The secret to great-looking clothes is a flattering fit; a flattering fit comes from understanding your figure, your pattern, and your garment. There are many ways to approach fitting—from tweaking the seams and darts on a commercial pattern, to drafting or draping a garment to your personal measurements—and different projects call for different methods. Happily, the authors who have contributed to this book know that and have shared a wide range of techniques for making garments that look custom-made, rather than home-sewn.

This volume would not have been possible without the expertise of the many teachers, designers, custom clothiers, alterations specialists, and patternmakers whose work is represented here. Their knowledge of garment fitting is matched only by their enthusiasm for the subject. Threads magazine and The Taunton Press are grateful to all our authors who, for more than a quarter of a century, have demonstrated both their mastery of the art of sewing in all its forms and their devotion to an audience of avid sewers who care about producing garments they’re proud to wear. Their commitment teaches us more than technique: It shows us, too, that this timeless craft is worth studying, preserving, and updating.

Thank you to our editors, Carol Fresia, Pam Hoenig, Renee Neiger, and Shawna Mullen. Many thanks to Judith Neukam for her expert advice and fine-tuning of the information in this book.
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At Threads magazine, we understand how home sewers strive to create garments that fit. For the past 25 years, we have been engaging our readers in the fitting debate and enlisting the help of top sewing experts and designers. Our staff, too, brings their own point of view, so we test and test and test again the steps for projects, tips, and techniques. After all, we want our readers be the best home sewers they can be.

We understand that not all sewers have the same approach to achieving good fit. Some want to do just what’s needed while others want, and are skilled enough, to tackle more involved techniques. And then there are those with advanced skills who will settle for nothing less than a couture fit. No matter what your personal approach might be, there is something for you in our new guide, Threads Fitting for Every Figure.

Our answer to your many fitting queries is the special book you now hold in your hands. You will find a handy reference to the basics of fitting, working with patterns and muslin, fitting the bodice, fitting pants and skirts, and a section on special fitting techniques. Two contributors in particular warrant special mention: Carol Fresia, who took on the task of pulling the book together, and her editor, Judith Neukam, Threads senior technical editor, who made sure that it all made good sense.

We wish you the best of luck in your fitting endeavors and hope you continue the conversation with us at www.threads magazine.com, where we always look forward to your comments and feedback.

—Deana Tierney May, Editor
Most sewers use commercial patterns when they make clothing. These patterns are drafted for standardized figures and usually need a few adjustments to fit properly. You can alter pattern circumference by simply changing pattern size, but you’ll also likely need to change the length.

It’s least complicated to make any length adjustments first. Most patterns are drafted for a person between 5 ft. 4 in. and 5 ft. 6 in., depending on the pattern manufacturer. Measure between your shoulder and waist and compare the length to the pattern. If the pattern is too long, fold a horizontal pleat below the bust and above the waist to subtract the extra length. If the pattern is too short, cut a horizontal line in the same location, spread it the additional length needed, and tape paper in the opened space. Add or subtract the same amount to the front and back pattern pieces. You can check waist, sleeve, pant, and skirt lengths as well and make corrections in the same manner. After adjusting all lengths, change the circumference measurements, if necessary.

Once you’ve made the initial alterations to a tissue pattern, try it on. Do this by pinning the tissue together and fitting it on your body; this is called tissue-fitting. Alternatively, sew a test garment called a muslin. For many garments, tissue-fitting, which involves only a half garment, is sufficient for confirming that lengths and widths are satisfactory. If you’re working on a complex project, such as a fitted gown or tailored jacket, make a muslin, so you can pin-fit and restitch without stressing the fashion fabric through multiple alterations.

By checking the pattern and then testing your adjustments before committing them to final fabric, you’ll spare yourself hassle and heartache. You can resolve your fitting issues in practice fabric and be sure that the garment fits and flatters perfectly.

Fitting

To get a great fit in clothes you sew, there are two techniques to try: Tissue-fit the pattern before cutting into the fabric, which gives you a good idea of how the pattern will fit and how the resulting garment will hang, or pin-fit the garment as you sew to refine its fit. The time you spend on fitting will pay off in great sewing results.

The Tissue-Fit

Tissue-fitting involves pinning or taping the pressed pattern pieces together, trying on the paper half-garment, noting areas that need correcting, making fitting adjustments to the pattern, and then repeating the process until you’re happy with it. If your body is fairly symmetrical, you can work with the half pattern and adjust only one side (making the other side the same), but if you’re noticeably different on each side, copy the pattern pieces so you have a full paper garment, and tissue-fit the sides individually.

CHECK THE AMOUNT OF EASE

First, decide how much ease you want in your garment. It helps to compare the pattern with an old, trusted pattern or garment. Check the shoulder width, neckline, armhole depth, bustline, waist, hip, and length. If you know your figure irregularities, you can begin to adjust for them before you tissue-fit.

PREPARE THE PATTERN

Join pattern pieces with Scotch® Removable Tape (blue label), which can be positioned over and over, or simply pin the pattern together. Patterns without seam allowances, like Neue Mode and older Burda patterns, are easy to tape together and tissue-fit, and will give very accurate results.
Patternwork Principles

There are several key points in the anatomy of a pattern. And because they are universal to all garments, they exist on almost every pattern you use. Use the principles listed here as a guide or checklist to proofread your patterns, and you'll eliminate many initial pattern glitches. As you apply these principles, your mastery of pattern alterations will develop, and you'll enjoy sewing better-fitting garments.

KEY REFERENCE POINTS

- The upper shoulder point—where a jewel neckline crosses the shoulder seam—is the key pattern reference point on a garment. The garment hangs from this point, and it marks where you should begin most length and depth measurements.
- Lengthwise grainlines usually run parallel with the center front and center back lines, and perpendicular to the hip line and biceps line.
- At the point where two pattern-piece corners join front to back—for example, at a pants waist side seam, the underarm side seam, or each end of a shoulder seam—the combined corner angles equal 180 degrees, usually from the right angles at each corner. This prevents seams from having undesirable bumps at the edge.
- On contoured body styles, when the side seam angles in or out, or the garment is A-line or flared, use a curved hem. This is true for bodices, coats, skirts, and any garment that flares or angles.
- A standard jewel neckline width is approximately one third of the total shoulder width. The front neckline depth is approximately half of the neck width. The back neckline is generally 3⁄4 in. deep on most sizes.
- Darts must always point toward the apex on the body (i.e., the bust point), but they don’t reach it. Keep the dart point 1⁄2 in. to 1 1⁄4 in. from the apex so it ends gracefully and doesn’t accentuate the bust point.
- Use seam allowances on large darts and fold and sew smaller darts as a wedge. Removing the extra fabric provides a smoother fit.
- The shoulder slope is essentially a dart, hidden in the seam, allowing the garment to hang on the straight of grain. The slope on your pattern must match your own shoulder slope for a bodice to fit properly.
- When adding more than 1 1⁄2 in. of flare to a pattern piece (to each garment quadrant), make the addition internally, not on the side seam. The allowable amount of flare you can successfully add at the side seam increases as the pattern piece becomes longer. Adding excessive flare at the side seams can leave you with a garment that looks like it has fins.
- The front waistline is generally longer than the back by approximately 1 in. Conversely, the back hip line is longer on the back by the same amount.

ARMHOLES

Alter the armhole first and then adjust the sleeve cap. The proper armhole fit makes the whole bodice hang better. And of course, the right armhole is essential for a properly fitted sleeve.

- The upper chest width is generally narrower than its corresponding shoulder point. On a size 10, the armhole curves in approximately 1⁄4 in. to 3⁄8 in. on each side.
- The front armhole angles toward the center front from the shoulder point down about two-thirds of the armhole depth before starting its curve around to the side seam.
• The back armhole curves toward the side seam halfway down the armhole depth. You need the greater scoop in the front to accommodate forward arm movement.

• The lower armhole flattens for approximately a quarter of the armhole inset. As garments become less fitted, the lower armhole points drop and widen.

SLEEVES AND SLEEVE CAPS
When you alter an armhole, it’s likely that both the sleeve cap and the biceps length of the sleeve need to change, too.

• The sleeve cap height on a fitted garment measures approximately two-thirds to three-quarters of the length of the armhole depth, which is measured vertically from the shoulder point to the underarm.

• When you deepen an armhole, you need to increase the biceps circumference and shorten the cap, creating a looser-fitting sleeve.

• When you increase the width of a garment at the side seam (resulting in a greater armhole inset on the pattern), the cap height of the sleeve needs to increase.

PANTS AND SKIRTS
Pants and skirt patterns offer opportunities to hide darts in seams, which can be helpful once you know where they’re located.

• The side seam curve on pants and skirts should curve to the depth of the fullest part of the hip, and then fall straight. The fullest part on some people may be the abdomen or thighs.

• Commercial pants and skirts generally have, on each side, one dart in the front and two darts in the back. The front hip curve is a sharper curve than the back, and is essentially a hidden dart. Front darts generally drop 3½ in., and back darts drop 5 in.

• To allow for longer crotch lengths that accommodate a full abdomen or buttocks, raise the center front or back seam above the normal waistline.
For patterns with seam allowances, it’s easiest to fold back one seam allowance (clipping the edge, if needed) and lap it over the second one, matching the seamlines. Reinforce the clipped area with tape or fusible interfacing when you’re ready to cut out the garment.

To prepare the pattern, attach the bodice front and back at the sides and shoulders. If your pattern has a skirt, attach it to the bodice, matching seamlines. Pin the sleeve together, and attach the cuff, if any. Pin up the hemlines, then pin a length of seam tape or ribbon around the waistline of the pattern. On a close-fitting garment, put the ribbon on the outside; on a loose-fitting garment, pin the ribbon loosely to the inside to hold it at the waistline. If you plan to use a shoulder pad, pin it in place now.

**TRY ON THE TISSUE**

Wearing the underwear and any clothing you’ll wear beneath the finished garment, slip the tissue on your body and tie the ribbon around your waist. Pin or tape the pattern to your clothing at the neckline, bust, waist, and hip, in front and back. Slip the sleeve on and pin it to the bodice at match points in the front armpit and shoulder. You can ask for help or work alone.

Now, evaluate your pattern in front of a full-length mirror, using a hand mirror to see the back. Since a pattern hangs from the shoulders, begin at the top and check the following points:

- The shoulder seam should lie on the top of the shoulder and end at the shoulder point, so adjust as needed.
- Bust darts should point to the bust and end before its fullest point.
- Check to make sure the pattern tissue reaches the center front and center back. If it doesn’t, let out the side seams.
- Vertical seams should hang perpendicular to the floor. If they don’t, adjust them at the shoulders or waist.
- The sleeve should fit comfortably around the arm; check to be sure that any elbow shaping actually occurs at the elbow.
- Bend your arm to check the length.
- In many instances, you’ll need to raise the cap of the sleeve, as well as the sleeve/bodice underarm seam, to increase mobility. If you end up with too much cap, or if the underarm is too high, cut off the excess during assembly.
- The seam tape or ribbon around the waist makes it easy to check the bodice length. Lifting your shoulders without tearing the tissue ensures a comfortable amount of blousing.

**ADJUST AND REFIT**

Take the paper pattern off and make any necessary adjustments to it, then try the tissue on again and check the fit. When you’re finally happy with the pattern, you’re ready to cut the fabric, but be sure to leave generous seam allowances in the fitting seams (shoulder, side, waistline, and sleeve) for any additional adjustments you make as you sew. (If you’re working with expensive fabric and you have any doubts, make a trial garment first.)

If your body is fairly symmetrical, you can work with the half-pattern and adjust only one side, but if you’re noticeably different on each side, copy the pattern pieces and tissue-fit each side.
The Pin-Fit

As you sew your garment, pin-fit to customize the fit. Your choice of fabric influences the fit, and one alteration may affect or correct another. As soon as you assemble the main pieces of the garment, try it on right side out and check the fit. Don’t overfit—your garment should allow you to move comfortably.

Since pin-fitting is done on the right side of the garment, you’ll need to transfer changes accurately to the wrong side in order to incorporate them into your construction and blend the new seamline with the original one. A fast method of stitching a pin-fitted seamline is to slip-baste the seam as shown in the bottom left drawing, then open and machine-stitch on the basted line. The drawback is that it’s difficult to transfer changes to the other side of the garment or to the pattern.

For a marking method that’s easy to transfer to the other side, use pins or thread tracing to mark both sides of the corrected seam, where the two fabric layers touch. You can refer to these points as the touch (where the fold touches the underlayer) and the turn (where the upper layer folds), as shown in the bottom right drawing. After marking, remove the pins and make the adjustment on the other side of the garment and on the tissue. Stitch the pin-fitted seams on the new seamlines.

Pin-Fit Fixes

The following are some fine-tuning suggestions that are useful when pin-fitting a garment:

Estabish Body Widths

Chest, waist, and hip fitting depends on vertical seams. Take them in, or let them out until the wrinkles or drag lines ease. Correct the fit in body width by letting out or taking in vertical seams.

Fit the Shoulder

Lift to smooth the front chest area. You may have to drop the armhole after this. A bad fit in the shoulder often reveals itself in a drag line across the chest.

Fix the Chest

Scoop the armhole section that joins the bodice as it crosses the chest. This most-common fit problem

TWO WAYS TO PIN-FIT

SLIP-BASTE THE SEAM

Mark the altered seamline to stitch it. Slip-baste to mark. Working from right to left, pick up thread on back layer, insert needle in fold of front layer, and pull through to complete stitch. Repeat to end. Remove the garment, then open and machine-stitch on the basted line.

TRANSFER CHANGES EASILY

Pin or thread-trace along the “touch” and “turn.” Remove the pins, mark seam changes on the other half of the garment, and stitch the new seams.
happens when there is too much width right above the chest. Reduce the width across the chest by shaving fabric from the front armhole.

**ADJUST THE SLEEVE CAP AND ARMHOLE**
Always pin your sleeves with the seam allowance turned inward as if it were sewn in. Give a little pinch for the ease in the front and back of your shoulder.

**CHECK THE PANTS**
Try lifting the center back to smooth out drag lines under the seat.

If there are “smile” lines in front, release the inseam at the back crotch to give enough saddle for the inner thigh. Not all back-rise length problems are at the waist. This problem is best resolved in the muslin-fitting stage, but if you have your final garment already cut and basted, you can add a wedge along the straight grain to the back leg at the top of the inseam.

**CURVE DARTS**
You may want to curve the shoulder seams and bust and hip darts so that they fit the contours of your
body. Check the ease in the bustline and the fit across the back and at the waistline.

Also, check the hang of the sleeve. Check to see that front and back sleeve seamlines appear vertical, and make sure that you can move your arms to the front and back comfortably.

### Using a Camera to Fit

One of the most useful fitting aids available today is a digital camera. It enables you to keep a visual record of fittings to serve as a reference to the corrections needed.

### Getting the Most Useful Photographs

- Photograph yourself as you stand comfortably without distorting your muslin test garment.
- Shoot the entire garment: front, back, and side. Fill the frame as much as possible. If you don't have someone who can snap your pictures, you can take them yourself in the mirror. It's best if you have a full-length mirror for skirts, pants, and dresses. To minimize glare, be sure to override your camera's flash.

- Shoot at the highest resolution possible; this allows you to zoom in on areas of interest later when you study your photos for fitting clues.

### Analyze the Photos

Your digital photos will reveal many more telltale wrinkles than you would see in the mirror. Note the areas that seem to need work, and zoom in to take a better look. Print the photos you want to examine closely, and save the photos so you can refer to them as you work on your pattern adjustments.

Look for drag lines, which occur when one area of a garment is pulling. They point your eye to the source of the problem.

Wrinkles form when a garment is too tight or too loose. If it's too loose, try lifting the area or pinching it in to see if the excess can be eliminated. If the garment is too tight, extra fabric is needed in the seams.

When evaluating the muslin or the final cut, stand in front of a mirror and use a digital camera to take snapshots, then use the images to record and analyze your changes.
Make a Muslin

Sometimes, the fear of making a mistake can actually lead to procrastination. Whipping up a test garment in muslin is an excellent way to end your procrastination woes. But a muslin does not have to be made of muslin. Any inexpensive fabric works. Just pick a weight that’s similar to the fashion fabric you’re using. If you’re sewing a knit, use a knit. Even old fabric you have on hand works. By creating a muslin, you can experiment with the pattern and happily make mistakes, without fear of ruining expensive fabric. It might sound like twice the work, but in fact, it halves the potential frustration of sewing blind with your fashion fabric.

Once you sew a muslin, you’ll become a convert. Why? Because practice makes perfect and stress-free sewing. Think of a muslin test garment as the practice session of the sewing world—it allows you to explore techniques and fine-tune and streamline the garment-making process. It offers spot-on fit and style, down to the hems. With a muslin test garment, you can take in, let out, and otherwise tweak the fit allowing you to spare wear and tear on your

Preparing the Muslin Pattern and Yardage

A properly marked pattern and pressed muslin are essential to the creation of an accurate test garment.

DETERMINING THE SEAMLINES
Locate the seamlines on your commercial pattern. With the advent of multisize patterns, seamlines are no longer printed on commercial patterns; typically, they’re ⅝ in. in from the cutting lines, but always check the pattern instructions. Measure in from the cutting line for your size using a ruler, and mark all the seamlines on your pattern.

Before you move on to the fabric, make any necessary adjustments, such as length or size alterations, to the paper pattern. You’ll refine things later, of course, but if there are changes that you know you’ll have to make, such as bodice and sleeve length adjustments, now is the time to make them.

PREPARING MUSLIN FABRIC
Unless you’re working on a particularly wide skirt or bias garment, 45-in.-wide unbleached muslin fabric is sufficient and is easier to handle than wider fabrics. Don’t get anything too thin or too thick; some muslin is so thick that it’s difficult to pin through, and that’s too inflexible for your purposes.

It isn’t necessary to prewash the muslin fabric, but you must steam it thoroughly so it doesn’t shrink. Press it carefully, and be sure to align the selvages perfectly. Pin the selvages together to ensure that the fold is on the vertical straight of grain.
fashion fabric. Because you adjust fit and figure out hem placement in a muslin, you don’t need to leave extra fabric in the seam and hem allowances. By testing your seam placement first, you won’t have to rip out stitches, which can leave behind tiny pinpricks or tears and can stretch seams.

In the long run, a test garment saves time. A muslin test run may add a little extra time at the beginning of the pattern-fabric relationship, but think of it as the ultimate icebreaker—it’s a way to slowly get to know a pattern, learn its idiosyncrasies, and coax it into shape before committing to it in fashion fabric.

Simple Steps to Make a Muslin

Crafting a test garment out of scrap fabric is really quite easy. Begin by choosing a size using the measurement chart on the pattern as your guide, and press all pattern pieces with a warm, dry iron—folds and wrinkles can affect the fit. Then cut out the main garment pieces. No need to spend time on cuffs, facings, or pockets, unless it is a section of the garment you particularly want to practice or check. Be sure to cut two sleeves. (You’ll sew and attach one sleeve first, then check the fit. Only if things look too tight or too loose across the shoulders do you need to attach the other sleeve.)

Mark darts, grainlines, waist, and bust points with permanent marker. Mark the center front lines, zipper or buttonhole placement, and the seamlines too, if you like. Mark pocket outlines directly on the muslin to judge placement. Baste hemlines, because the line of thread is easier to feel and press; staystitch the neck edges by sewing a line of straight stitches on the seamline.

1. Baste the garment pieces together using long stitches; press. Following your pattern instructions, construct the garment, skipping steps for details you didn’t include. Don’t sew closures; simply pin those closed. Press up, and loosely pin the hems. To make stitch removal easy, back-tack only at stress points.

2. Press all seam allowances as you would in a final garment. You can cut many corners in a muslin, but never skip pressing steps. Press the seam allowances open, and then press again from the right side of the garment. Whenever possible, don’t trim or clip seam allowances in the muslin, as you might need to let out seams in the fitting process.

Try it on to evaluate the fit, style, and length. If you’re fitting the test garment on yourself, enlist the help of a buddy. If the fit looks strange across the shoulders, sew on the other sleeve for a clearer view of where the fit is going wrong.
3. Pin out any changes or release basting stitches. Write any notes directly on the muslin. Pin any changes. When satisfied with the fit and style, remove the garment, and lay it flat on a hard surface.

4. Mark the pinned sections with a permanent marker. Using a dotted line, mark both sides of pinned alterations.

5. Release the pins, press, and transfer changes. Measure the differences between the original markings and your adjustment marks. Transfer these changes to your pattern. If you make major adjustments, you might want to make another test garment to double-check the fit.

Label and save your muslins. There is no need to start from scratch every time: A muslin doesn’t take up much room, and it will come in handy months or years down the road when you want to sew a favorite pattern in a different fabric. If you’ve lost or gained weight, or wish to make subtle style changes, you can just shake out the muslin, try it on, then make minor adjustments. Just be sure to write the date, pattern name, and size directly on the muslin in permanent marker before you store it away.

**TIP**

Get a smooth start. Before you cut, press your muslin fabric, and make sure it is on-grain so you can cut your pattern accordingly.
Possible Fit Adjustments to a Muslin

**Take in Loose Seams.** If a section is too loose, pin it to fit, and mark the new seamline.

**Loosen Tight Seams.** If a section is too tight, open the seam, then pin and mark the new seamline.

**Adjust Darts.** Pin them in place during the fitting, then mark any changes carefully.

**Adjust Design Lines.** Assess the design elements and adjust them as necessary. Here, the waistline was lowered, which altered the dress proportions.
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Threads magazine is one of the leading sewing publications in America and provides the most authoritative technical information to its readers. Stylish sewing patterns from top Threads designers can be found within its pages as well as on its website.