

chapter

1

Quilting Necessities

Quilting is one of the most popular crafts practiced around the world today, and the variety of quilts and quilting techniques is staggering. If you have ever wanted to quilt but didn't know where to begin, this book is for you. If you have some quilting experience and want to expand your creative horizons, this book is also for you. The opportunities to experience beauty through this craft are nearly endless.

This chapter is an overview of the basic concepts and techniques in quilting, from color to tools to cutting.

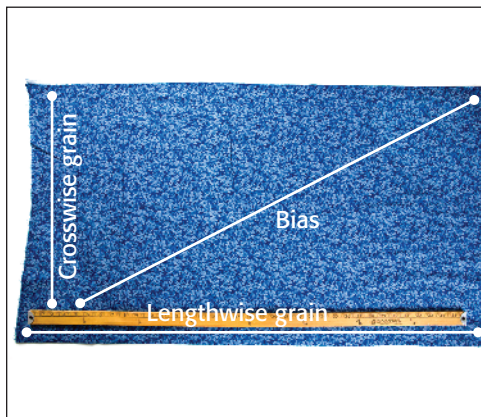
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Fabric Facts

Quilters use all types of fabrics, but high-quality, 100-percent cotton is the best choice. It wears well, holds a seam, and feels good against the skin. Look for fabrics that have a firm weave, not too tight and not too loose. A tightly woven fabric, such as a bed sheet, is difficult to quilt while loosely woven fabrics stretch and fray easily. Cotton fabric ranges in width from 42 to 45 inches, is normally wound onto a bolt, and is sold by the yard or fractions of a yard.

FABRIC GRAIN

Woven fabrics consist of two sets of threads. The set of threads running parallel to the selvages is called the *lengthwise grain* and that running perpendicular to the selvages is the *crosswise grain*, also called *crossgrain*. Cut cross-grain edges have a bit more stretch to them than lengthwise grain. If you cut diagonally across a piece of fabric, this is called the *bias*. Bias-cut edges are stretchy.



FABRIC STASH

As you build your collection of quilting fabrics, referred to as a *stash*, try to buy some prints of each category described on the following pages.



SOLIDS

A solid-color fabric is just one color throughout the length and breadth of a bolt of fabric. Because a solid is such a strong statement of color, it can draw attention away from printed fabrics. That doesn't mean you shouldn't use solids, but you should know how best to use them. See the blocks on pages 95 and 99 for ideas on how to incorporate solids into a quilt top.



TONE-ON-TONES

Tone-on-tone fabrics use two or three variations of the same color in their prints. This variation breaks up the fabric's color so that it doesn't overwhelm other fabrics the way a solid color might.



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TIP

Tone-on-tone fabrics are always a good choice for appliqué.

Fabric Facts (continued)

GEOMETRICS

Polka dots, stripes, checks, lines, diamonds, triangles, and circles are examples of geometric shapes. Because of their repetition, geometrics hold the eye so they're often a good choice for a border fabric.

A geometric might adhere to a specific direction in its design. Stripes, for example, are often woven or printed along the lengthwise grain of fabric. To maintain directionality in a quilt block or top, purchase more fabric than called for in a pattern.



FLORALS

Floral prints include leaves and grasses as well as flowers. This is probably the largest category of fabric prints. Florals are either realistic depictions of their natural counterparts or they are stylized. When choosing floral fabrics for a quilt, include both large and small prints to vary the intensity of the patterns.



TIP

Because most florals are multicolored, a print in only two colors offers the eye a break in what could be a busy color scheme. Try mixing florals and geometrics in a quilt for visual excitement.

INTERNATIONAL PRINTS

Fabrics now include designs and color motifs from around the world. Javanese batiks, for instance, are prized for their dramatic color saturation and simple, eye-catching designs.

International fabrics also include prints from Africa, folk motifs from Europe, and Japanese kimono prints. They are sometimes a challenge to use, but experimenting with fabrics is the fun part of quilting.



NOVELTY PRINTS

Novelty prints may be of race cars, ants at a picnic, a Currier and Ives illustration from the nineteenth century, or cats curled up under a Christmas tree.

Large novelty prints are sometimes challenging to use in a quilt, but they also produce eye-catching designs. Smaller design elements in a novelty print—such as butterflies or bees—provide a great deal of interest in a quilt top.



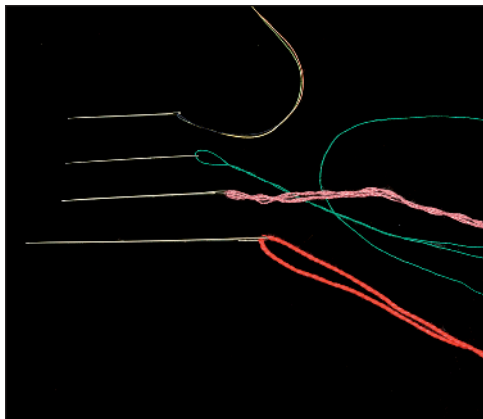
TIP

Large novelty prints often lend themselves to fussy cutting (see Chapter 10) so that the print motif is preserved.

Tools

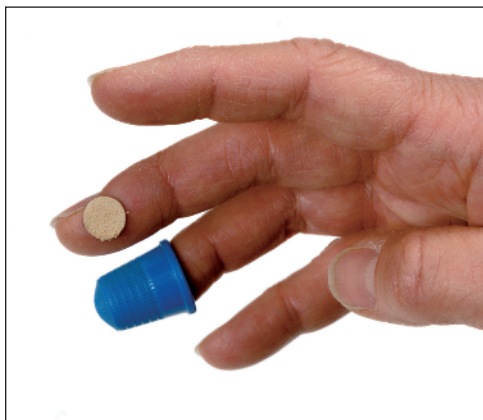
HAND-SEWING NEEDLES

A *between* is the smallest and finest hand-sewing needle and is available in sizes 8–12 for hand quilting. A *sharp* is a general sewing needle of medium length (sizes 1–12) used to hand baste and stitch a binding to the back of a quilt. To embellish your quilt with fancy hand stitches, use an *embroidery needle*. If you embroider with floss, look for sizes 18–22. If you tie your quilts, choose an embroidery needle with a large eye (see the figure at right).



THIMBLES

When you hand sew, you need to protect your fingers from pinpricks. A variety of thimble types are available nowadays, such as the blue one pictured here. But if you cannot wear a thimble, and many quilters cannot, look for alternatives such as these small, round pieces of leather with adhesive backs that protect the area of the finger you use to push a needle into fabric.



TIP

Here are two maxims regarding needles: 1) The smaller the needle, the finer the stitch; 2) The higher a needle's size number, the shorter its length. Also remember not to leave any needle in your fabric for a long period of time. Even the best needles will discolor over time. Store needles in a felt or wooden needle case.

SEWING MACHINES

Many options are available in today's sewing machines. For most quilting projects, you need a machine that sews an even and straight stitch, a zigzag in various widths, and a buttonhole stitch. With the exception of the pieces in Chapter 9 (appliqué), all of the quilts in this book are made only with a straight stitch.

The essential features you need in a sewing machine used for quilting are:

- **Quality Tension Control.** When you run a seam between your fingers, it is smooth to the touch if the tension between the bobbin and top threads is working correctly. In some machines, the bobbin thread's tension is difficult to adjust. Look for a machine with independent controls for the top and bobbin threads.
- **Ease of Cleaning and Oiling.** As you sew, the presser foot and feed dogs on your machine act like an electric shaver over skin, skimming off minute amounts of fiber from your fabrics. Look for a machine that makes it easy to clean the places where this fiber and lint accumulate.

Open the bobbin area of the machine to find the places that need oil. Read the owner's manual for oiling instructions so you're certain that you can do it easily yourself. Any machine might need professional maintenance from time to time, but you should know how to oil it yourself.

- **Stitches.** At a minimum, a sewing machine for quilting should make straight seams in different stitch lengths. You should be able to easily reverse the direction of the stitching to lock in the beginning and end of a seam. Nowadays, most sewing machines make buttonholes and zigzag stitches in different lengths. While not absolutely necessary for piecing or machine quilting, machine appliqué requires these types of stitches. Plus, zigzag and buttonhole stitching come in handy for a variety of tasks.
- **Operation.** For the best quality seams, make sure your choice of sewing machine can maintain a slow, even rate of speed.

For best results, test a sewing machine before you buy it. Purchase the best quality machine you can. This does not necessarily mean the machine you choose has the widest variety of stitches. It means the machine you choose is sturdy, reliable, and easy to operate. *Teach Yourself VISUALLY Sewing* (Wiley, 2006) is a good resource for in-depth information about sewing machines.

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TIP

If you intend to machine quilt in curving patterns, make sure you can drop the feed dogs on your machine.

Tools (continued)

SEWING-MACHINE NEEDLES

The best sewing-machine needle to use with cotton fabrics is a size 12 to 14 *sharp*. The weave of good cotton fabric is tighter than cottons used in dressmaking, and sharps are better than *universal* needles because the sharp's tip is more pointed, making it easier to penetrate the fabric.

To quilt by machine, choose needles marked *quilting*, available in size 11. For projects with heavier fabrics such as denim, use specially made needles for that fabric.



THREAD

For general quilting purposes, look for a thread thickness of 50. Spools are marked as either *general purpose* or *dressmaker*. A thread weight called *quilting* is slightly heavier than general purpose and is intended for hand quilting only, not for use in a sewing machine.

If you machine quilt, check out the new variegated threads, such as the spool of red in the photo to the right, which add interest to your stitching.



TIP

When you're sewing cotton fabric, use cotton or cotton-wrapped thread. One hundred percent polyester thread can, over time, function like a knife in your fabric, cutting the fabric itself as it is used or laundered. Also, if you hit a pin while sewing by machine, make sure you change your needle. Bent needles can ruin fabrics and sewing machines.

ROTARY CUTTERS

The rotary cutter revolutionized the piecing part of quilting. With it, you can cut longer lengths of fabric more evenly and accurately than you can by hand. You can also cut multiple layers of fabric at one time.

Choose a heavy cutter, preferably one with a self-retracting blade—an important safety feature since rotary cutter blades are extremely sharp. Keep a package of extra blades on hand. A dull blade makes cutting fabric more difficult.

Note to left-handed quilters: You can install rotary-cutter blades on either side of the handle.



CUTTING MAT

When you cut fabric with a rotary cutter, you need a cutting mat that protects the surface of your worktable as well as the cutter blade. Cutting mats come in all sizes. The best choice for general quilting purposes is 18 × 24 inches with a measuring grid printed on one side. Make sure the grid measures to 1/8 inch.

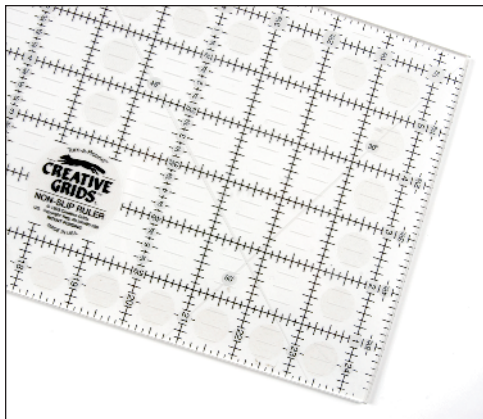


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Tools (continued)

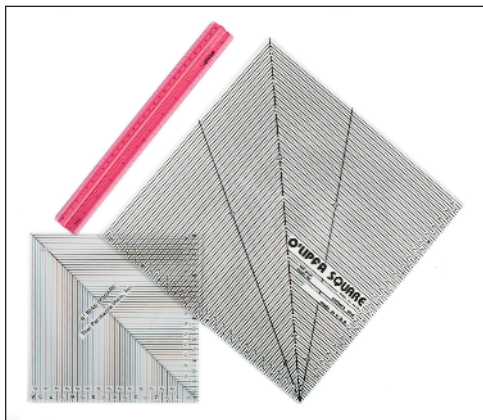
RULERS

The best ruler to use with a rotary cutter and mat is a heavy, clear plastic one measuring 6 × 24 inches. Pick one with embedded gripping surfaces on the backside. These usually appear as small, roughened circles or squares that grip the fabric while you cut so that the ruler does not slip.



SQUARES

You can use many sizes of squared rulers with a rotary cutter. These are especially helpful when you straighten completed blocks, cut fabric on the diagonal, or need to cut several of the same shape.



TIP

Keep an eye out for specialty rulers designed to make piecing easier, such as quick quarter rules that you use to draw diagonal lines on squares when making triangles.

TEMPLATE MATERIALS

To make a patchwork quilt without a rotary cutter, you need templates to act as patterns to guide your fabric cutting. A *template* is a shape cut from a stiff material.

Experienced quilters often tell stories about making templates from empty cereal boxes or poster board. Vinyl sheets, available in quilt shops, are the best choice to make a durable template.



TAPE MEASURE

Choose a cloth or plastic tape measure that's 1 inch wide and 60 inches long with measurements marked on both sides and metal reinforcements on both ends. Retractable, metal tape measures are not a good choice for quilting.



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Tools (continued)

MORE QUILTING TOOLS

Here's a list of other essential quilting tools.

- **Pincushion:** This essential tool should be firm so that your pins and needles stay upright in it. Many pincushions come with an attachment, usually a smaller version of the original, that's filled with a granular mineral called *emery*. You can clean the corrosion or stickiness of your pins and needles by moving them in and out of the emery a few times.
- **Pins:** In quilting, you can never have too many pins and beaded pins are a good choice. These pins are longer than common pins—1¾ inches—which means each one holds more fabric in place at a time. Also, pins with beaded heads are much easier to grab out of a pincushion or find if they fall on the floor.
- **Safety Pins:** Keep a small number of large safety pins in your sewing kit because you can use them to turn tubes right side out and for other chores. If you machine quilt, I recommend specialty safety pins that are bent to make basting for this task easier (see Chapter 11).
- **Scissors:** You should never use the scissors that you use for fabric and thread to cut anything else. In quilting, a sharp cutting edge is essential and materials such as paper or plastic will dull an edge after only one use.
- **Seam Ripper:** The end of a seam ripper is shaped like the letter J with a sharp edge on its inside curve. The extended point is small enough to maneuver between the tiniest stitches without damaging the fabric on either side. Buy one with a cap to cover the point so that you cannot break it or stab yourself when you reach into your sewing box.
- **Iron and Ironing Board:** Choose an iron that has steam and no-steam settings. Many irons automatically turn down the heat if the iron sits still for a certain period of time. This is a safety and energy-saving feature. An adjustable ironing board prevents back strain. Make sure you have a clean ironing board cover, perhaps one that you use just for quilting.
- **Markers and Pencils:** Fabric markers are either permanent or non-permanent. You typically trace templates with sharp pencils. Mechanical pencils with HB lead make thin lines so they are good for template tracing. Use a metallic, white pencil or chalk marker, available in quilt and craft shops, to mark dark fabrics.

Pattern

Quilters sometimes use the same words when referring to different parts of their craft. For example, the term *quilting* can refer to the craft as a whole or it can also mean the process of sewing two layers of fabric together with an insulating layer of batting in between.

One of the most important words in quilting is *pattern*. The term is used in four distinct ways, and you should understand the differences among them.

PATTERN DEFINITIONS

Quilters oftentimes use the word *pattern* to refer to the design printed on a piece of fabric. In a store, you might see a quilter brush a bolt of fabric with her fingers and say, "I love the pattern."



Quilters also use the word *pattern* to mean the instructions to make a specific block or quilt top. But the term also means a line drawing that serves as the basis of an appliqué motif or the lines and curves of the stitches used to secure the three layers of a quilt together (the actual process of quilting). Quilt patterns are found in books, magazines, quilt shops, and online. These are some examples of quilt patterns or instructions.



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Pattern (continued)

Pattern can also refer to an individual block in a quilt and the pieces that make up that block. Quilters tend to lean in close to a finished quilt at a show in order to distinguish an individual block in a top. They ask, "What's the pattern?" This photograph shows the individual pieces of a block in the order that they will be sewn to one another.



Finally, *pattern* refers to how individual blocks blend with one another to create a distinct interaction among the separate pieces. Compare this photo with the one above. Notice how pieces cut from the same fabric blend with one another to create a different visual experience. Above, the light-colored triangles work together to create a diamond shape. To the right, the same triangles become more peripheral while the eye is drawn to the orange shape in the center.



TIP

Many quilt patterns for individual blocks have more than one name because they originated simultaneously in different parts of the country. Be aware of this if you are searching for a particular block in a book or online.

Color Basics

Of all the aspects involved in quilting, color is the most compelling. When you walk into a quilt shop, the color is a sensory experience. Quilting means you get to play with the rainbow but the array of colors is sometimes overwhelming. Consider these key concepts when you are thinking about color in your quilting.

COLOR

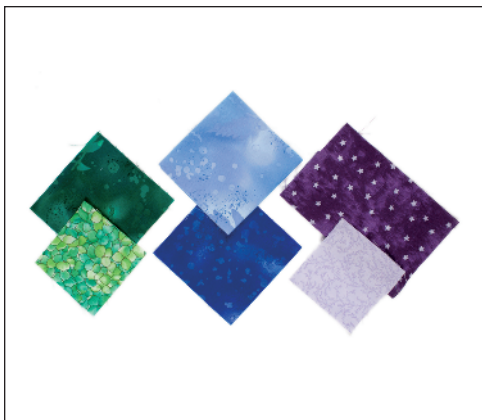
If you ever attend a quilt show, you're sure to hear the phrase, "I just love the colors." By and large, people fall in love with quilting because of the chance to play with so many different fabrics. Color is fun. Color is delicious. Color comforts you, startles you, and delights you.

As you work with color in quilting, make sure you maintain a willingness to experiment. Sometimes a color combination you thought would never work leads you to craft an exciting quilt.



VALUE

A color's *value* refers to its darkness or lightness relative to its hue. For example, light colors such as lavender and pink are pale values of purple and red, respectively. Navy blue is a dark value of blue, while maroon is a dark value of red. Value is a particularly important concept in quilting because blocks are built around the different values among fabrics.



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Color Basics (continued)

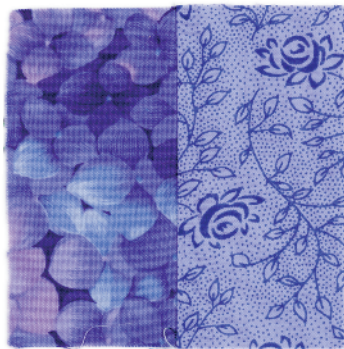
CONTRAST

If you lay a navy-blue swatch next to a pale-yellow swatch, you can easily see the difference between them. Quilters refer to this difference as *contrast*.

In a quilt, contrast is as important as color. The contrast between the fabrics pictured here is high. Choose fabrics with high contrast to emphasize the different elements in a block or among the blocks in a quilt top. Fabrics with a lot of contrast silently indicate where you want people to pay attention.



The contrast between the fabrics in this photograph is low. Fabrics with low contrast tend to visually blend with one another. In effect, your eyes create something new when they are presented with side-by-side, low-contrast fabrics. Try using a combination of low-contrast fabrics instead of one single fabric in a quilt to add visual excitement.



TIP

The best way to test your fabrics for contrast is to place them side by side, and then step away about ten feet. If you can easily see the line where the two fabrics meet, they have good contrast. If you struggle to see that meeting line, your fabric choices have low contrast.

More about Color in Quilting

You can choose colors for your quilt in several ways. These color terms will help you develop your color skills so that you can confidently select fabrics for your quilts.

PRIMARY COLORS

In pigment, or dye, the three primary colors are blue, red, and yellow. In fabric, all other colors are made of combinations of these three primaries. Red and yellow are warm colors and they tend to dominate any nearby fabrics in other colors. Blue is a cool color.



SECONDARY COLORS

The three essential secondary colors are purple, orange, and green. Purple is a combination of red and blue, orange is a combination of yellow and red, and green is a combination of yellow and blue. Orange, because it's a combination of the two warm primary colors, is also considered a warm color while purple and green are cool colors because they both contain blue.



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More about Color in Quilting (continued)



INTENSITY: The term *bright* is often used to describe a color with lots of *intensity*. Brightness actually refers to a color's purity. The purer a color, the more attention it gets. The fabrics shown here have a great deal of intensity.



SHADE: Adding black to a pigment or dye results in a *shade* of the original color. Brick red is darker than red, therefore it is a shade of red. A fabric in a shade of a warm color, such as orange, tends to dominate its neighbors less.



TINT: Adding white to a color results in a *tint* of the original color. Pink is a tint of red, for example, while lavender is a tint of purple because pink and lavender are lighter than red and purple, respectively.



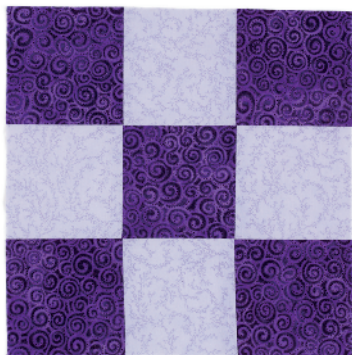
STONE: Adding gray to a color mutes that color. The result is called a *tone*. Avocado and sage are both tones of green. Tonal fabrics tend to recede into the background. They are useful to surround a more vibrant color.

Color Relationships

ONE COLOR (MONOCHROMATIC)

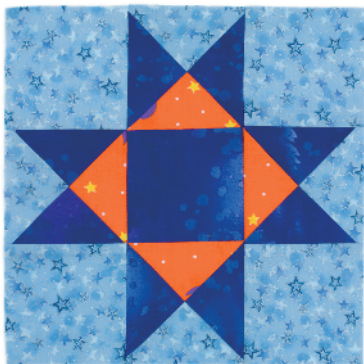
You can create vibrant quilts using fabric from a single color. This Nine-Patch example uses two fabrics that have a lot of contrast but are in the same color family.

A variation of monochromatic colorization uses quilter's *neutrals*, such as the variations of white and beige found in muslin. Splashes of one color are interspersed with neutrals, giving the eye a place to rest.



OPPOSITE COLORS (COMPLEMENTARY)

When you choose any two colors directly opposite from one another on a color wheel, you set up a complementary color palette. Visually, complements complete one another because each contains the one primary color not included in the other. For example, orange is a mixture of red and yellow, neither of which are part of orange's opposite, blue. Opposites also intensify each other.



TIP

A color scheme of opposite colors always includes one warm color and one cool. Warm colors, because of their vibrancy, dominate cool colors so a little warm goes a long way in a quilt. To lessen this, include more cool-color fabrics in a quilt built of opposites (top photo) or use tints, shades, and tones of the selected colors. Remember, you can use neutrals as a part of this mix, too.

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Color Relationships (continued)

SIDE-BY-SIDE COLORS

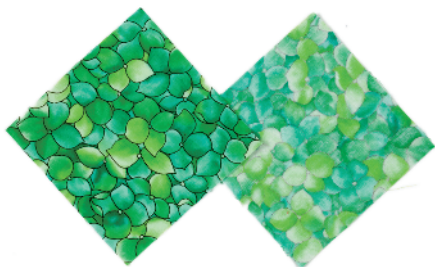
Colors next to each other on the color wheel (called *analogous colors*) are usually too close to one another visually to use successfully in a quilt top. But three, four, or five side-by-side colors can lead to all sorts of interesting effects in a quilt block. This Nine Patch (see Chapter 3) uses three side-by-side colors.



RIGHT SIDE, WRONG SIDE

When quilters refer to the *right side* of a fabric, they mean the side with the print (see the fabric on the left in the photo). This side is the more vibrant of the two sides. Most of the time, when you sew one piece of fabric to another, you will sew them with their right sides together.

Sometimes, however, you might want a muted color and the *wrong side* is just what you need. As a quilt shop owner once said to me, “You buy both sides.”



TIP

Selecting fabric in a store is difficult, especially if the store is small or crowded. To minimize this, purchase small amounts of your test fabrics—most stores will cut as little as $\frac{1}{8}$ yard—and take them home to play with. Make sure you return to the store as soon as possible to purchase sufficient yardage for your project. Popular fabrics don't stay on the shelf long.

Fabric Cutting Basics

SEAM ALLOWANCES

A *seam allowance* (the measurement from a line of stitching to the cut edge of the fabric) in quilting is usually $\frac{1}{4}$ inch.

Quilters usually line up the outside edge of their fabric with the right side of the sewing machine's presser foot when they stitch. But that distance may not be $\frac{1}{4}$ inch. To check, sew two scrap pieces together, then measure (see photo). Small differences can add up to large differences over the course of a quilt top.



PRESSER FOOT

Most sewing machines have a universal presser foot (see photo, left) with the foot's left and right sides exactly the same. If you use the outside right edge of this foot to guide your fabric, your seam allowance will be more than $\frac{1}{4}$ inch wide.

The presser foot on the right is for quilting. The foot's right side is smaller than the left. When you use the outside right edge of this foot to guide your fabric, you get a $\frac{1}{4}$ -inch seam allowance.



TIP

Generally speaking, the price range for a new presser foot—all sorts of specialty ones are available—runs from \$25 to \$50 depending on the machine and the foot. The quilting presser foot pictured on this page is among the least expensive, and well worth the purchase price.

Cut Fabric Using Templates

Templates require a stiff material that is reusable, such as foam board, cardboard, or vinyl, vinyl being the most sturdy. While many quilters swear by the one-template method of cutting pieces with scissors, others prefer the two-template method because it takes much of the guesswork out of sewing and creates an accurate seam allowance. Make sure your fabric is wrinkle-free before you use any cutting method.

ONE-TEMPLATE METHOD

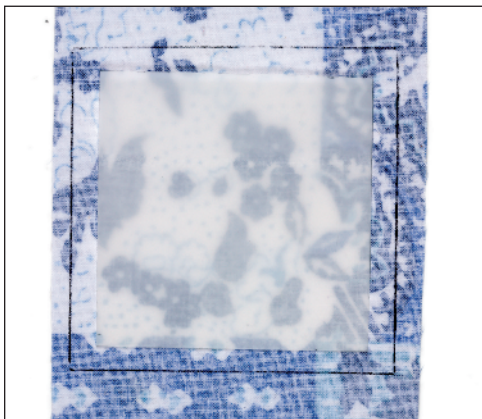
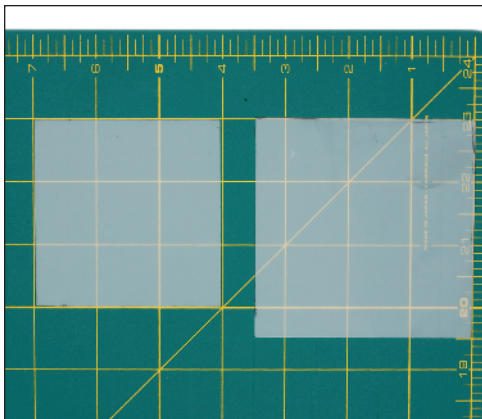
Follow these steps to cut fabric using one template.

- 1 Measure, draw, and cut your shape from your template material. This example uses a 3-inch square.
- 2 Lay the template on the wrong side of the fabric. Align the straight edges of your template with the lengthwise and crosswise grain of your fabric. Unless the fabric is dark, trace around the outside edge with a pencil. Before you lift the template, make sure the pencil markings are visible on the fabric.
- 3 Use a ruler to draw a line $\frac{1}{4}$ inch around your drawn square for the seam allowance. Cut out your fabric piece on the lines you added for the seam allowance.



TWO-TEMPLATE METHOD

- 1 Measure, draw, and cut one template to the *finished size* (the size the piece will be when it is part of a quilt top) of your fabric piece. Cut a second piece a $\frac{1}{2}$ inch larger than the first template in both width and length. The example shows two square templates. One is 3 inches square, the other is $3\frac{1}{2}$ inches square. This gives you a $\frac{1}{4}$ inch seam allowance on all four sides.
- 2 Lay the larger template on the wrong side of your fabric. Trace around it with a pencil or marking tool. Before you lift up the template, make sure your pencil markings are visible.
- 3 Center the smaller of your two templates inside the marks of the larger one. Make sure you have $\frac{1}{4}$ inch between the marks of the larger template and the outside edge of the smaller template. Draw around this template.
- 4 Cut your fabric on the lines of the larger template. When you sew, use the smaller template lines to guide your stitching.



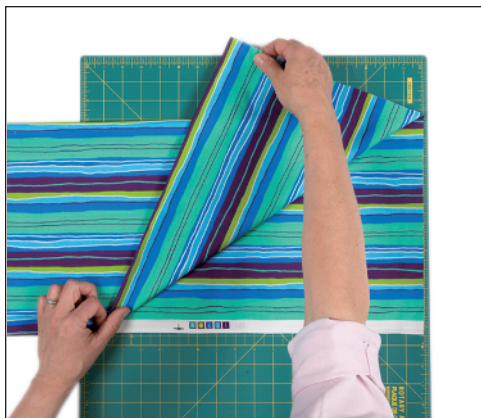
TIP

Because of their thin lead, mechanical pencils give you the sharpest lines when you need to mark fabric. If you need to mark dark fabric, look for a chalk marker that will give you a thin, sharp line.

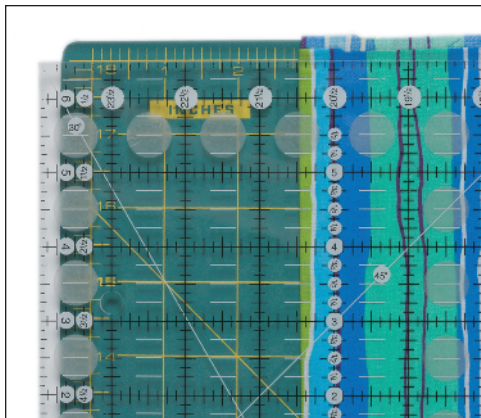
Cut Fabric with a Rotary Cutter

The most important part of cutting fabric with a rotary cutter is to make certain your cuts are straight. The process of folding, adjusting, and then cutting one edge straight is called *truing an edge*. When you work with a rotary cutter, starting with a true edge is key. Here are the steps.

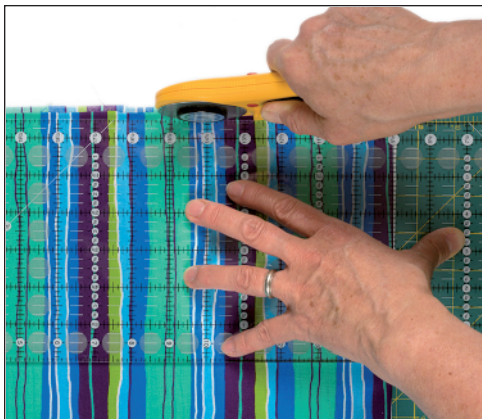
- 1 Fold your fabric in half so that the selvages meet. Lay it on your cutting mat with the selvages at the top and smooth out any wrinkles. Fold in half again by bringing the fold at the bottom up to the selvages. Align the selvedge/fold edge with a horizontal line on your cutting mat. The bulk of your fabric will lie on the side away from your cutting hand.



- 2 Lay your cutting ruler across your fabric. Align it with one of the vertical lines on your cutting mat with approximately $\frac{1}{8}$ inch of fabric to the right of the right edge of your ruler (left if you are left-handed). All of the irregular/rough edges of your fabric are visible beyond the ruler.



- 3 Hold your ruler firmly, take your rotary cutter in your hand and place it so its silver blade hugs the edge of the ruler. Start at the end of the fabric closest to you and with a firm, slow stroke, cut this irregular edge from the fabric. *Always cut fabric away from your body.*



- 4 Before you raise the ruler, make sure the cut-off section of fabric has separated from your fabric. Sometimes a thread needs an extra swipe. If more than a thread or two is consistently attached, you might need a new blade in your cutter.
- 5 If you are cutting more than one strip of the same size, move your ruler to the left (right if you are left-handed), align it to the appropriate vertical line, and continue cutting. For example, if you need three strips $2\frac{1}{2}$ inches wide, cut strips at the $2\frac{1}{2}$, 5, and $7\frac{1}{2}$ inch marks.

