

Module 3: Margit Echols' Quilt Pattern

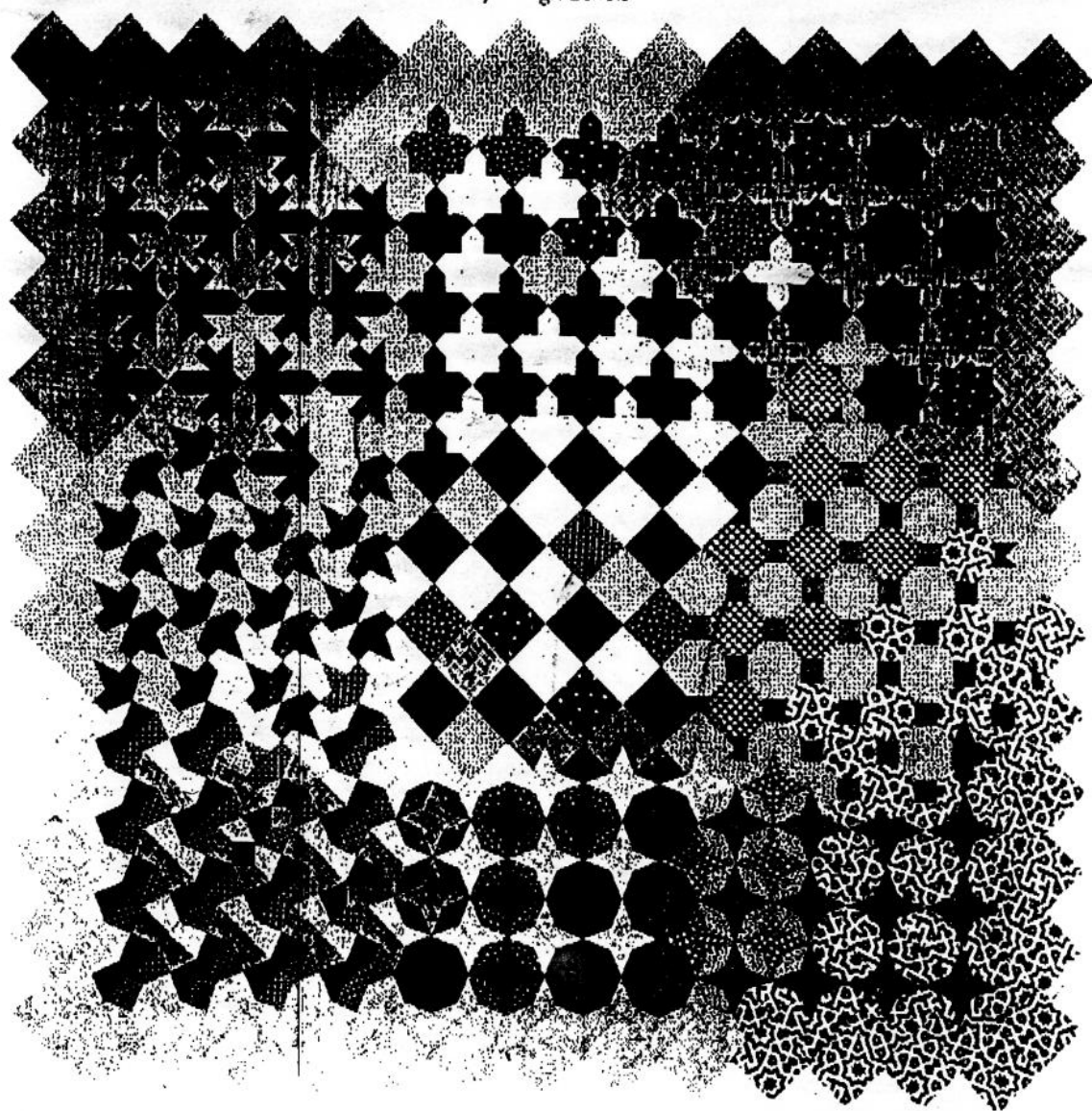
How did Margit Echols use the square grid to create the beautiful quilt pattern shown on the next page? Read the short essay on the next page by Ms. Echols about how she constructed the quilt pattern shown based on a square grid decorated with the six patterns shown on the right side of the page. Echols describes how she derived all six patterns from a fundamental construction called the *sacred cut* shown on the upper right hand part of the page in which four arcs of a circle are drawn through the center of a square from each vertex with the 8 ends of the arcs intersecting the edges of the square. She goes on to show how these patterns can be found in a square grid. We include in this module, the article, Margit's Magic Squares, which describes the quilting process as it applies to this quilt pattern in case there are any quilters in the class who would like to try their hand at it. This article also gives a clearer view of the quilt patterns and how they are generated from a square grid.

Construction : Create a square grid defining one or more of the patterns that makes up Echols' quilt or make up your own pattern based on the Sacred cut. . If you are really ambitious you can create your own pattern that transforms from one design to the next as Echols does in her quilt.

Behind the Pattern

Recognizing the underlying grid helps convert countless complex patterns into pieceable quilt designs

by Margit Echols



PIECING CHALLENGES



Cut without internal seams, none of these shapes would be easy to piece.

Most quilters have one thing in common: We usually look at a quilt pattern, whether it's a block or an overall design, and see each shape as a single piece of fabric—except, of course, when a shortage of fabric

forces us to conceal a seam between pieces of the same fabric. It's part of how we evaluate the relative difficulty of a potential piecing project. None of the shapes at above right, for instance, looks particularly easy to piece, especially when part of a repeating pattern.

But what if you were to divide

each of these shapes with one or more well-placed, not-meant-to-be-seen seams? Depending on the larger pattern each shape would be a part of, this might make piecing the design more approachable.

In my own search for new quilting ideas, I've always been attracted to the geometric designs that

Avoid one-piece-per-shape thinking. Look instead to simplifying the grid and to internal seams to help piece complex shapes, as the author did in "Norman Conquest" (50 in. by 50 in., 1995).

Sources for More Grid-Based Designs

Arab Geometrical Pattern and Design by J. Bourgoïn, New York: Dover, 1973. (Reprint of an 1879 book.)

Arabic Art in Color. New York: Dover, 1978.

Historic Designs and Patterns in Color from Arabic and Italian Sources by F.M. Hessemer. New York, Dover, 1990.

other craft traditions have explored. The shapes just referred to, for example, are all derived from Islamic ceramic tile designs. As long as I used that one-piece-per-shape thinking as I searched for new designs, I found very few that looked worth the effort to piece. It was only when I started to visualize the obvious shapes in a design as composites of simpler shapes that I began to see many more possibilities.

Seeing the square within the star

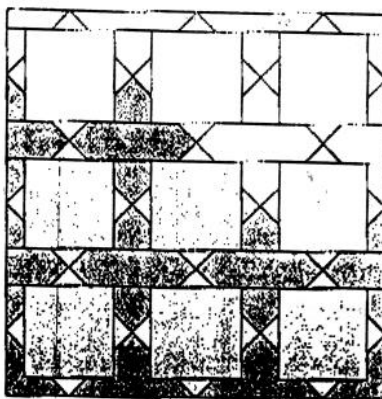
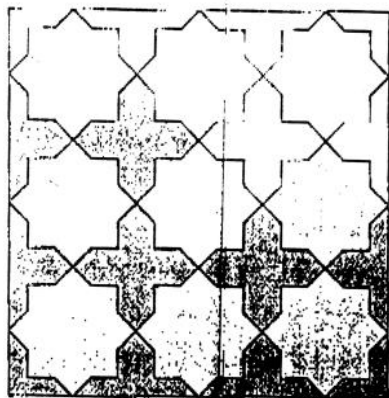
One of the patterns (which has traditionally been used by Islamic tile

Visualize the obvious shapes in a design as composites of simpler shapes, and you'll begin to see many more possibilities

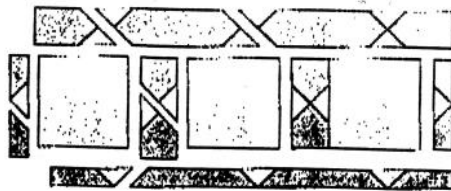
makers) that looked fairly easy to piece is called the Star/Cross pattern. It's shown below, along with my first attempt to break it down into pieceable rows. I realized that I could simplify the eight pointed star by thinking of it as a square with a small triangle pieced invisibly to each side, and so I was beginning to see beyond the shape. I even went so far as to make an entire quilt based on this approach, using the Star/Cross and related patterns, before I realized that there is a far simpler solution, one that has opened up a world of piecing possibilities that I've been exploring ever since.

PATTERN ANALYSIS DETERMINES QUILT-PIECING STRATEGY

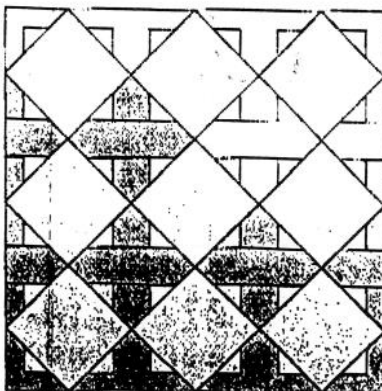
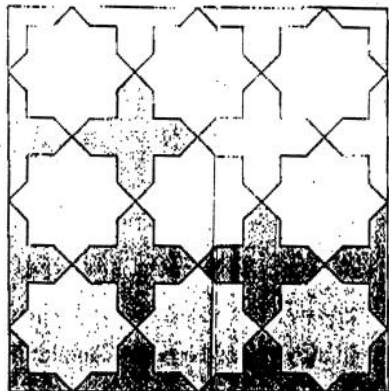
Star/Cross pattern the hard way



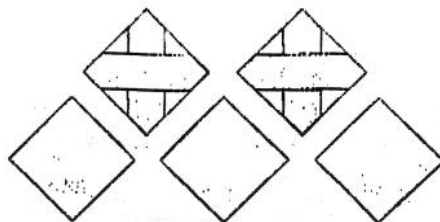
The eight-pointed star in the pattern can be pieced by adding seams, dividing the whole pattern into rows composed of many small parts.



Star/Cross pattern as a square grid



Seeing the underlying square grid reveals that the entire pattern can be reduced to two simple square subunits.



Seeing the star within the square

The key to piecing the star/Cross pattern is to recognize that the star is based on a square and that the entire pattern is based on a square grid, as shown in the lower drawing on the facing page. In the drawings at right, you can see how this same logic will unlock many other patterns, some of which I used in my "Norman Conquest" quilt on p. 11. In fact, all the patterns in "Norman Conquest" can be derived from the same square grid and can be broken down for piecing in similar ways.

Design books (a few are listed on the facing page) are filled with patterns in which you can find an underlying—sometimes obvious, sometimes obscure—square grid, and from this you can develop a simple piecing solution. Not all patterns are based on a square grid, of course. If you discover another type, such as a triangle grid, try using the same approach.

An easy way to explore these designs is to make photocopies of the pattern and experiment on them with a pencil and a ruler to find the underlying grid. Once you find it, you'll notice that it's usually possible to simplify it just by adding a few lines within the square subunit, or by changing a curve to a straight line or vice versa.

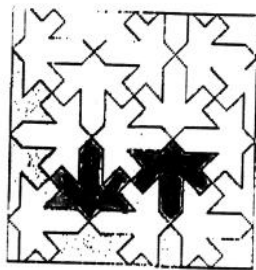
And what's behind the square grid itself that makes it such an inexhaustible source of patterns you can design yourself, and which dates back at least as far as ancient Egypt? That's another story! ♦

Margit Echols wrote about piecing with pinwheels in Threads No. 55, pp. 56-59. Patterns for 3-in. blocks of all the designs in "Norman Conquest" are available from her, c/o Rowhouse Press, PO Box 20531, New York, NY 10025 for \$10 postpaid.

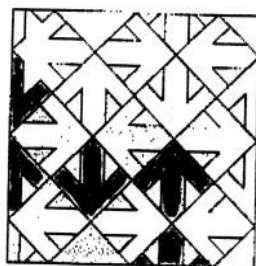
MORE SQUARES REVEALED

All the patterns here also break down into very simple, square subunits. The divisions within the subunits are based on arcs centered at each corner and drawn through the center of the square.

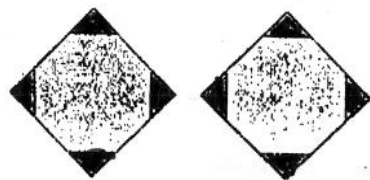
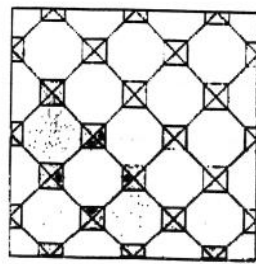
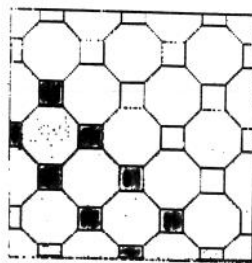
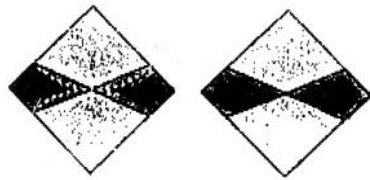
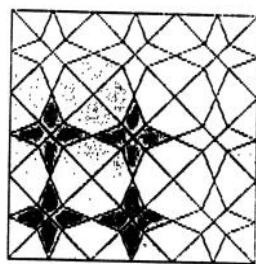
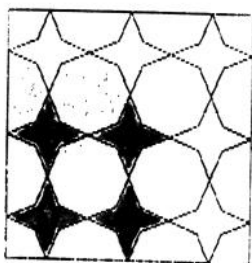
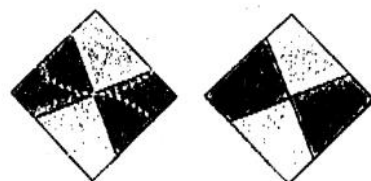
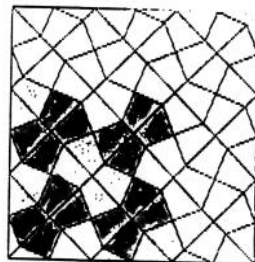
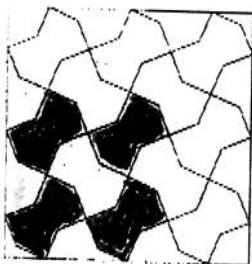
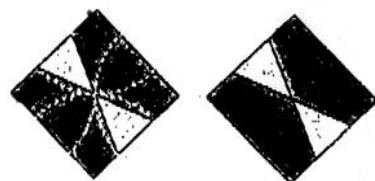
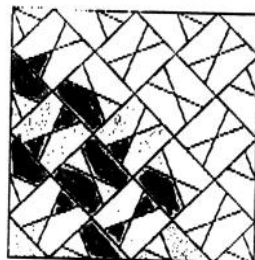
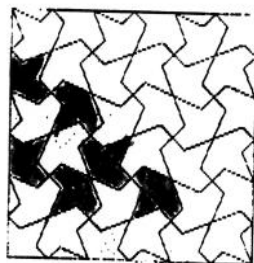
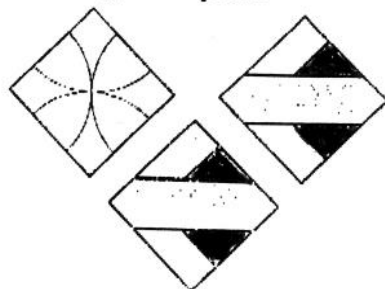
Final pattern



Squares revealed

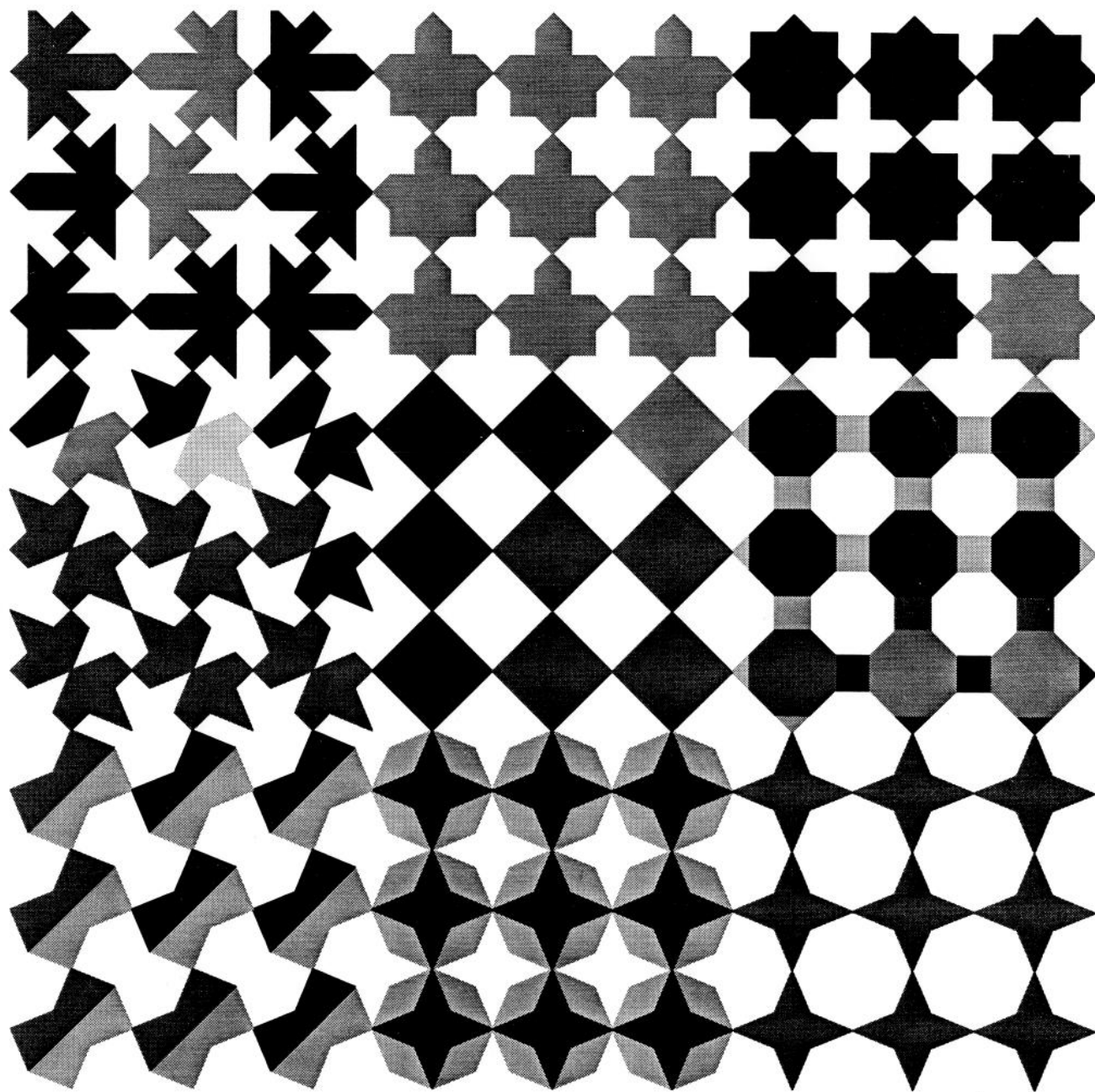


Dividing the square



Margit's MAGIC SQUARES

Islamic Tile Patterns For Quilts



Magic Squares is a package of full-size patterns, instructions, and fabric requirements for the 9 patterns shown above and in *Norman Conquest*, Margit's spectacular quilt featured in the March 1996 issue of *Threads*.

Perfect for scrap quilts, the blocks are based on 3-inch squares.
All of them are amazingly easy to make.

A new and EASY approach to making Islamic tile patterns!

Never before have designs like these been so accessible to quiltmakers!

Norman Conquest, the quilt featured in the March 1996 issue of *Threads*, was named for and dedicated to Jane Norman, Education Consultant, The Metropolitan Museum of Art. It is a direct result of our years of work together with Islamic art and pattern.

An Elegant Solution

by Margit Echols

Fascinating Shapes

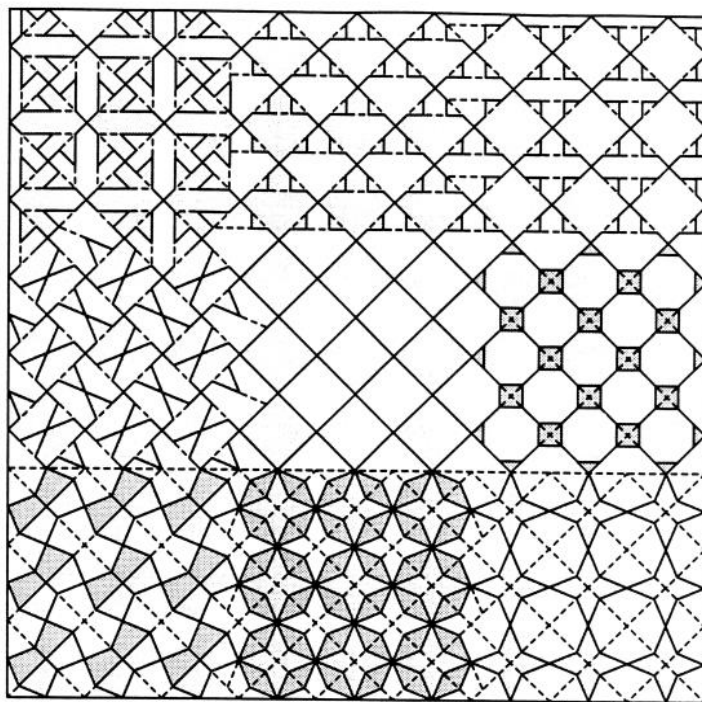
Even though the shapes in this collection are familiar to quiltmakers, they are more commonly found in Islamic art than in quilts. The reason why may lie in how we perceive them, and what we must do in order to make them out of fabric.



If we were tile makers we could cast or cut these shapes into single tiles and assemble them side by side. They would have to fit together without any space between them, and they couldn't overlap or the floor wouldn't be fit to walk on. Patchwork shapes fit together in the same way with one exception: they can't be set side by side. They must be sewn together with seam allowance which, more than anything else, sets the technology of sewing apart from that of tile setting, painting, stone cutting, weaving, wood working, etc. Because of the restrictions inherent in seam allowance, we must be especially careful about how we construct our quilts: we plan a manageable order of assembly; we prefer sewing straight seams, and we avoid turning too many corners. Even if we use a special technique, such as English paper piecing, many shapes can't be assembled as single pieces. They are more easily handled if we divide them into several pieces with a few strategically placed seams.

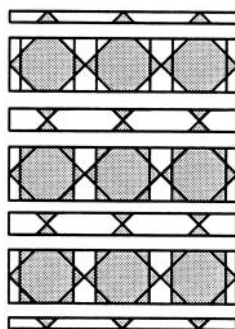


Star Cross, a popular Islamic tile pattern, is a good example. The first time I used it in a quilt I divided it into rows, which made it possible for me to piece it, but the process was cumbersome and not very satisfying.



Piecing Diagram

Size: 38 1/4 x 38 1/4



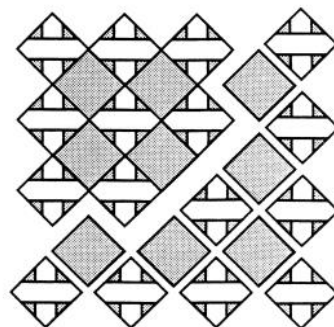
Sometime later I discovered a much simpler approach, one that opened up a world of piecing possibilities that I've been exploring ever since.

Seeing the Underlying Grid

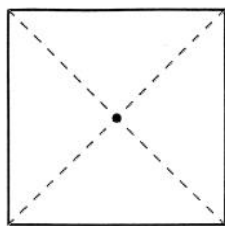
The key to piecing the Star Cross pattern simply and efficiently is recognizing that the star itself is based on a square, and that the pattern as a whole is based on a square grid which is set, in this case, on the diagonal.

Here the design is composed of alternating squares and easy-to-piece crosses, a much more elegant approach than the first one.

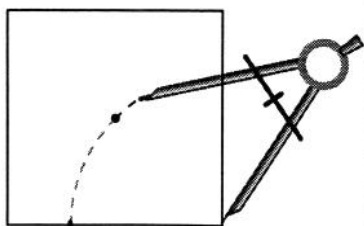
All the designs in this collection - and many more - can be handled in the same way. Exploring them is easy if you understand their structural origin.



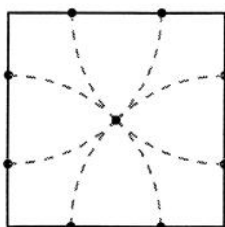
The Magic Square



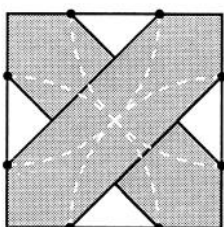
1. Draw a square, any size, on graph paper. Find the center by lightly drawing two diagonal lines connecting opposite corners.



2. Place the compass point at one of the corners and adjust the radius until the lead meets the center of the square. Swing the compass right and left, and mark where arc intersects the adjacent sides of the square.



3. Repeat at each corner to produce a four-leaf clover design. Note the eight points where the arcs cross the square.



4. Connect these points as shown to make the cross block for Star Cross. Connect the points in different ways to make different designs.

A square divided into eight parts, as shown above, is the source of not only the Star Cross and all the other designs in this collection, but many more. How many more I can't say, but I look forward to many happy hours exploring the possibilities. You can, too, by connecting the points in different ways to produce different designs. Try one. Subdivide a square, make several copies, cut them out, and arrange them several ways to see what happens. Or do it on your computer. You might discover a familiar pattern or one you've never seen before. Try combining different squares.

To make patterns for quilts blocks, trace one of each shape within the square and add seam allowance. The blocks will probably be easy to sew, just like the ones in this collection, as the piecing diagrams for the patterns that follow will demonstrate.

The Assembly Diagrams

The designs are listed by title and motif in a loosely arranged order from simple to challenging. They can be combined in the same quilt to make an Islamic sampler, or you can make quilts using one at a time.

Three diagrams for each design demonstrate how the blocks are made and how they are arranged to create the design. Make all the blocks you will need for your quilt and arrange them on a wall or floor. When combining designs, consult *Assembly* for suggestions for smooth transitions between patterns.

The Patterns

The patterns are full size and include seam allowance. Each one is marked with an icon of the design it matches. Some patterns are common to more than one design, and are marked with more than one icon. All finished blocks are 3 inches square.

Unmarked patterns are "joiners", which can be used to connect more than one design and provide a smooth transition from one to another. Consult the piecing diagram to locate joiners.

Foundation Piecing

Because eight pieces meet in the center of the Octagon Star blocks, they are more easily constructed with the enclosed removable foundations, which will help in maintaining accuracy. Trace or photocopy the foundation sheet, which includes enough for two blocks. Carefully follow the cover design or piecing diagram for color placement.

Hint: Pin together two foundations for each block, turn them over and write the colors for each piece on the unprinted sides. Remember that the design is always reversed (flipped) on a foundation, so plan the color placement on the unmarked side of the foundation.

Use a large needle (14), strong cotton thread, and a short stitch. Hand sewers can use a soft, removable foundation, such as Tear-Easy®.

With right side up, place a piece of fabric on the unmarked side of the foundation so that it covers one of the areas with enough fabric for a 1/4-inch seam allowance on all sides. With right sides facing, cover the first piece with a second piece of fabric. Pin and flip the second piece, and check to see that it covers the adjacent area on the foundation with enough for seam allowance. With the marked side of the foundation facing up, stitch along the line between the first and second areas. Turn the foundation over and trim the seam allowance to 1/4 inch. Flip and press the second fabric away from the first.

Continue in this manner until all the areas on the foundation are covered. Each Octagon Star block requires two foundations. Remove the paper from one foundation, pin and sew the halves together along the line on the remaining foundation, matching the seams in the center. Remove the second foundation from the finished block.

The Assembly Diagrams

The assembly diagrams, pages 4 through 6, demonstrate how to piece the blocks and how to assemble them into overall patterns. Consult "Assembly" for hints in making smooth transitions when combining two or more patterns in the same quilt.

Yardages

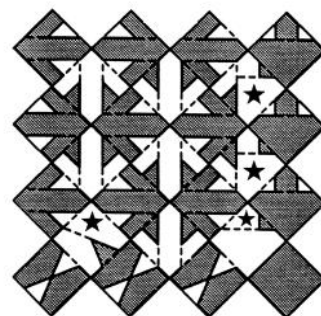
The quilt on the cover is essentially a scrap quilt and looks best when it is made with a variety of prints and colors. It requires approximately 3 yards for the top (1 1/2 yards for the designs and 1 1/2 yards for the background). Divide these amounts by the number colors you think you'd like to use, plus a little extra. The back requires 1 1/4 yards.

Assembly

After all the blocks are finished lay them out on the diagonal on a floor or wall. Use half-square triangles for the side blocks, and cut pieced blocks into quarters for the upper corners and into halves for some of the side triangles.

Note that the designs on the lower third of the quilt behave a little differently from the others. They can be joined to each other easily, but the blocks have to be cut diagonally in half to join them to the designs above.

Use the "joiner" patterns (see shapes marked with stars in diagram at right) to make smooth transitions from one design to another.



The blocks can be sewn together into rows or into square sections. I prefer working in 4-block, then 16-block sections. Rows tend to wobble and are hard to keep straight.

Finish the quilt in your favorite method with back, batting and binding.

Keep in Touch

I'm keeping a family album of quilts by my students and people who use my patterns. I hope to write a book one day about this approach and would like to include quilts by other quiltmakers. If I find myself in a position to include your quilt, I will write to you for permission.

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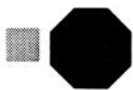
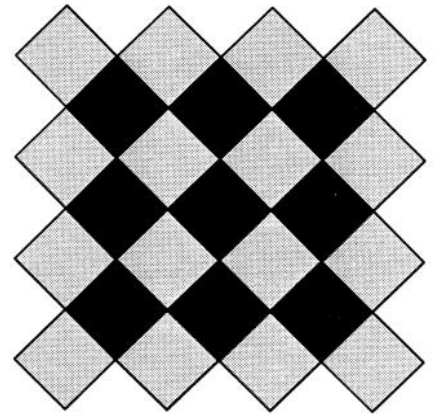
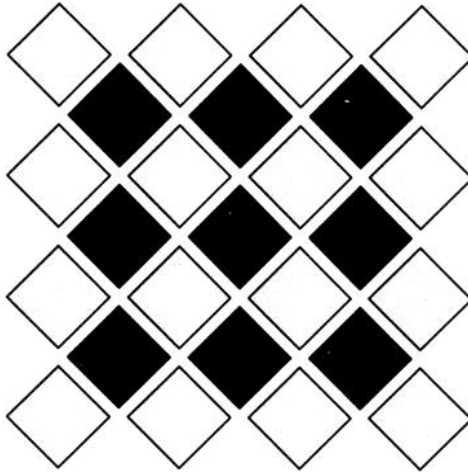
The author is pleased to share her ideas and discoveries with others. In return she requests that when quilts derived from the use of the enclosed material and concepts are shown in public, print or in the classroom that she be credited as the source.

Assembly Diagrams

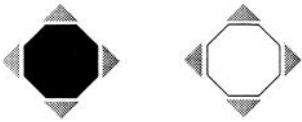


Checkerboard

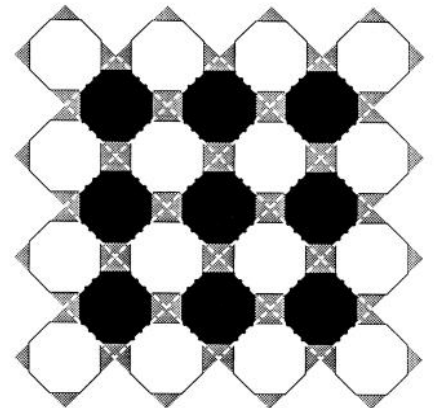
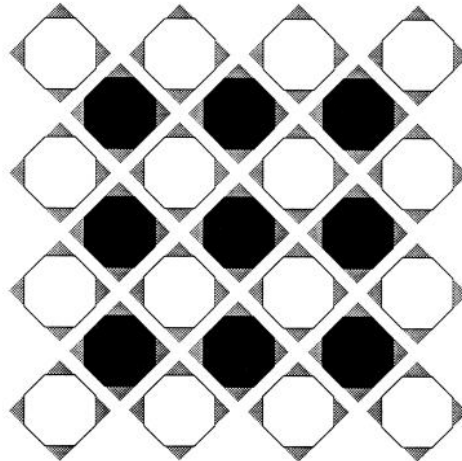
A 3-inch square is the source of all the designs in this collection. Here squares of alternating colors create a checkerboard.



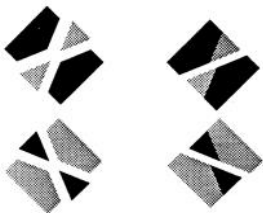
Octagon Square



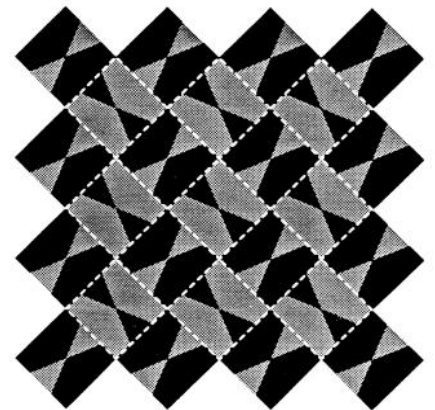
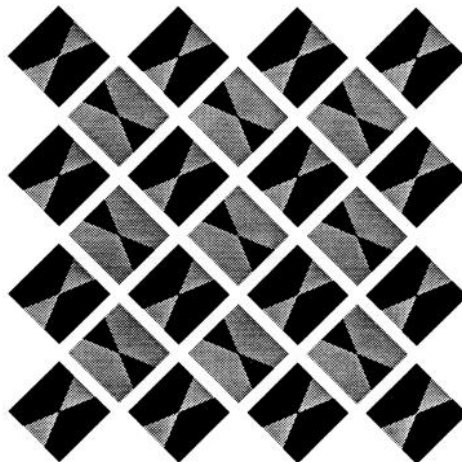
Sew one triangle to every other side of the octagon.
Hint: sew triangles to bias sides. Change colors for alternate blocks.

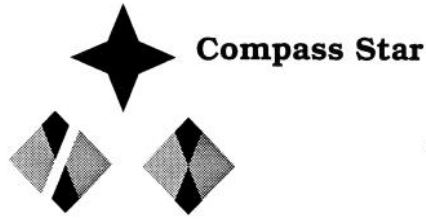


Bird



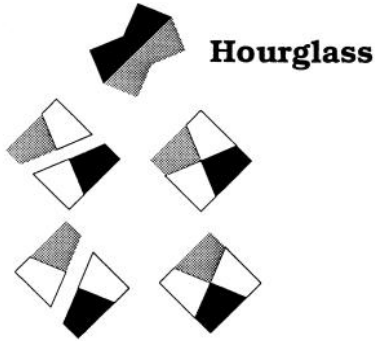
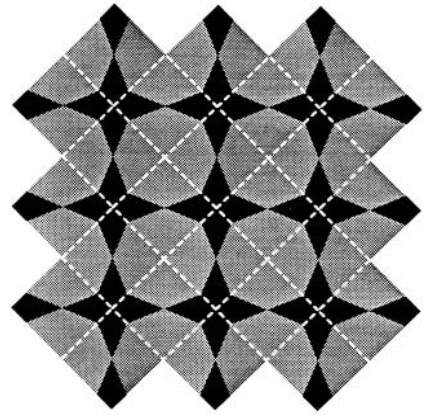
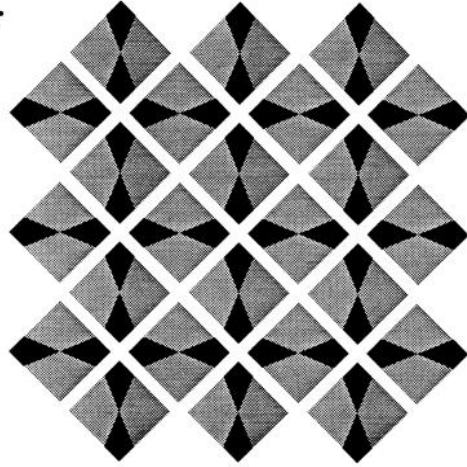
Sew the pieces together into pairs, then sew the pairs together. Reverse the colors and the position for half the blocks.





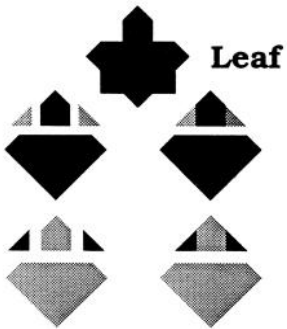
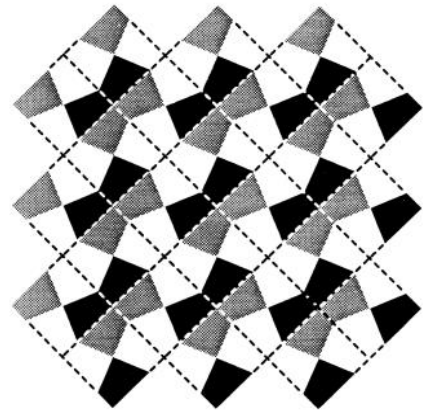
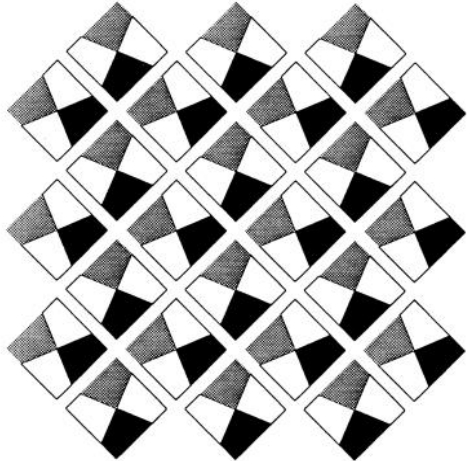
Compass Star

Sew the pieces together in pairs, then sew the pairs together. Switch the position of the colors for half the blocks.



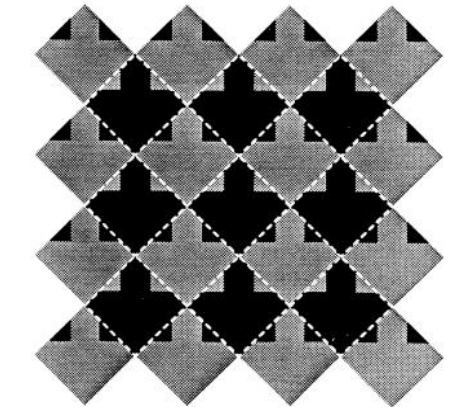
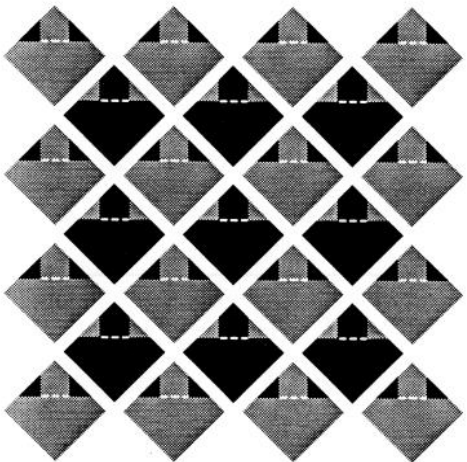
Hourglass

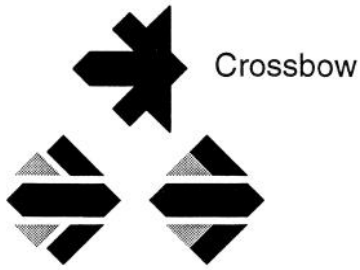
Sew the pieces together in pairs, then sew the pairs together. Flip the pattern for half the blocks. Consult the piecing diagram for correct placement of right- and left-handed pieces and for color placement.



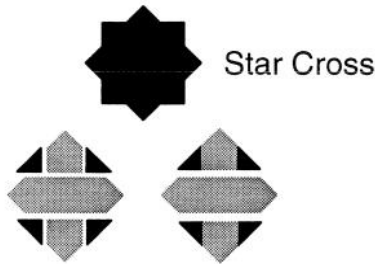
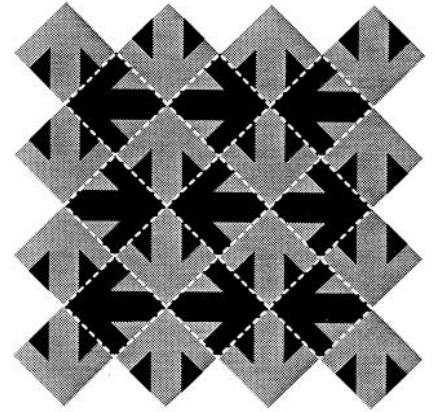
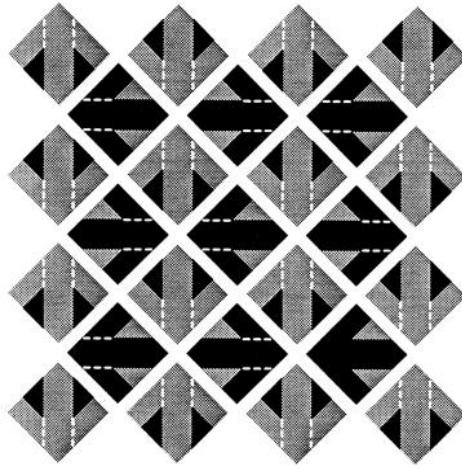
Leaf

Sew the 3 top pieces together in a row, then sew the row to the bottom piece. Reverse the colors for half the blocks.

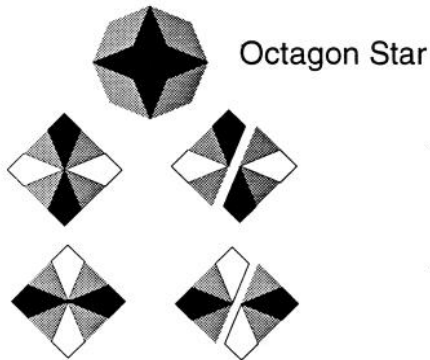
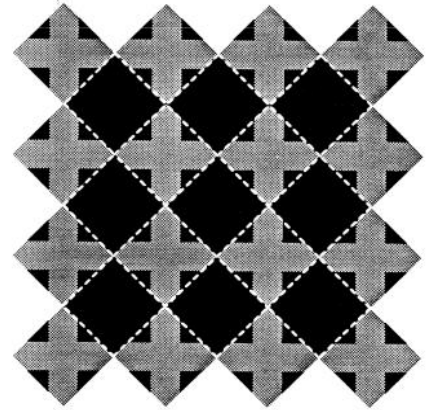
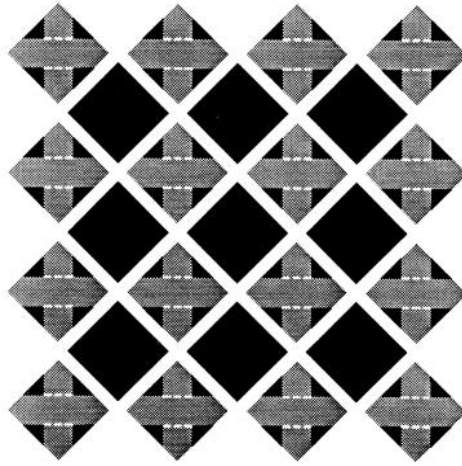




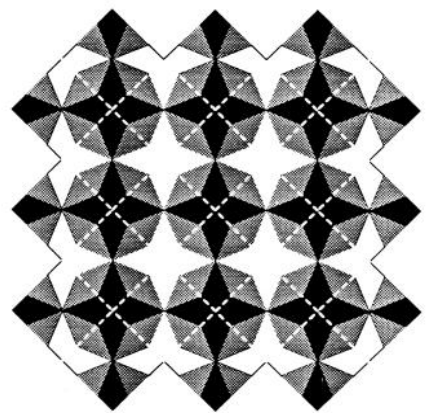
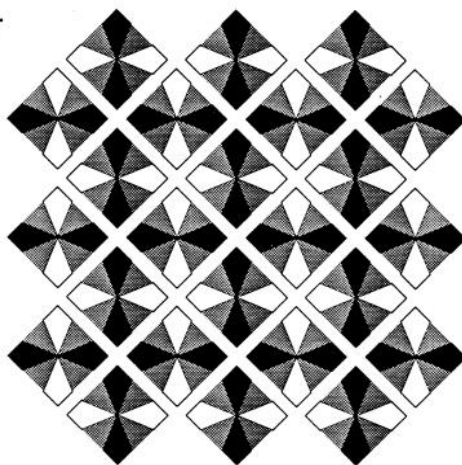
Sew the top and bottom pieces together, then sew them to the sides of the center piece. Reverse the colors for half of the blocks.

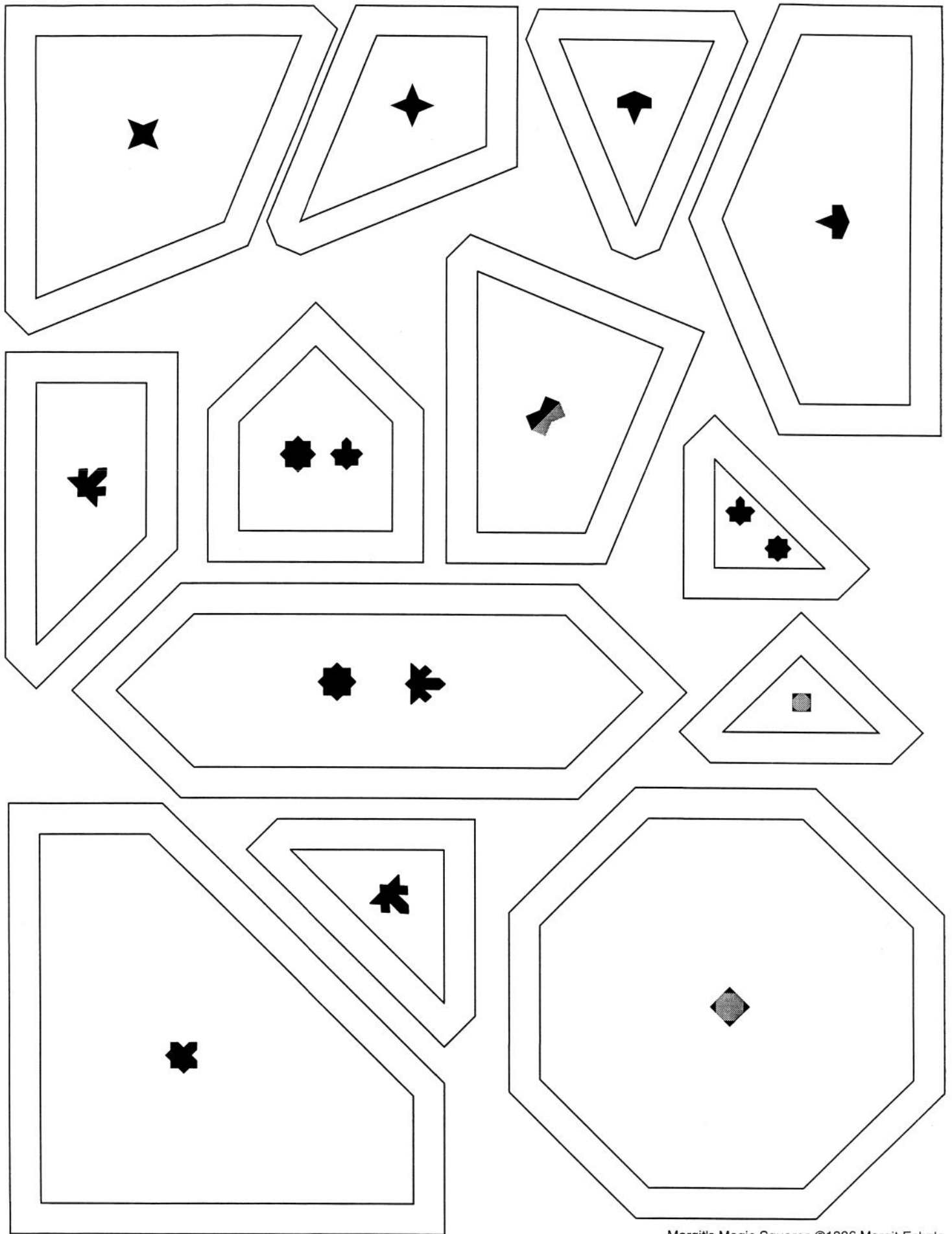


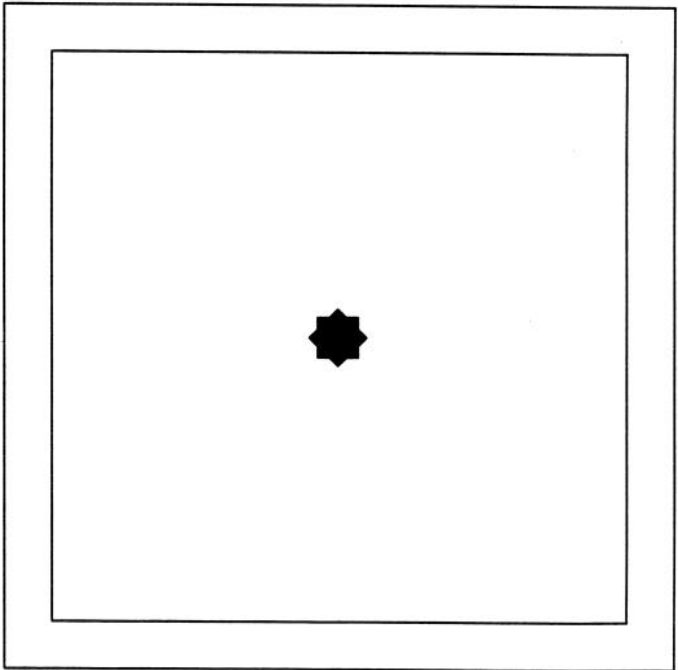
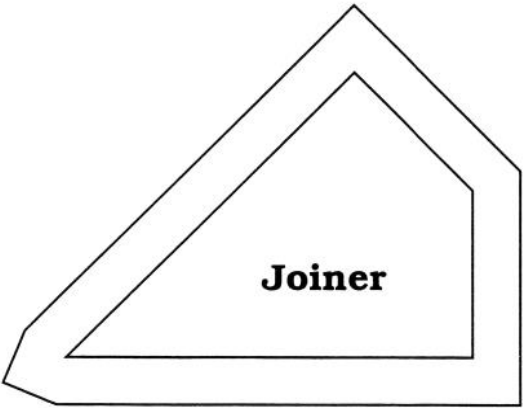
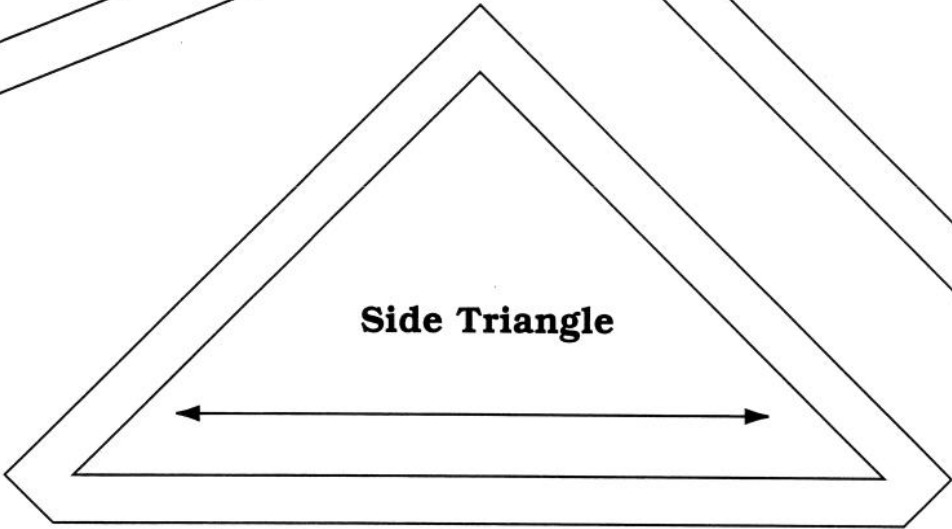
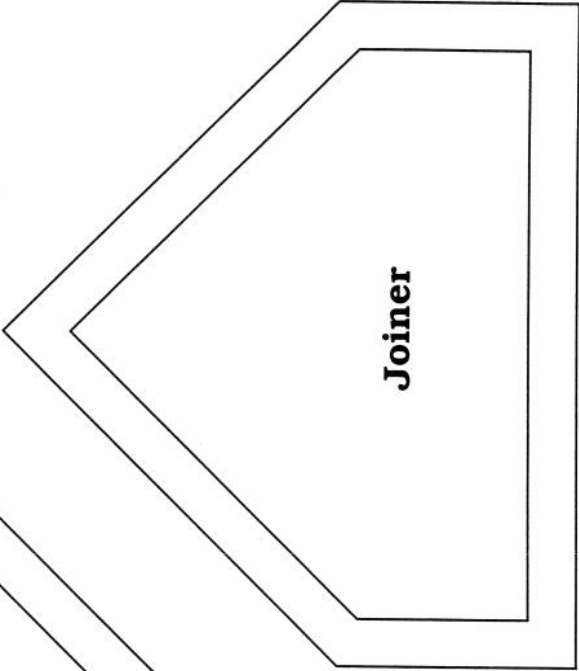
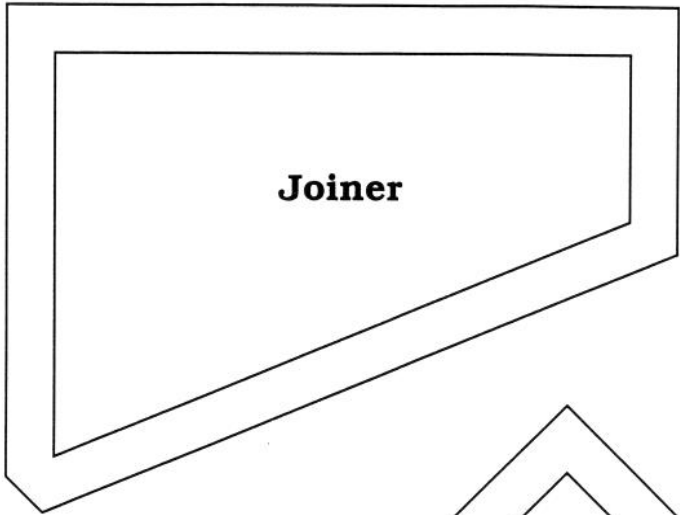
Here squares alternate with crosses. The small triangles become four points on the stars that result when the squares and crosses are assembled. The points can be a different color than the squares; the stars will appear to be made of two rotating squares.

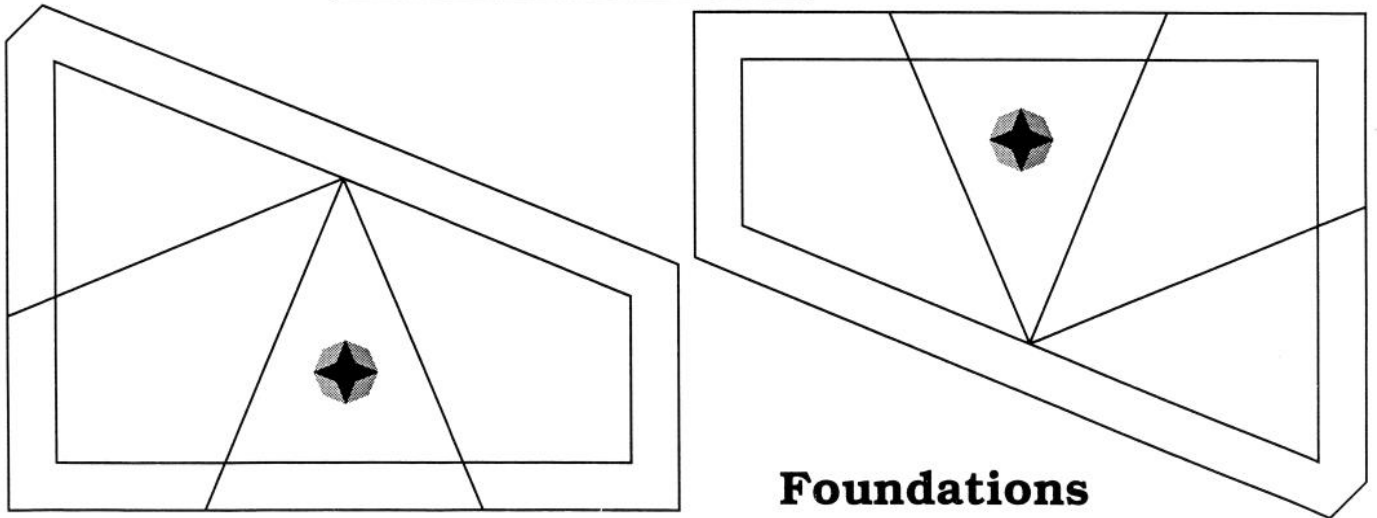
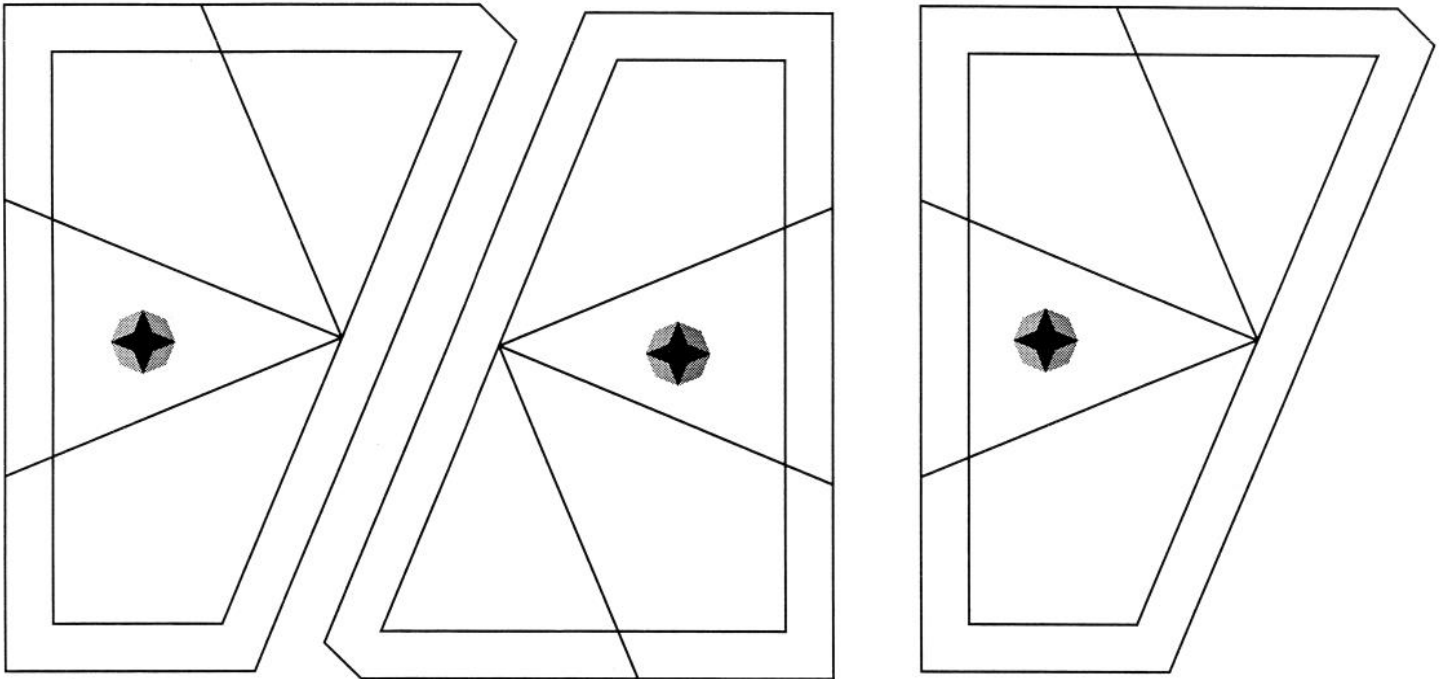
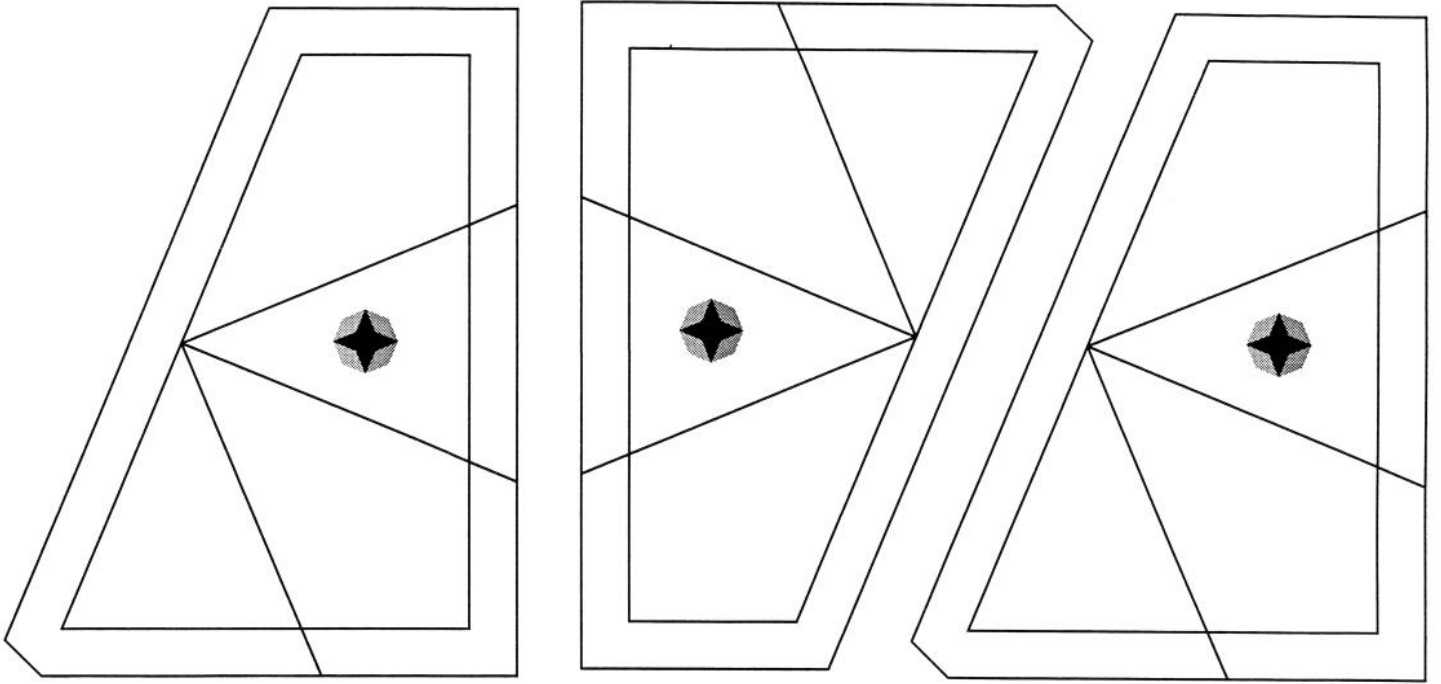


Use the enclosed foundations for these blocks, which are divided into eight parts. Change the placement of colors for half of the blocks.









Foundations