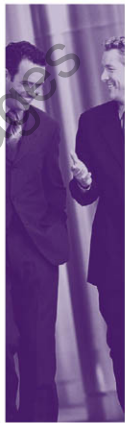


PEARSON NEW INTERNATIONAL EDITION

Patternmaking
for Fashion Design
Helen Joseph-Armstrong
Fifth Edition



Patternmaking Essentials for the Workroom

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- Guide to Reading Ruler Increments
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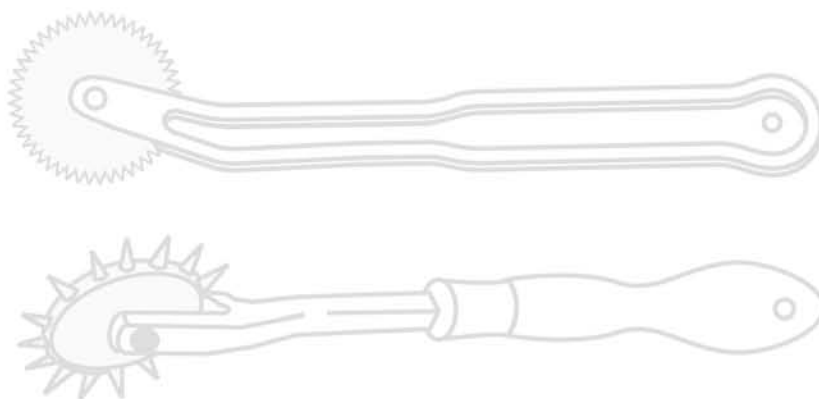
E-FIT SIMULATOR IS BORN

APPAREL PRODUCT DEVELOPMENT

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Sample pages

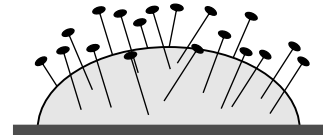
PATTERNMAKING TOOLS

To work efficiently, the patternmaker must have the proper tools and supplies. To communicate effectively in the workroom and to minimize errors due to misunderstanding, the patternmaker should know and understand terminology. This chapter introduces tools, supplies, and definitions of terms used in industry.

The professional patternmaker arrives on the job with all tools required for patternmaking. Each tool should be marked with an identity symbol and transported in a carrying case. Tools may be purchased from apparel supply houses, art stores, department stores, and yardage stores. Specialized tools, such as a rabbit punch used to punch pattern holes for hanger hooks, are generally supplied by the manufacturer.

1. *Straight pins:*

- ___ Dressmaker silk #17 for draping and fittings.



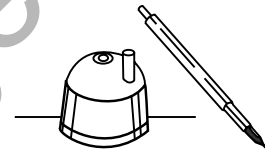
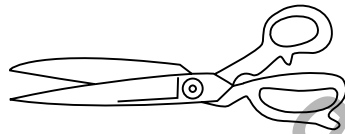
Straight pins and cushion

2. *Straight pin holder:*

- ___ Pincushion, or magnetic holder for wrist or table.

3. *Scissors:*

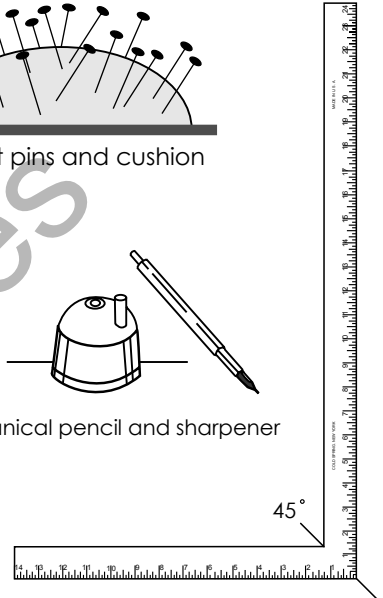
- ___ Paper scissors.
- ___ Fabric scissors.



Mechanical pencil and sharpener

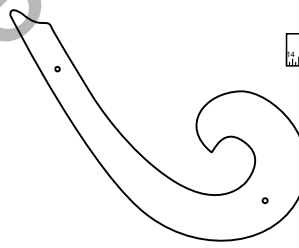
4. *Pencils and pens:*

- ___ Mechanical pencil and sharpener. (Use #4-H lead for pattern work.)
- ___ Red and blue colored pencils to identify pattern changes. Black, green, red, and blue felt-tip pens for pattern information.

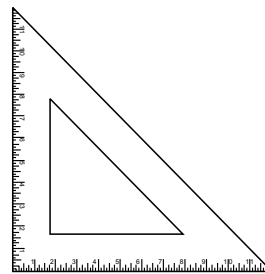


5. *Rulers:*

- ___ Flex general rule—1/2 × 12-inch (very accurate).
- ___ 36-inch ruler.
- ___ 18 × 2-inch plastic rule (flexible for measuring curves).
- ___ Tailor's square—24 × 14-inch metal ruler with two arms forming a 90° angle that measures, rules, and squares simultaneously.
- ___ Triangle with measurements to square lines.



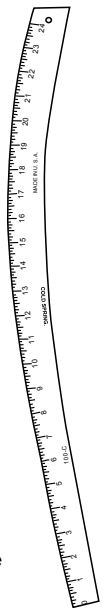
French curve



Square/triangle



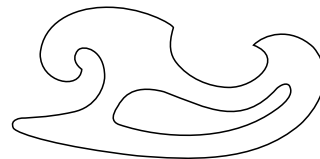
Vary form curve



Hip curve rule

6. *Curve rules:*

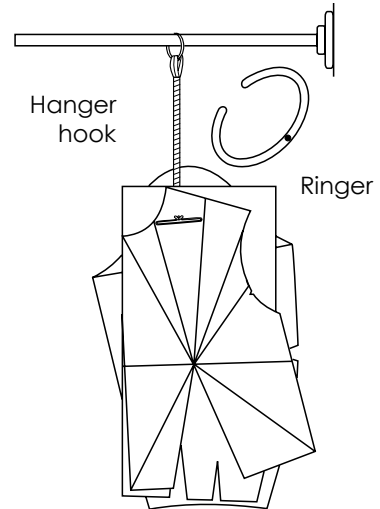
- ___ French curve, Deitzgen #17 is one of several curves used for shaping armhole and neckline.
- ___ Sleigh curve, shapes necklines, armholes and other curves, pockets, collars, and cuffs.
- ___ Hip curve rule to shape hipline, hem, lapels.
- ___ Vary form curve to blend and shape armhole necklines.



Sleigh curve

7. *Hanger hooks or ringers:*

___ To hold patterns together while hanging on rods.



8. *Push pins:*

___ For pattern manipulation and transferring muslin patterns to paper.



9. *Stapler and remover:*

___ Prevents pattern slippage when cutting several plies of paper together.

10. *Magic mend scotch tape:*

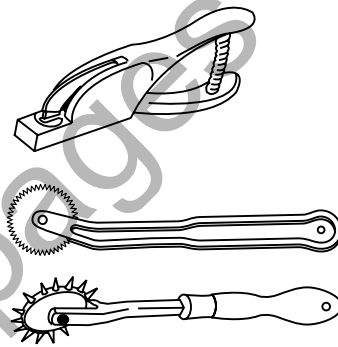
___ To mend pattern work.

11. *Black twill tape:*

___ Placement of stylelines on form and to hold ease in place.

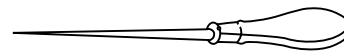
12. *Notcher:*

___ Cuts a 1/4 × 1/16-inch opening at the pattern's edge to indicate seam allowance, center lines, and ease notches and to identify front and back of patterns.



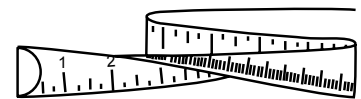
13. *Tracing wheels:*

___ Pointed wheel transfers pattern shapes to paper.
___ Blunted wheel is used with carbon paper to transfer pattern shapes to muslin.



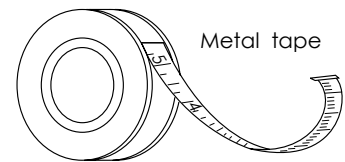
14. *Awl:*

___ Pierces 1/8-inch hole in the pattern to indicate the ending of darts, pocket, trim, and buttonhole placements.



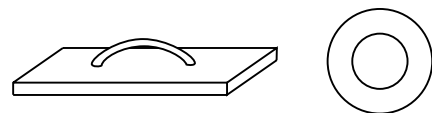
15. *Metal weights (several):*

___ Hold patterns in place for tracing and marking.



16. *Measuring tape—60 inches long:*

___ Metal-tipped, linen or plastic to measure the form. Metric is on the other side.
___ Metal tape 1/4 inch wide inside a dispenser. It is convenient, flexible, and very accurate.

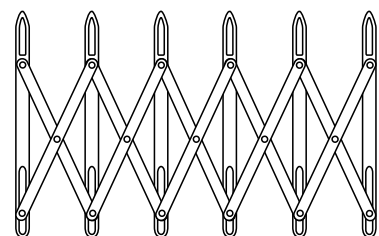


17. *Tailor's chalk:*

___ Clay, chalk, chalk wheel, or chalk marking pencils in black and white. Use for marking adjusted seams and stylelines.

18. *Simflex folding measure:*

___ Spaces button/button holes, pleats, tucks.



Functions of Patternmaking Tools

Tools provide the symbols used in marking fabric and patterns in the production of garments. Symbols are like a silent language that are understood among the designer, seamstress, grader, marker maker, and production personnel. Without these symbols, garments would not be cut or stitched with accuracy. Missing or misplaced symbols disrupt the flow of production.

Notch Tool

The notch tool has a cutting blade that slips into the pattern's edge, leaving an 1/8- to 1/4-inch cut-out. As the patterns are traced, the notch cut-outs are marked on the fabric. The cutter slashes the fabric at these locations. The seamstress assembles and stitches the garment parts following the notches (Figure 1).

The notch is used to indicate:

- Seam allowance (Figure 2).*
- Center lines.
- Identification of front and back patterns.
- Correct assembling of similar pattern parts (Figure 3).
- Correct location of joining parts.
- Gather and ease control (Figure 2).
- Dart intake (Figure 1).
- Shoulder tip of extended shoulders.
- Waistline of one-piece garments.
- Zipper stopping point.
- Fold-back for hems and facings.
- Placement for inserts.
- Tension release (acute curves).
- Inverse corners (Figure 2).

*Unless instructed otherwise, 1/4-inch seams are not notched. Overlocked seams are generally not notched.

Figure 1

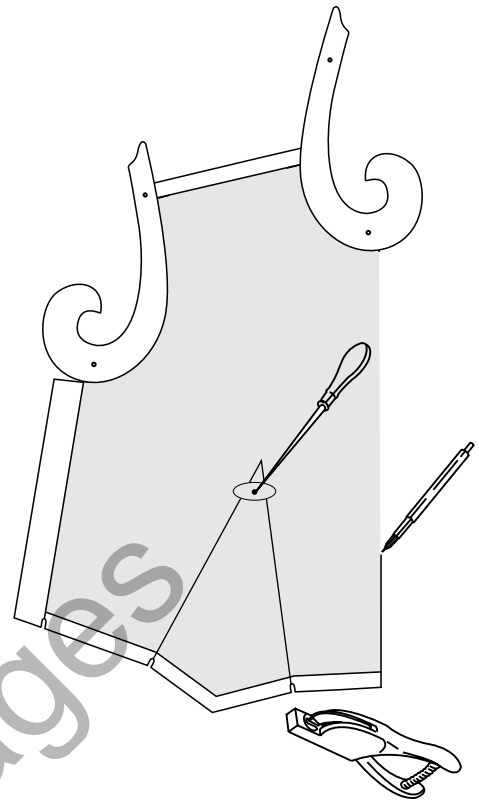


Figure 2

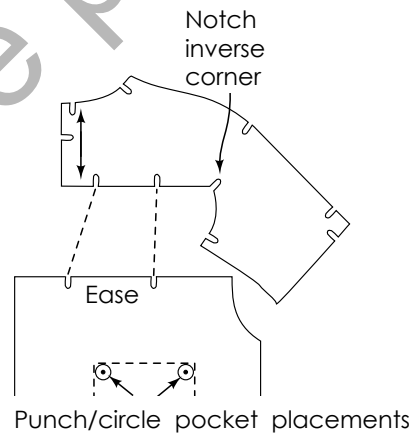
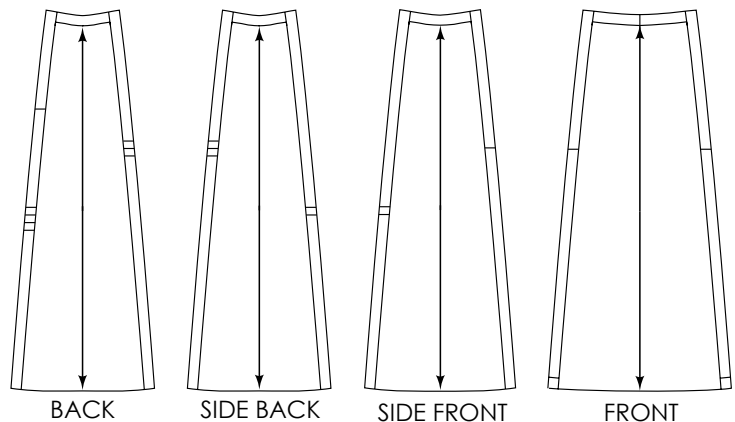


Figure 3

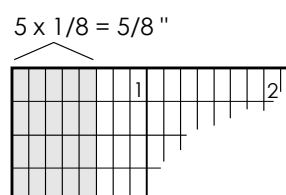
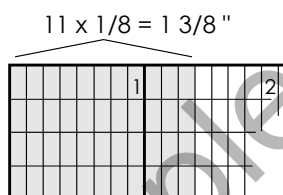
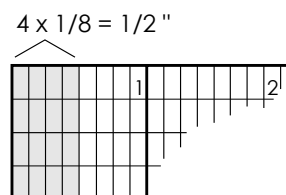
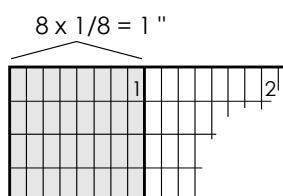
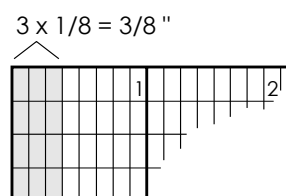
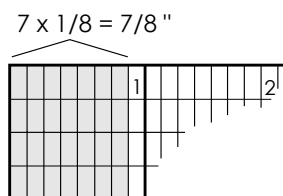
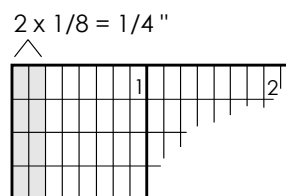
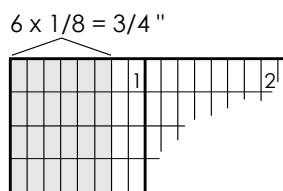
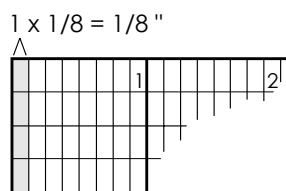
Awl Punch and Circle

The awl puts a hole (or mark) on the pattern. The hole is circled to notify the marker maker that a drill is needed to burn a hole in the fabric, which damages the garment. That is why the placement of the drill hole is always inside the finished seam (to cover the damage in the fabric).

- Dart back-off point (Figure 1).
- 1/8 inch in from corners.
- Buttonholes and buttons.
- Trimming.
- Pocket placements.



Guide to Reading Ruler Increments (based on 1/8 inch*)



YARDAGE IN INCHES
 9" = a quarter yard (1/4)
 12" = a third yard (1/3)
 18" = a half a yard (1/2)
 24" = 2/3 of a yard
 36" = 1 yard
 * 1/16" = one-half of 1/8"

Decimal and Fraction Conversion

.063 = 1/16	.438 = 7/16
.125 = 1/8	.5 = 1/2
.188 = 3/16	.563 = 9/16
.25 = 1/4	.625 = 5/8
.313 = 5/16	.750 = 3/4
.375 = 3/8	.875 = 7/8

The Importance of Math

Why should you have sufficient math skills to read measuring devices: rulers, measuring tape, fractions, and percentages? The answer is, to be eligible for hire! In the fashion business, every phase of production relies on the math skills of the associates to stay in business.

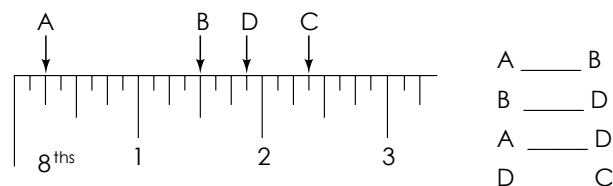
For hire, you should be able to:

- Take and record measurements of the form to the exact 1/16 inch.
- Compute yardage for single and mass-produced garments.
- Provide the exact measurements on spec sheets for the production of garments.
- Apply math instructions from a work sheet to the developing project.
- Operate a computer.

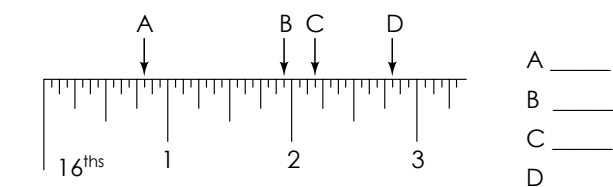
Test Your Math Skills

Write answers in the spaces provided. Also give common denominators. Check answers at the end of the chapter.

Test 1 Measure the distance between letters given, starting from A; use 1/8-inch increments.



Test 2 Measure from the start of the ruler to A. A to B, B to C, and C to D, at 1/6-inch increments.



PATTERN PAPER

Pattern paper has code numbers to indicate its weight from heavy to light:

Heavy-weight Paper—Weight Code

IX Granite Tag (.007) to 5X Granite Tag (.019)

- Heavyweight pattern paper is called *tag board*, *manila*, or *hard paper* and is used primarily for production patterns.

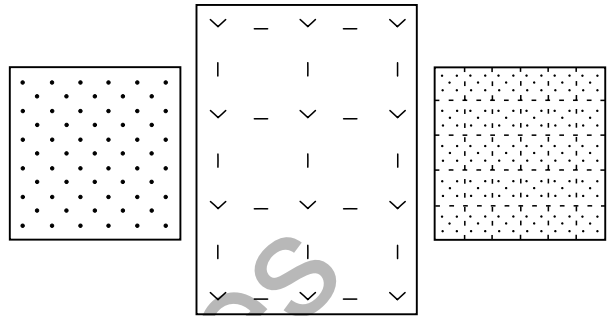
Light-weight Paper—Weight Code

1 to 5 Double-Duty Marking Paper

- Lightweight paper is called *marking paper*.
- Marking paper is used for making markers and to develop first patterns.
- The paper is marked with a choice of symbols: numbers, letters, short lines, and/or dots. The symbols help when aligning the grainlines of the

patterns for tracing, and the numbers give an account of inches of the finished marker.

- Color-coded paper (color on one side only) has two functions: to indicate right-side-up of the pattern pieces and/or to indicate the design division to which the patterns belong.



PATTERNMAKING TERMS

The following terms and definitions are related to the workroom.

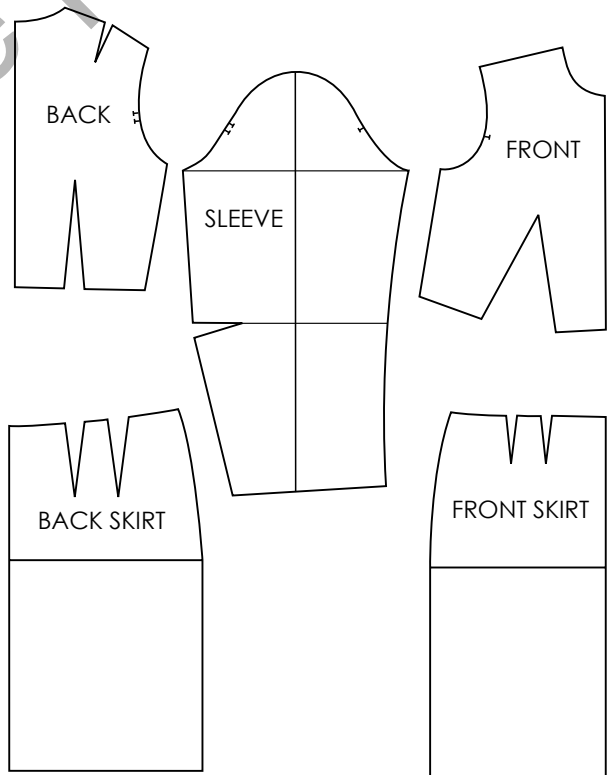
Pattern drafting. A system of patternmaking that depends on measurements taken from a form or model to create basic, foundation, or design patterns. An example is the draft of the basic pattern set.

Flat patternmaking. A system of patternmaking that depends on previously developed patterns. The working pattern is manipulated by using the slash or pivotal method to create design patterns.

Basic pattern set. A five-piece pattern set, consisting of front and back bodice and skirt and a long sleeve, which represents the dimensions of a specific form or figure. It is developed without design features. The traced copy is referred to as a *working pattern*.

Working pattern. Any pattern used as a base for manipulation when generating design patterns. In this text the basic pattern set is the base for design projects.

Basic Pattern Set



FABRIC TERMS

Muslin. A plain-woven cotton made from bleached or unbleached corded yarns in a variety of weights:

- *Coarse-weave:* Used for draping and testing basic patterns.
- *Light-weight:* Used for softly draped garments.
- *Heavy-weight:* Firmly woven, used for testing tailored garments, jackets, and coats.

Grain. The direction in which the yarn is woven or knitted (lengthwise grain, or *warp*; crosswise grain, or *weft*).

Lengthwise grain (warp). Yarns parallel with selvage and at right angles to the crosswise grain. It is the most stable grain.

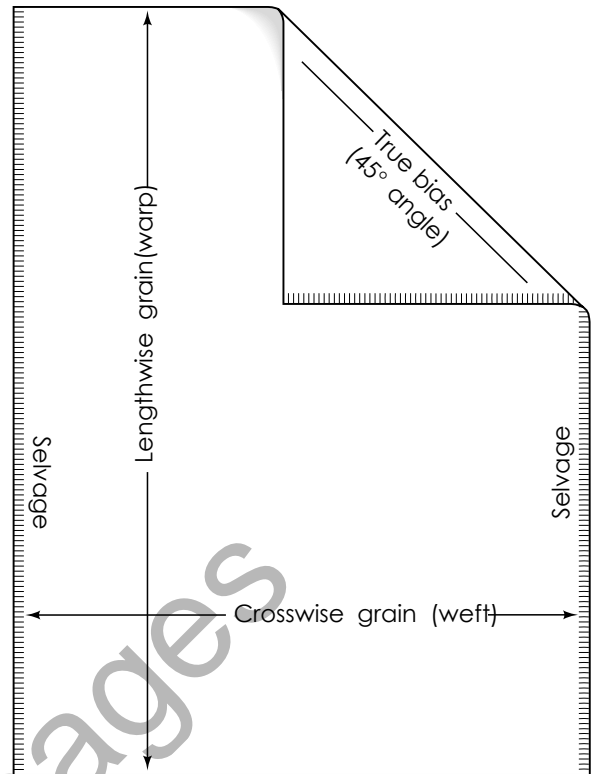
Crosswise grain (weft). Yarns woven across the fabric from selvage to selvage. It is the filling yarn of woven fabrics. Crosswise grain yields to tension.

Selvage. The narrow, firmly woven, and finished strip on both lengthwise grain edges of the woven fabric. Clipping selvage releases tension.

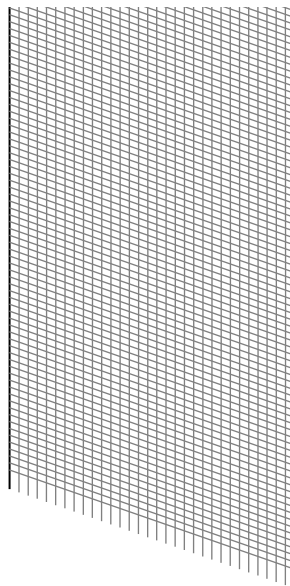
Bias. A slanting or diagonal line cut or sewn across the weave of the cloth.

True bias. The angle line that intersects with the lengthwise and crosswise grains at a 45° angle. True bias has maximum give and stretch, easily conforming to the figure's contours. Flares, cowls, and drapes work best when cut on true bias.

Bowing and skewing. When filler threads do not interlace with the straight grains at 90°, bowing and skewing, or a one-sided combination occurs and is often sent to industry in that condition unless otherwise instructed.



Skewing



Bowing

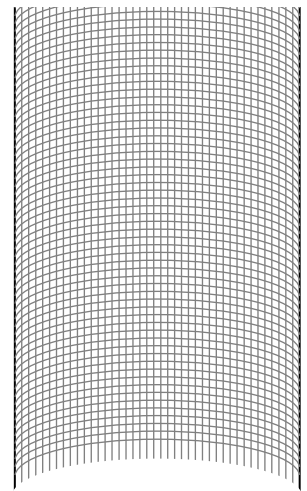


Figure 1: Controlling the Grain

Finding the grainline. Pull a filler thread (weft) on the cross-grain selvage to selvage. Cut through the channel in preparation for stretching. Do not trim the other end.

Figure 1

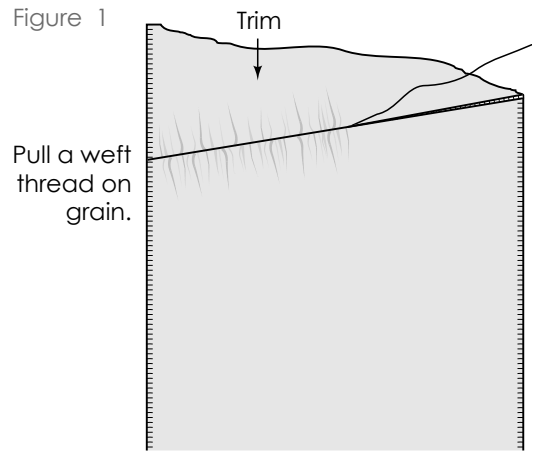


Figure 2: Aligning the Grainline

To correct bowing or skewing. Pull the fabric diagonally at opposite ends of the fabric. Repeat at the other ends. This process helps to align the straight grain (warp) and crosswise grain (weft); then press to a perfect square.

This process can be done for individual garments but is impractical for mass-produced designs. However, the manufacturer can request, at a cost, to have the problem corrected by the fabric company. Computer-controlled weaving can correct the problem.

Figure 2

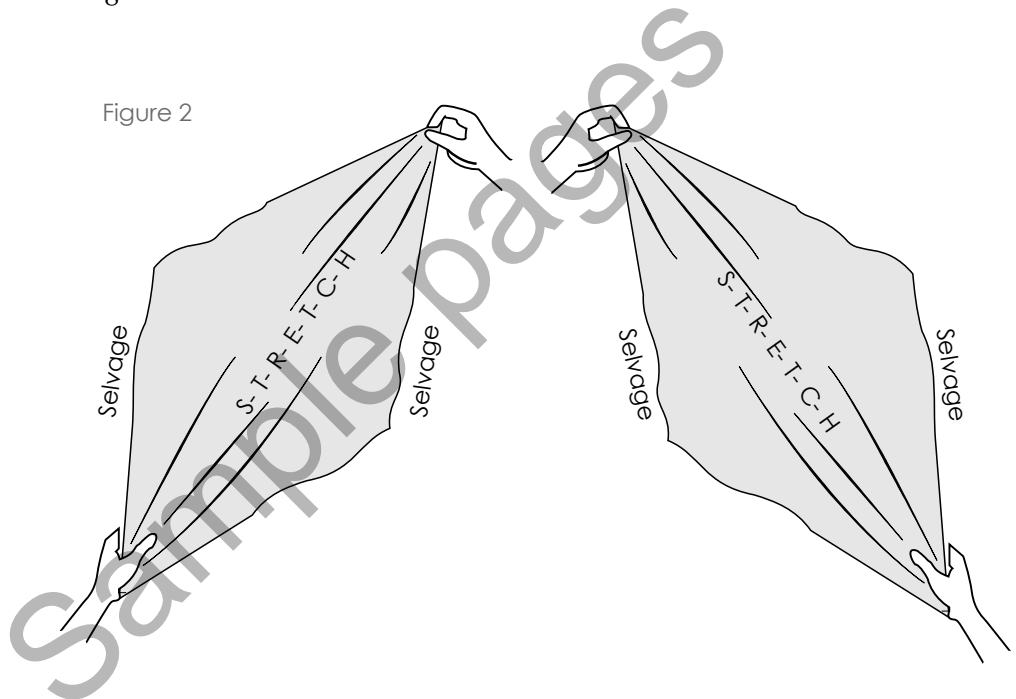


Figure 3: Thread-Marking Grains

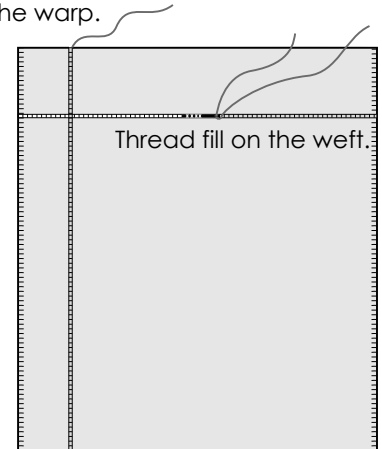
Pull straight and filler threads through the squared fabric and with colored threaded needle, slip through the channels for marking.

Couture salons prepare toile in a similar manner, as do some fashion schools, in preparing muslin for draping projects. It is also an excellent way to introduce beginning students to the straight and cross grains that make up woven fabrics.

Thread lines allow the draper to view the grainline as the design is being created.

Figure 3

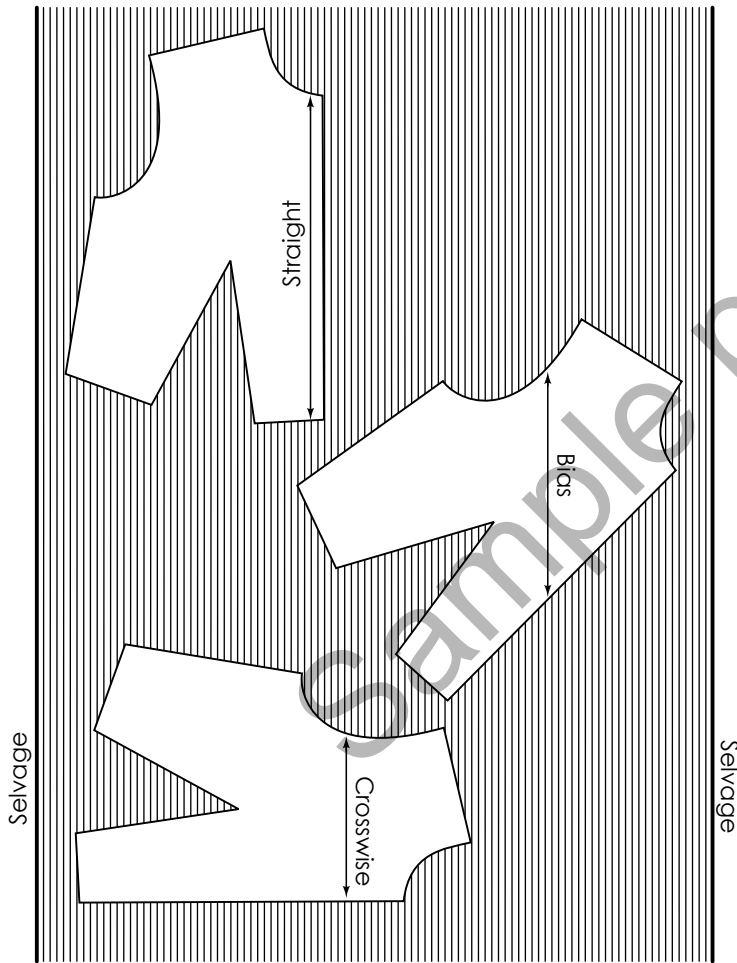
Thread fill on the warp.



PATTERN GRAINLINE

The pattern grainline is a line drawn on each pattern piece (from end to end) to indicate how the pattern should align with the lengthwise grain of the fabric. Regardless of where the grainline is drawn on the pattern, it will always be placed on the fabric so that the grainline is parallel to the selvage edge. Pattern placement is illustrated in Figure 1. The effect of grainline on garments is shown in Figures 2, 3, and 4.

Figure 1



Grainline Arrows

- Arrows placed at both ends of the grainline indicate that the top of the pattern may be placed in either direction along the lengthwise grainline of the fabric (for fabrics without a nap).
- An arrow placed at the top *or* the bottom of the grainline indicates that the pattern must be placed in one direction only (for fabrics with a nap).

Direction of Grainline

- Vertical grainlines are drawn parallel to center for garments cut on straight grain (Figure 2).
- Bias grainlines are drawn at an angle to center (45° angle for true bias) for garments cut on the bias (Figure 3).
- Horizontal grainlines are drawn at right angles to center for garments cut on crosswise grain (Figure 4).

Figure 2 Straight Grainline

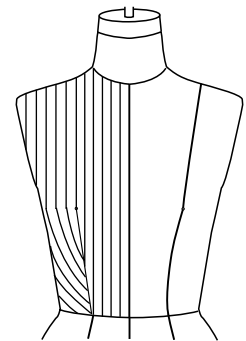


Figure 3 Bias Grainline

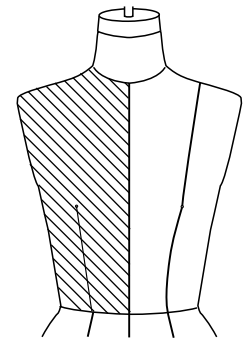
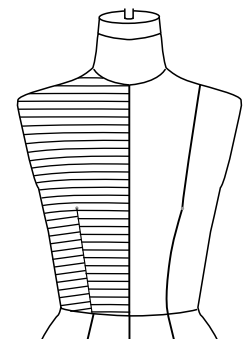


Figure 4 Crosswise grainline



DART

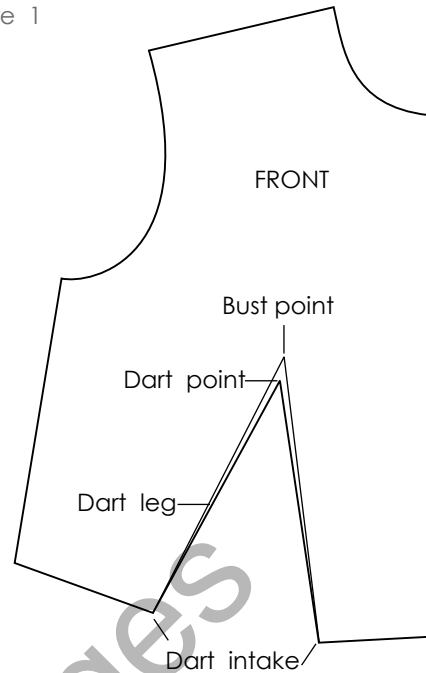
Bust point. A designated place on the bust and pattern and referred to in flat patternmaking as the pivotal point or apex (Figure 1).

Dart. A wedge-shaped cut-out in a pattern to control the fit of a garment when stitched.

Dart legs. The two lines that converge at a predetermined point on the pattern.

Dart intake. The amount of excess (or space) confined between dart legs. Its purposes are to take up excess where it is not needed and to gradually release fabric where it is needed to control the fit of the garment.

Figure 1



Trueing. The blending and straightening of pencil lines, crossmarks, and dot marks for the purpose of establishing correct seam lengths—for example, trueing a side seam having a side dart.

- Fold dart and draw side seam (Figure 2a).
- Trace the side seamline (Figure 2b).
- Unfold dart and pencil in the dart (Figure 2c).

Figure 2a

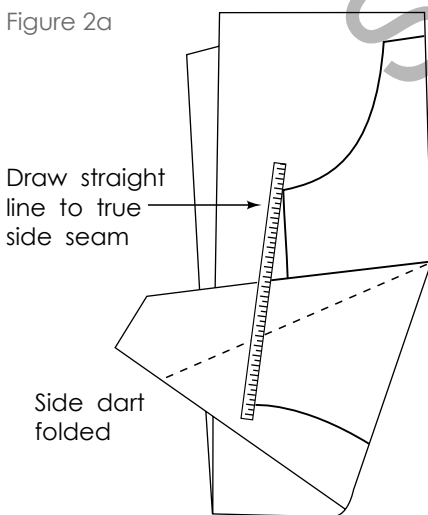


Figure 2b

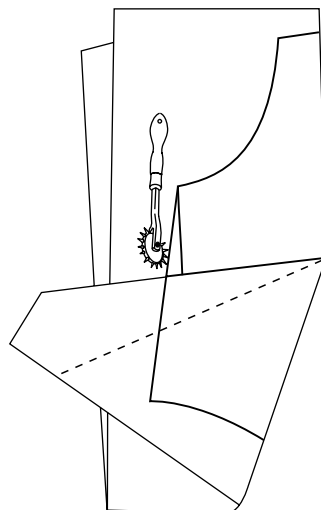
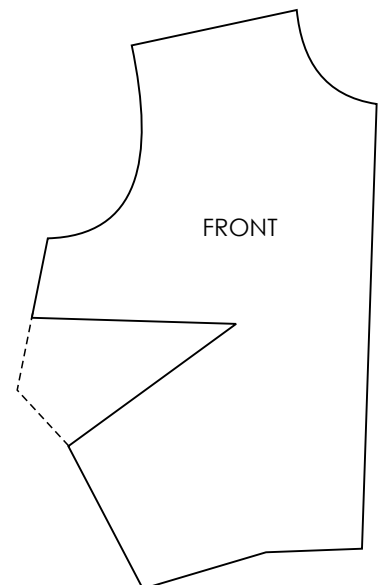


Figure 2c



BLENDING, TRUEING, AND EQUALIZING

Uneven curves of joining seams can be blended by equalizing the differences. The adjusted seamlines are blended smoothly along the seamline, especially hiplines and leglines. Figure 1.

Blending. A process of smoothing, shaping, and rounding angular lines along a seam for a smooth transition from one point to the next and for blending marks made on the pattern or muslin. (Blending includes trueing.) Figures 2a, 2b.

SPECIAL INFORMATION

Right-side-up (when sides differ). Instruction applies to asymmetrical designs (right side differs from the left side) and for patterns cut from engineered fabrics such as border prints, randomly spaced flowers, geometric forms, and multiple colors. Such fabrics require specific pattern placement so that the fabric design can be arranged in the same location for all garments cut from that fabric. *Right-side-up (RSUP)* indicates to the marker maker that the pattern is to be placed face up on the marker.

Detail location. Mark the location in which a detail is to be placed on the pattern. This will ensure that the flower, abstract detail, or stripes will always be on the correct side and in the correct place on the garment.

Figure 1

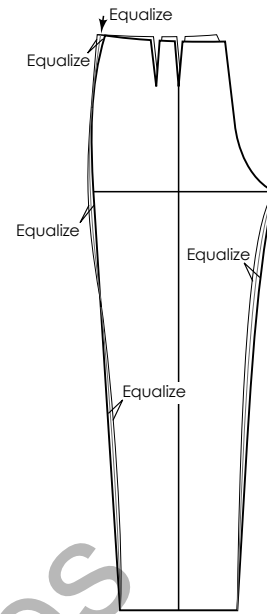
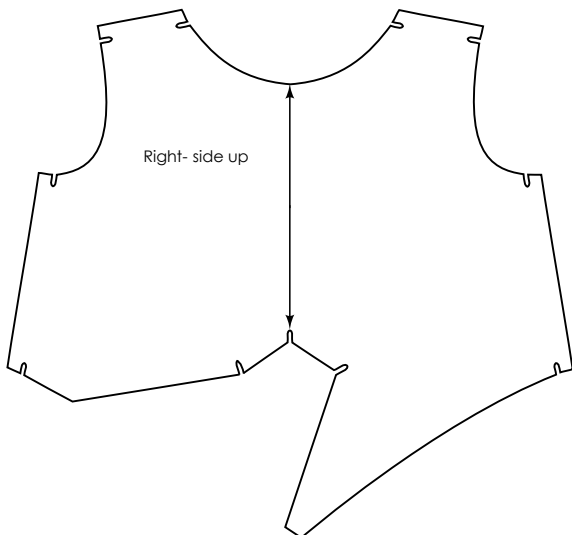
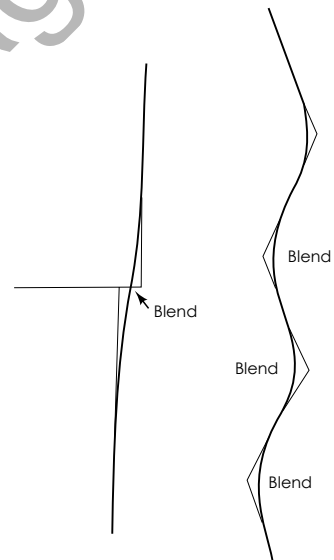
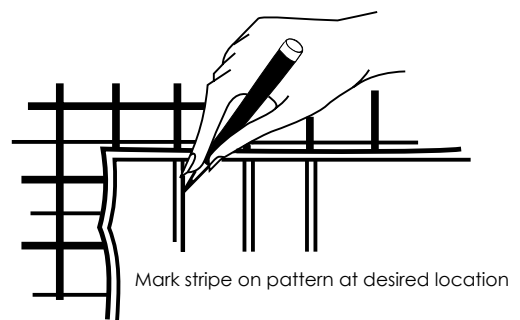


Figure 2a

Figure 2b



Stripe placement.



Balance Line Terms

Plumb line. A vertical line that is at right angles with the floor. Used to determine the balance of the figure.

Perpendicular line. A straight line at right angles to another line. (See right angle.)

Vertical line. A line that is straight up and down.

Horizontal line. A line parallel with the floor.

Right angle. The 90° angle formed by two intersecting lines, referred to as a *squared* line.

Asymmetrical line. A center line with unequal proportions on either side of it.

Symmetrical line. A center line with equal proportions on either side of it.

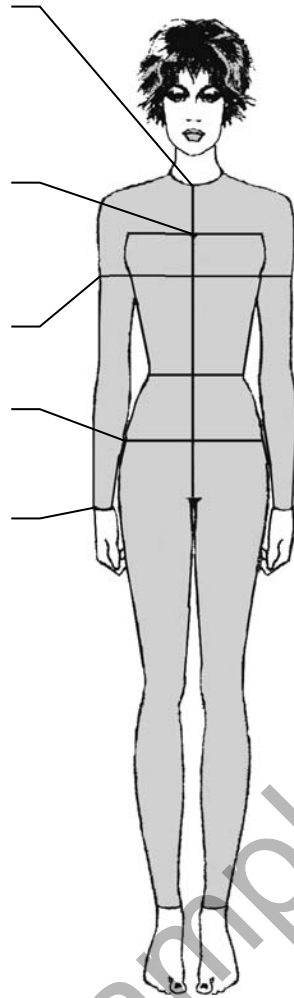
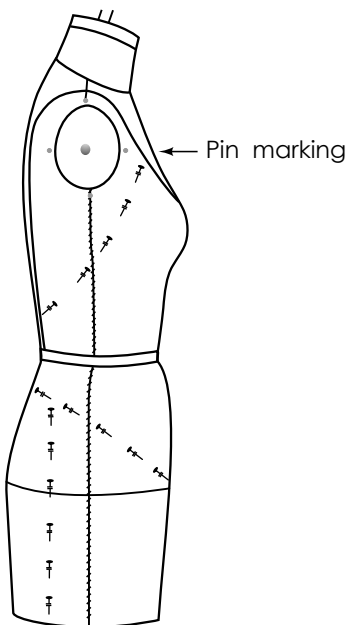


Figure 5a



Pin marking

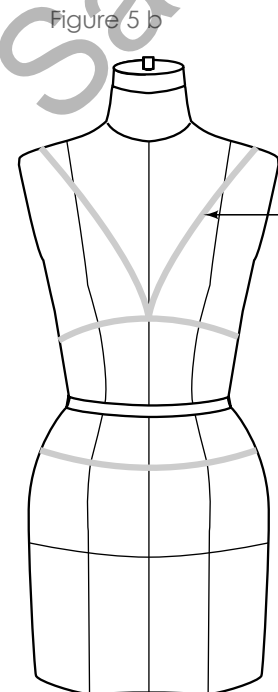


Figure 5b

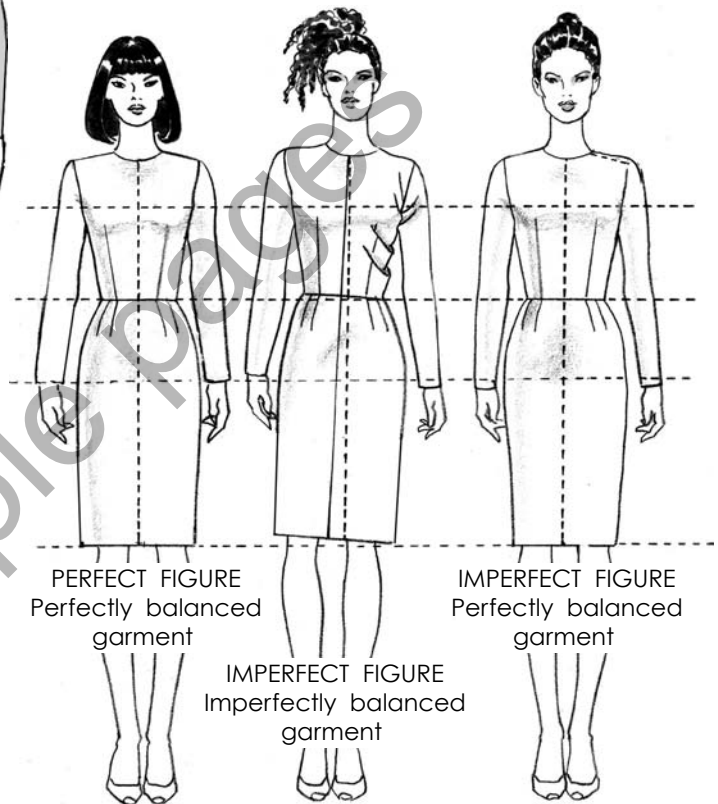


Style tape

Balance. The perfect relationship between parts that, when combined, form a unit (or whole) in which each part is in exact proportion and harmony with all others.

Balancing a pattern. Finding and adjusting the differences between joining pattern parts to improve the hang and fit of the garment.

Horizontal balance line (HBL). A reference to any line marked around the form that is parallel with the floor. Patterns are also marked with horizontal balance lines squared from the center lines representing the crosswise grain when the garment is cut in fabric. The HBL lines help when balancing the patterns.



PERFECT FIGURE
Perfectly balanced
garment

IMPERFECT FIGURE
Imperfectly balanced
garment

IMPERFECT FIGURE
Perfectly balanced
garment

Styleline Guides

Figures 5a, b

Pin marking. Placing a series of pins through the muslin or form to evaluate styleline placement.

Style tape marking. Styleline placement by color adhesive tape to evaluate design features and to provide a guide when developing design patterns.