the suitable thread according to the type of fabric to be used.
- Wind the thread into the bobbin.
- Following the thread guide, thread the machine from the spool pin to the needle.
- Set the machine of required stitch length.
- Balance the thread tension on the sewing machine (adjust the upper tension in relation to the lower tension).

Adopting safety measures before starting sewing

One must practice following safety measures before starting sewing:

- The sewing machine cord must be in good condition. Switch off the sewing machine before threading the needle, and after every use, turn the machine off or unplug t.
- Ensure that there is enough light while using the sewing machine. Using a sewing machine in poor lighting can lead to any accident or mis happening.
- Keep the feet off the treadle when setting or threading the needle.
- Use the hand wheel to move the needle to its highest position while the fabric is placed for sewing.
- One needs to hold the top and bottom loose thread ends before starting the machine.

Adopting safety measures during sewing

A tailor must adopt following measures during sewing:

- Practise on a scrap material to check against oil stains, etc.
- Notice the way the sewing machine sounds. If the sewing machine makes some abnormal sounds or seems louder than usual, get it checked by a technical expert.
- Sewat as low, steady pace and use a needle guard to protect the fingers.

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Handling of material, tools and equipment

Handling of material

A tailor must consider following points while handling material:

1. Select appropriate needle, thread and stitch length suitable for the different type of fabrics.
2. Practise on the scrap material prior to starting work on the final fabric to avoid oil stains.
3. Also make a trial stitch on the waste fabric.
4. Take care to set the presser foot in a way so as to hold the fabric in place.
5. Position the fabric on the machine in such a way that the larger portion of the fabric falls on the left hand side of the sewing machine.
6. Take care while sewing slippery fabrics, and if essential, use lining to give firmness to the slippery fabrics.

Care and handling of tools and equipment

It is important for the tailor to properly handle and take care of his tools and equipments for smooth working. He must give equivalent attention to sewing tools and equipments as sewing machine. Proper handling of tools is essential for a good garment construction. Following are guidelines for proper care and handling of different tools and equipments:

- **Measuring tape:** It is used for taking body measurements and requires very little maintenance. The tape should be clean to check the accuracy of the markings. After each use, the measuring tape should be rolled or wrapped and kept in a clean box.

- **Sewing gauge:** These are hand tools for measuring small areas during sewing. Sewing gauges are handy to have for hand sewing, marking alterations, hemming, checking the width of seam allowances, etc. A six inch aluminium ruler is the most common gauge. Select a jigsaw puzzle shaped gauge which will have markings for the most common sewing measurements that are either seam allowances, turned under or hemmed. A sliding marker helps to keep the measurements uniform. Do not allow the metal gauges to get bent.

- **Pin cushions:** These hold the pins and needles during working to prevent accidents while working. A magnet attached pin cushion is very helpful in holding the pins but when more varieties of pins are used, it will not help to keep the pins separated. Select a standard pin cushion filled with fines

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and, so that the abrasion of fillers may prevent the pins from dust and getting rusted.

- **Hand sewing needles:** These needles are available in varying sizes and points. They guide the thread through the fabric while hand sewing. It is advisable to purchase hand sewing needles of good quality stainless steel material to prevent them from rusting. The needle should always be kept in a dry and clean case. To avoid a finger injury while searching throught he loose needles, they may be kept with a small piece of thread passed through its eye. To avoid damage to the point of the needle, it should not be pressed or pricked on a hard surface.

- **Sewing needle threader:** A needle threader is used for threading a sewing needle easily and quickly. The needle threader should have a large enough eye to hold the thread, as forcing the metal wire of the threader can cause it to break. Being very small, it should be kept carefully in a small box to avoid any damage.

- **Seam ripper:** It is used to remove the fine stitches and to pick out single threads. Keep the seam ripper sharp and clean, and use it only for sewing tasks. To prevent injuries and damage, keep these am ripper covered when not in use. Select an appropriate seam ripper for use as it may cut the fabric while removing the seam. For example, larger, heavier seam rippers are available for heavy removal jobs or cutting through heavy threads.

- **Dressmaking shears:** Such shears are used for cutting out patterns, fabrics and soft material. Use the shear for cutting fabrics and soft material only. If used on anything other than fabric, (thick sheet, etc.), it will reduce the sharpness of shear or cause it to become blunt, causing uneven cutting, shredding of fabric and hand fatigue. Keep the blades sharp and clean.

- **Pressing cloth:** It helps to remove fabric creases and wrinkles while ironing. A press cloth is essential to protect the fabric from direct contact with a hot iron. Also a see-through press cloth allows one to go through the pressing task through the press cloth. It should always be clean and oil free for protecting the garment from oil and dust.

- **Hams and sleeve rolls:** Hams and sleeve rolls are wonderful for pressing curves. They should always be clean and oil free.

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PRACTICAL EXERCISES

Activity 1

Practice the cleaning of sewing machine and its different parts.

Materials Required

1. Flat paintbrush (½" to ¾"wide)
2. Cleaning solvent orfluid
3. Soft disposablecloth
4. Screwdriver
5. Sewing machinemanual
6. Small handy vacuumcleaner

Procedure

1. Visit the practical/sewing lab with yourteacher.
2. Practise the cleaning of sewing machine and its different parts as per the instructions given in thissession

Activity 2

Practice the steps involved in the oiling of sewing machine.

Material Required

1. Sewingmachine
2. Lubricatingoil
3. Cleaning cloth
4. Roughfabric

Procedure

1. Visit the practical/sewing lab with yourteacher.
2. Place newspapers below the sewing machine so that the floor should not be dirty and the newspapers can be thrown away afteroiling.
3. Oil all the parts of machine using machineoil.
4. After oiling the machine, clean the extra oil on the machine.
5. Check stitching on a rough fabric so that the machine is checked for smooth running.

Check Your Progress

A. Match the columns

Sewing Tools	Uses
(a) Pin cushions	1. Cutting out of pattern sand fabrics
(b) Seam ripper	2. Protect the fabric from direct contact with hot iron
(c) Pressing cloth	3. Holds pins and needles
(d) Dressmaking shears	4. Remove fine lines and single threads

B. Fill in the blanks

1. The measuring tape should be clean to check the. _____ of the markings.
2. _____is a hand tool for measuring small areas during sewing.

C. Questions

1. Describe the cleaning of the sewing machine.
2. Write about the oiling of the sewing machine.
3. Explain the safe handling procedure of the sewing machine.
4. Write in detail about the care and handling of tools and equipment.

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SESSION-2: MACHINE AND SEWING DEFECTS AND ITS SOLUTIONS

Defects can be defined as the faults or imperfections that one may encounter while working. Sewing defects refer to the faults or imperfections during sewing that affects the overall look and quality of a garment. While sewing machine defects are those faults that affect the output of the machine. Most of the machine and sewing defects are curable if identified at early stages.

Sewing Machine Defects

Some of the common defects related to the sewing machine, the possible causes, and the best possible corrective actions associated with these are givenbe low.

Defect: The machine does not feed the material.

Possible causes

(i) The stitch length has been set to zero.

(ii) The presser foot pressure is too low.

(iii) Feed dog is lowered.

(iv) Threads are knotted under the fabric.

Corrective action

(i) Set the proper stitch length.

(ii) Set pressure of presser foot.

(iii) Raise feed dog.

(iv) Remove fabric and knotted threads. Then again place the fabric properly.

(v) Place both threads back under the presser foot before starting to sew.

Defect: Machine running heavily

Possible causes

(i) Dust or lint clogging under the feed dog

(ii) Insufficient oiling

(iii) Thread caught in the shuttle

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(iv) Machine not used for some time with the result that the parts have jammed

Corrective action

(i) Clean the feed dog.

(ii) Oil the machine properly.

(iii) Remove the thread from the shuttle.

(iv) Disassemble the removable parts, clean and oil them.

Defect: The sewing machine does not run.

Possible causes

(i) The presser foot is not properly placed and the needle hits the presser foot.

(ii) The needle has come out and is in the shuttle area of the machine.

Corrective action

(i) Place and tighten the presser foot properly.

(ii) Remove the needle and insert a new one again, or place it at the right position.

Defect: The upper thread breaks.

Possible causes

(i) The threading is not correct.

(ii) The thread has a knot in it.

(iii) The upper thread tension is too tight/high.

(iv) The needle is bent or blunt.

(v) Wrong size of needle

(vi) The needle has been inserted wrongly.

(vii) The needle and thread do not match, and are also not suitable for the fabric to besewn.

(viii) Started stitching too fast

(ix) Thread take-up lever has not been threaded

Corrective action

(i) Thread the machine correctly.

(ii) Remove knots from the thread.

(iii) Make correct the thread tension.

(iv) Replace with a new needle, of good condition.

(v) Replace with a needle of the correct size.

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(vi) Insert the needle properly.

(vii) Use a suitable thread and needle.

(viii) Start the machine at a medium speed.

(ix) Check the threading order.

Defect: The bobbin thread breaks

Possible causes

(i) The bobbin has not been fully inserted/pushed in the bobbin case.

(ii) The bobbin case has not been threaded correctly.

(iii) The bobbin does not turn smoothly in the bobbin case.

(iv) Lint in the bobbin case or shuttle

Corrective action

(i) Securely install the bobbin in the bobbin case.

(ii) Thread the bobbin case correctly.

(iii) The bobbin should not be over wound.

(iv) Check that the bobbin has been wound evenly.

(v) Clean the bobbin case and shuttle, and remove the lint.

Defect: Loud noise is heard and/or knocking noise; machine jammed

Possible causes

(i) Dust has accumulated in the feed dog.

(ii) Lint is in the hook and shuttle area.

(iii) The thread is caught in the shuttle.

Corrective action

(i) Clean the machine and remove the lint.

(ii) Disassemble the shuttle case and clean it.

(iii) Oil the machine.

Defect: Threading cannot be done

Possible causes

(i) The needle is not at the highest position.

Corrective action

(i) Turn the hand wheel until the needle reaches its highest position.

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Defect: The thread does not enter the eye of the needle.

Possible causes

(i) The eye of the needle is clogged.

(ii) The thread is thick in comparison to the eye of the needle.

Corrective action

(i) Clogging should be removed by using a fine wire.

(ii) Change the needle.

(iii) Select the thread according to the needle.

Defect: Needle breaks

Possible causes

(i) A thin needle was used for sewing a heavy weight material.

(ii) The needle has not been fully inserted/pushed into the needle bar.

(iii) The screw of the needle clamp is loose.

(iv) The presser foot is not the correct one.

(v) The presser foot is loose.

(vi) Pulling of fabric

Corrective action

(i) Use the correct size of the needle.

(ii) Properly insert/push the needle in the needle bar.

(iii) Securely tighten the needle clamp screw.

(iv) Use correct presser foot.

(v) Reset the presser foot.

(vi) Do not pull fabric; guide it gently.

Sewing Defects

Faulty stitching can affect the overall look of the final garment and hence can degrade the quality. Early identification and rectification of such defects is important to save time and money. Following are some common sewing defects and their corrective measures:

Defect: Skipped stitches

Possible causes

(i) The thread tension is too tight/high.

(ii) The needle is bent or blunt.

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(iii) Wrong size of the needle
(iv) The needle and thread do not match.
(v) The thread take-up lever has not been threaded.
(vi) Light pressure on the presser foot
(vii) Incorrect setting of the needle

Corrective action

(i) Correct the thread tension.
(ii) Replace with a new needle of good condition.
(iii) Replace with a needle of correct size.
(iv) Use a suitable thread and needle.
(v) Check the threading order.
(vi) Increase pressure on the presser foot.
(vii) Reset the needle properly.

Defect: The stitches are not formed properly

Possible causes

(i) The thread has not been pulled into the thread guide.
(ii) Threading is not correct.
(iii) The bobbin case has been threaded wrongly.

Corrective action

(i) Fully pull the thread into the thread guide
(ii) Correct the threading.
(iii) Correctly thread the bobbin case.

Defect: Irregular stitches

Possible causes

(i) Incorrect size of the needle
(ii) Improper threading
(iii) Loose upper thread tension
(iv) Pulling of the fabric
(v) Light pressure on the presser foot
(vi) Loose presser foot
(vii) Uneven or over wound bobbin

Corrective action

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(i) Choose the correct size of the needle for the thread and fabrics.
(ii) Rethread the machine properly.
(iii) Tighten the upper thread tension.
(iv) Do not pull the fabric; guide it gently.
(v) Increase pressure on the presser foot.
(vi) Reset the presser foot.
(vii) Rewind the bobbin properly.
(viii) Remove over winding of the bobbin.

Defect: Fabric pucker

Possible causes

(i) The stitch length is too long for the material.
(ii) The needle point is blunt.
(iii) Incorrect thread tension
(iv) Light pressure on the presser foot
(v) The fabric is too sheer or soft.
(vi) Using two different sizes or kinds of upper and lower threads

Corrective action

(i) Decrease the stitch length.
(ii) Replace with a needle of good condition.
(iii) Reset the thread tension.
(iv) Increase pressure on the presser foot.
(v) Use an underlay of tissue paper/backing.
(vi) The upper thread and bobbin thread should be of the same size and kind.

Defect: Bunching of thread

Possible causes

(i) The upper and lower threads are not drawn back under the presser foot.
(ii) The placement of the feed dog is down.

Corrective action

(i) Draw both threads back under the presser foot.
(ii) Fit the feed dog properly.

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Defect: Seam Slippage

Possible causes

(i) This defect occurs when yarns of the fabric are pulled out of the seam.

Corrective action

(i) Stitch density should be optimized.

(ii) Use French seam in place of plain seam.

*(iii)*Increase the width of seam.

Defect: Unbalance stitch

Possible causes

(ii) The thread tension is incorrect.

*(iii)*Threading is not correct or incorrect thread path.

*(iv)*Snagging of needle with bobbin case.

Corrective action

(i) Set accurate thread tension.

(ii) Correct the threading of both bobbin and needle thread.

*(iii)*Bobbin case must be smooth.

Defect: Seam grin

Possible causes

(i) When the two panels of fabric are open , a gap is revealed.

(ii) Lower stitch tension.

(iii) Incorrect stitches per inch (SPI).

Corrective action

(i) Increase stitch tension.

(ii) Increase stitches per inch (SPI).

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Note: While there are various defects of the sewing machine, the causes of these may be overlapping that is, the same cause can lead to multiple defects.

PRACTICAL EXERCISES

Activity 1

Prepare a chart of the sewing machine and sewing defects. Also mention the causes and remedies for the same.

Material Required

1. Writing material
2. Ruler

Procedure

1. List out the common defects in sewing and sewing machine.
2. Write the possible causes and list out the corrective action for the problems.
3. Prepare a chart.
4. Place the chart in the classroom/practical lab.

Activity 2

Visit a garment manufacturing unit/workshop and attend a demonstration of the defects of the sewing machine and sewing, possible causes and its corrective action.

Material Required

1. Writing material
2. Camera (if available/mobile phones with camera)
3. Vehicle (bus) for field visit

Procedure

1. Visit a local garment manufacturing unit/workshop for the demonstration with the teacher.
2. Attend a demonstration on the defects of a sewing machine and sewing, causes and corrective action by a technical expert.
3. Prepare a report of the visit.

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Check Your Progress

A. Match the columns

(a)	Poor thread quality	1. Remove bobbin and bobbin case and clean
(b)	Tensions improperly set	2. Replace needle
(c)	Dirt, lint, or thread in bobbin case	3. Replace poor thread
(d)	Blunt or bent needles	4. Adjust tension

B. Arrange the jumbled words

(a)	msea	(e)	efcetd	(i)	readht
(b)	polso	(f)	nutlb	(j)	iltn
(c)	thustle	(g)	psipdke	(k)	kercpu
(d)	edelne	(h)	obbinb	(l)	niedwr

C. Short answer question

1. Write short notes on the following machine defects:
   (a) Excessive noise while stitching
   (b) Needle break
   (c) Fabric puckering
   (d) Seam grin
   (e) Seam slippage

D. Long answer question

1. What are the common defects that occur while stitching? Write the causes and corrective action for the same.

Glossary

Cowl- It is a drape added at neckline, shoulder, waist etc. in women's garments.

Gusset-A gusset is a piece of fabric which is inserted into a seam to add breadth or to reduce stress from fitted garments. It can be added at the shoulder, underarms, hem etc.

Inseam- It is the measurement of inside leg from the crotch to the ankle.

Jacquard attachment- It is an automatic attachment added to the loom which creates intricate patterns in weaving.

Loom- A loom is device that is used to weave yarns together to form a woven fabrics.

Nap- It is the raised (small fibers) surface in napped fabrics.

Nape- It is the back of the neck where the skull ends and the neck starts.

Napped fabrics- Such fabrics are woven or knitted fabrics finished in such a manner that the small fibers get raised from the fabric surface creating a soft, fluffy, warm, heavy fabric.

Protein fibers- Natural fibers are categorized into two categories i.e. plant fibers and protein fibers. Plant fibers are those fibers that are obtained from plant sources such as cotton. While protein fibers are those fibers which are obtained from animal sources such as silk, wool.

Sloper- A sloper is a basic foundation pattern which does not include seam allowance.

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ANSWER KEY

MODULE – 1

SESSION-1: FILL IN THE BLANKS

1. Domestic
2. Computerised
3. Electric

SESSION-2: FILL IN THE BLANKS

1. (b) 45degrees
2. (c) length-wise
3. (c) Hem
4. (a) Hem allowance

SESSION-3: FILL IN THE BLANKS

1. (d) needlebar
2. (c) feed dog
3. (b) overcasting
4. (a) engage stitch mechanism

MODULE – 2

SESSION-1: FILL IN THE BLANKS

1. Transfer markings
2. Air-erasable and water-soluble
3. 24 inch
4. French
5. Defect
6. Tracing wheel

SESSION-2: FILL IN THE BLANKS

1. Notches
2. Seam ripper

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3. Pinking
4. Thread cutter
5. Thick felt
6. Scissors

SESSION-3: FILL IN THE BLANKS

1. 9,18
2. Filament
3. Universal point

SESSION-4: FILL IN THE BLANKS

1. Foot control
2. Clockwise
3. Reversed

MODULE – 3

SESSION-1: FILL IN THE BLANKS

1. b. Permanent
2. d. Even Basting
3. a. Hem

SESSION-2: FILL IN THE BLANKS

1. (a) decorative
2. (b) lapped
3. (b) decorative
4. (b) French

SESSION-3: FILL IN THE BLANKS

1. (a) pinked finish
2. (b) bound seam edge finish
3. (c) herringbone
4. (b) double stitch
5. (c) fraying

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SESSION-4: FILL IN THE BLANKS

1. (b) curves
2. (b) inverted box
3. (c) Pleats, fullness
4. (a) knife, bottom
5. (a) box

SESSION-5: FILL IN THE BLANKS

1. Buttonholes
2. Functional or decorative
3. edgings
4. interlacing, twisted

FIND THE WORDS IN THE GIVEN MAZE

p	z	i	p	P	e	r	m	n
l	o	q	s	H	a	n	k	k
a	r	s	t	O	l	m	o	n
c	z	b	u	T	t	o	n	j
k	a	r	d	N	h	x	y	m
e	j	l	s	T	i	t	c	h
t	o	n	l	A	c	i	n	g
f	m	r	s	N	a	p	s	j

SESSION-6: FILL IN THE BLANKS

1. sleeve
2. neckline
3. shaped
4. in-seam

MODULE – 4

SESSION-1: FILL IN THE BLANKS

1. (c) Back waist length
2. (b) Full Sleeve Shirt

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3. (b) Adequate, precise
4. (a) Base
5. (b) Round Cuff

SESSION-2: FILL IN THE BLANKS

1. b)Body measurements
2. a)Tissue
3. b)Basic
4. c) Three

SESSION-3: FILL IN THE BLANKS

1. (c) **Pattern pieces**
2. (a) Patterns
3. (c) back

MODULE – 5

SESSION-1: MATCH THE FOLLOWING

A. 3. Tends to wrinkle easily
B. 5. Glossy appearance
C. 2. Has stretchability
D. 4. Sheer, transparent and stiff cotton fabric
E. 1. Crinkled surface

SESSION-2: FILL IN THE BLANKS

1. folded
2. press
3. pin
4. combination

SESSION-3: FILL IN THE BLANKS

1. children's
2. under

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SESSION-4: FILL IN THE BLANKS

1. cotton

TRUE AND FALSE

1. False

SESSION-5: TRUE AND FALSE

1. True
2. False
3. True

SESSION-6: FILL IN THE BLANKS

1. kurta
2. plain salwar
3. back

MODULE – 6

SESSION-1: MATCH THE FOLLOWING

(a) 3. Holds pins and needles

(b) 4. Remove fine lines and single threads

(c) 2. Protect the fabric from direct contact with hot iron

(d) 1. Cuttingout of pattern sand fabrics

FILL IN THE BLANKS

1. Accuracy
2. Sewing gauge

SESSION-2: MATCH THE FOLLOWING

(a) 3. Replace poor thread

(b) 4. Adjust tension

(c) 1. Remove bobbin and bobbin case and clean

(d) 2. Replace needle

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Fill in the blanks

(a) Seam
(b) Spool
(c) Shuttle
(d) Needle
(e) Defect
(f) Blunt
(g) Skipped
(h) Bobbin
(i) Thread
(j) Link
(k) Pucker
(l) Winder

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