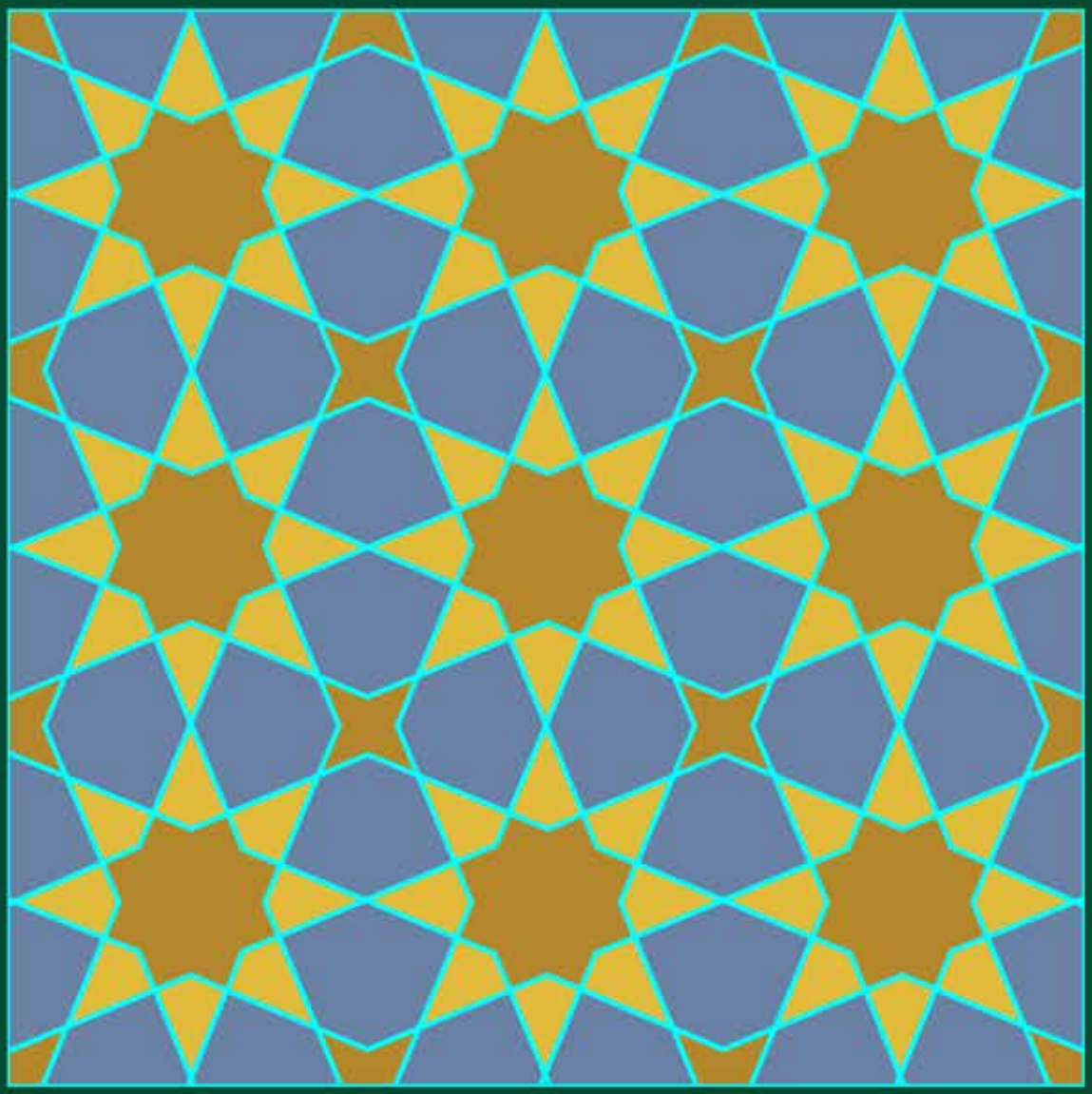
GEOMETRIC COLORING DESIGNS

4–Islamic Patterns



DENISE GASKINS

AUTHOR OF *LET'S PLAY MATH: HOW FAMILIES CAN LEARN MATH TOGETHER AND ENJOY IT*

Symmetry and Islamic Design

Beautiful Geometry

A CIRCLE IS PERHAPS THE simplest geometric shape, yet it can bloom into countless geometric patterns. Over the centuries, Islamic artists and architects crafted tremendous variety and beauty based on the symmetries created by dividing a circle.

You can build large, complex designs with the girih tile pattern blocks on pages 6–10. Print the blocks on cardstock and cut out the individual tiles (ignoring the tiny points). To turn a tile design into a picture cover it with a piece of paper and trace the *girih*—the strapwork lines that go through the midpoints of each block's sides.

Students may fill the shapes of an Islamic design with solid colors or make decorations inside them.

Since children often have trouble controlling a compass to make precise circles and arcs, this booklet contains several template pages with circles pre-divided into eight, ten, or twelve sections. You'll also find brief directions for five classic Islamic design patterns.

For even more fun, get a group of friends together to work on the same design. Cut out your finished projects and arrange them together like tiles. Look for the new shapes created along the sides or corners where the tiles meet.

Or get creative on your own. Use the pages that have multiple circles in a square or hexagonal grid to make an original geometric math art design. What patterns will you discover?

You can find more detailed step-by-step instructions for the Islamic design patterns at Eric Broug's School of Islamic Geometric Design (SIGD.ORG). Learn more about using Islamic art in the classroom and see samples of student work on the SIGD.ORG Classroom Resources page.

Tile pattern from a fountain at El Hedim Square in Meknes, Morocco (late 17th century).

Tile pattern from a tomb at Varamin, Iran (1262 CE). Each tile features a different, unique image, and the borders are filled with quotations from the Qur'an.

PREVIEW

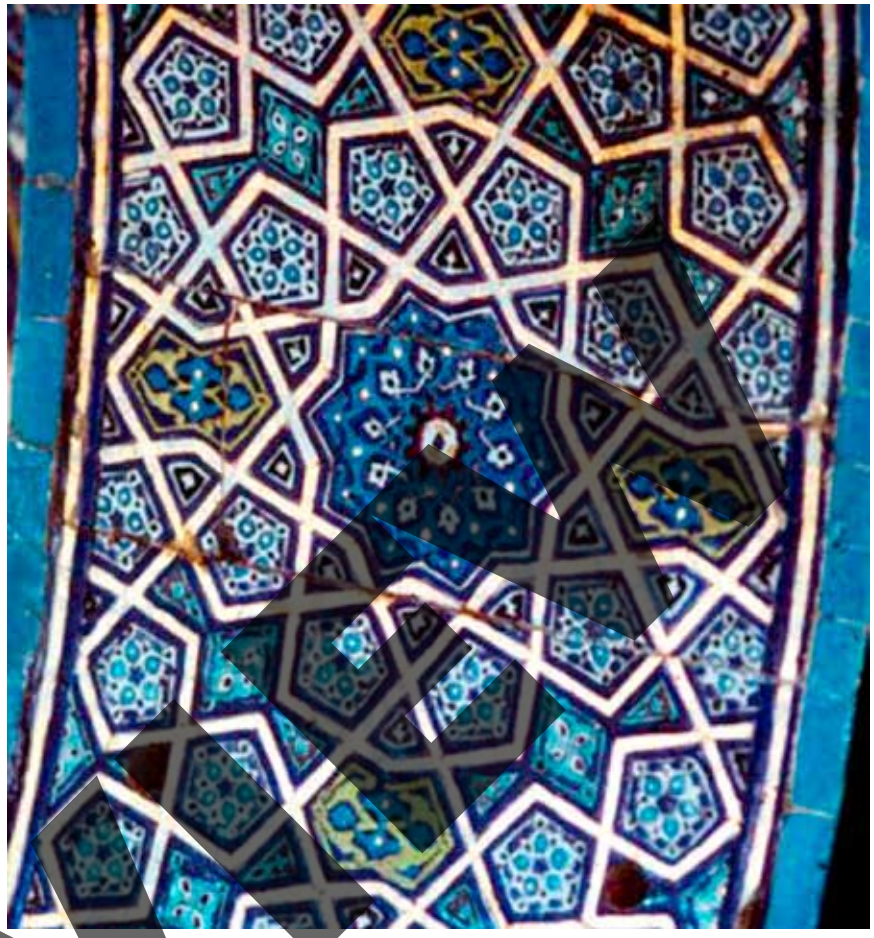
©2020 Denise Gaskins, denisegaskins.com

While using girih tiles to create a pattern, children may get frustrated by the way the tiles slide on a table. I find it easier to work on a rough surface, such as low-nap carpet.

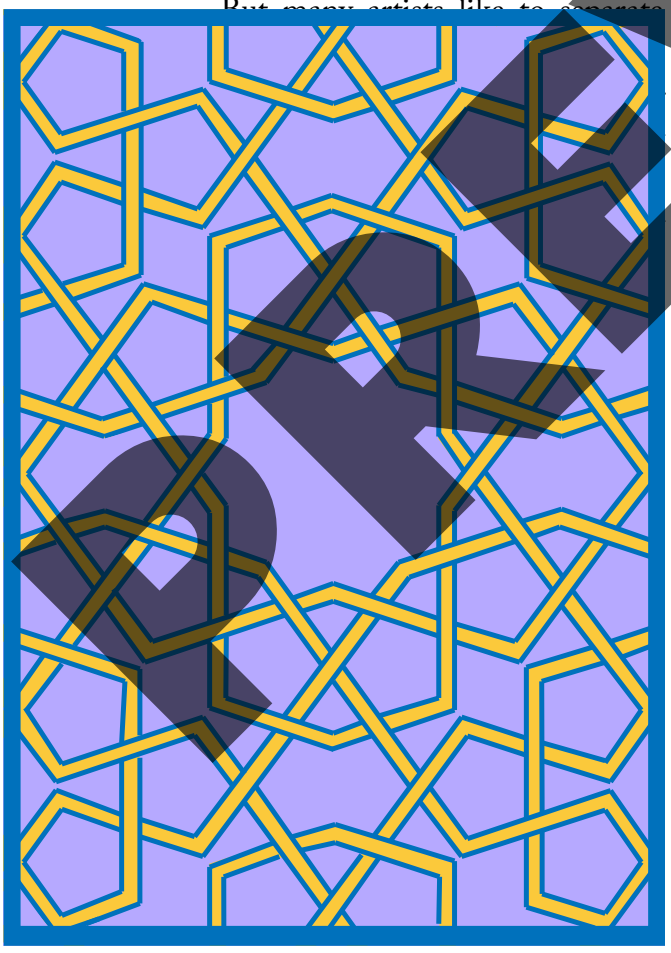
When you find a pleasing arrangement, you may want to stick the paper tiles together with clear tape before tracing the girih. This prevents shifting while you draw. Afterward, you can cut the tape so the tiles are ready to use again.

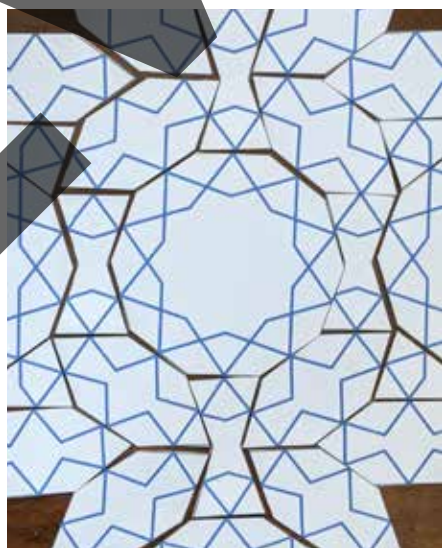
If your tiles don't align perfectly, adjust the girih lines on your tracing to make them straight. Decide where to put the frame around your drawing to make it fit with the corners of the girih shapes.

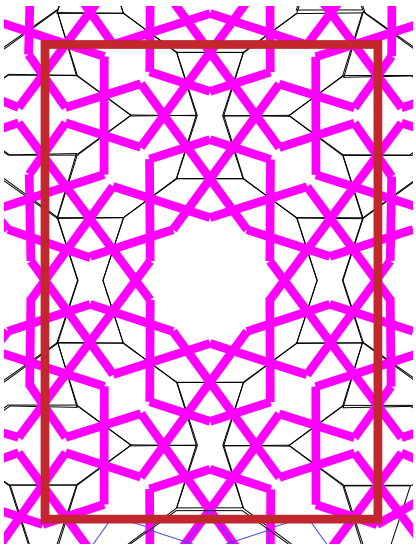
In this archway design from the Green Mosque, the girih form a single web of connected lines.



Girih (strapwork) design on a decorated arch at the Sultan's Lodge in the Ottoman Green Mosque in Bursa, Turkey (1424 CE).





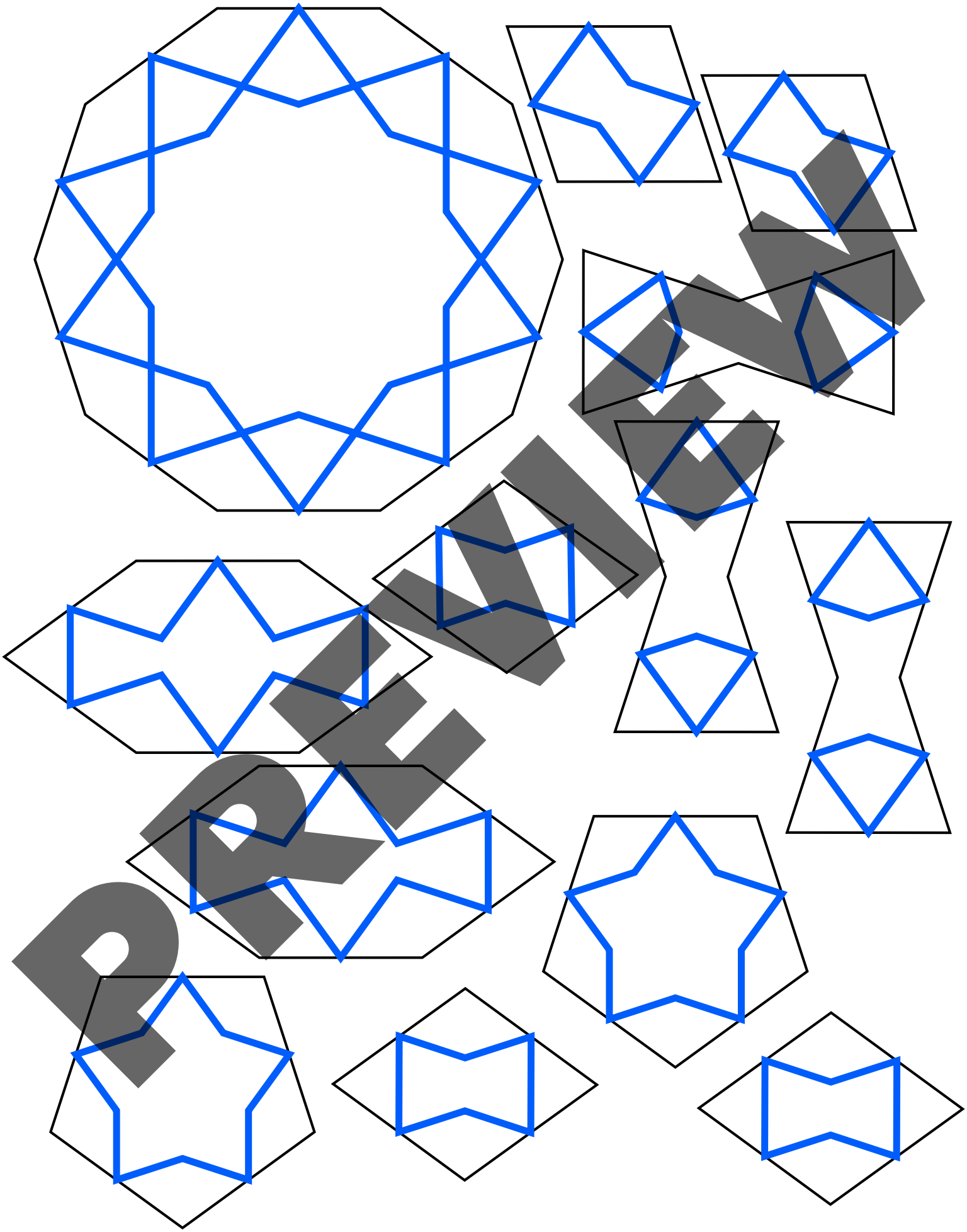


Pattern recreated with girih tiles, and then traced (in pink) with a border that touches the corners of the pentagons.

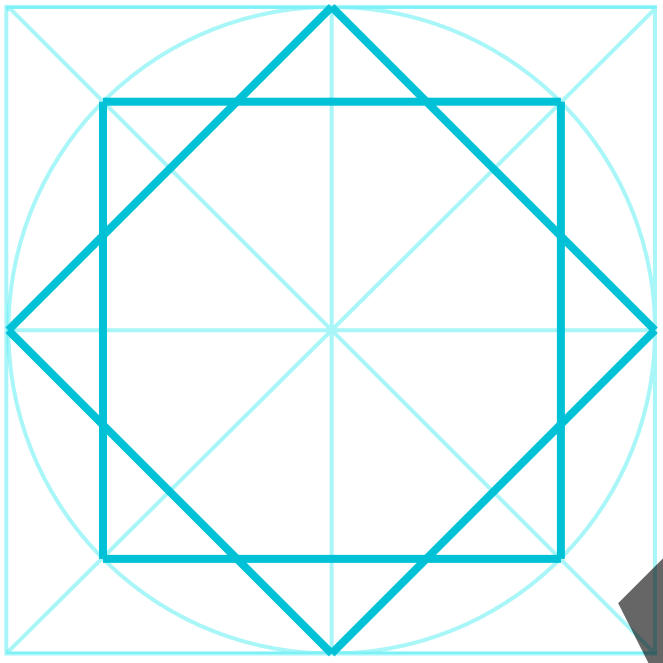
Finished design (left) with interwoven strapwork.

But many artists like to separate the girih into interwoven straps, with each line going over and then under at alternating intersections, as show in the design on the left. Students may choose either method, as they wish.

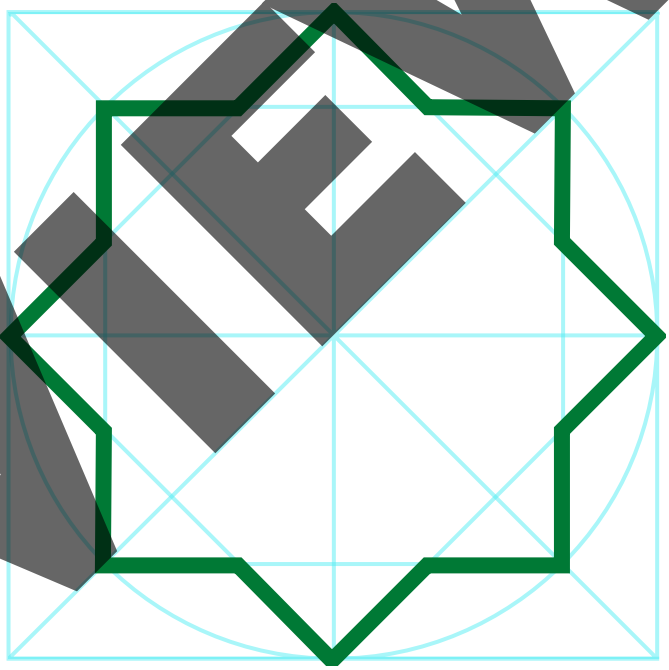
©2020 Denise Gaskins, denisegaskins.com


PREVIEW

Our simplest pattern is an eight-sided star with an open center. Use the circle-in-a-square template on the next page. The first lines you draw will be construction lines, not part of your final design. Draw lightly with your pencil, so you can erase the extra bits later.

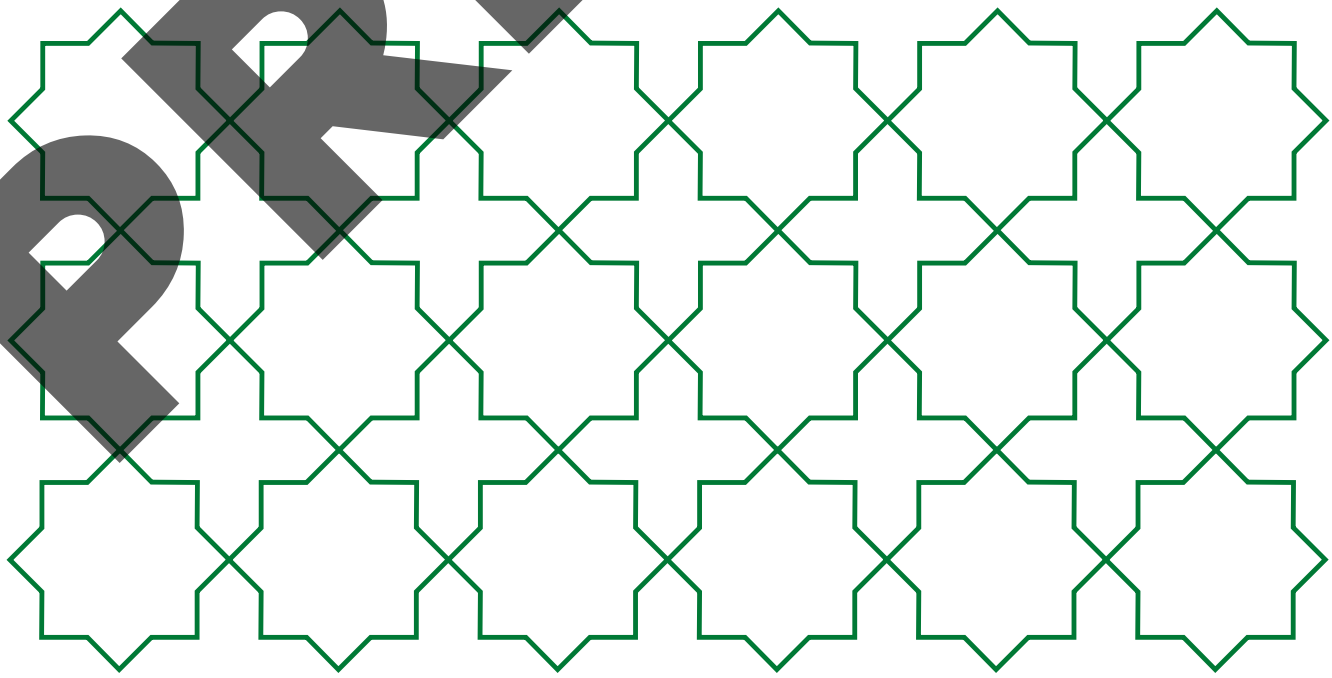


Pay attention to the places where the lines intersect the circle. Connect those points to make two squares, using a ruler to make precise, straight lines. This completes your construction lines.



Now take the marker or colored pencil you want for your final star. Darken the outer points of the squares, as shown here. Then erase your construction lines. Or if you wish to color in your star, you can shade right over the light pencil lines.

PREVIEW



Instructions adapted from Eric Broug's "Pattern 3" at sigd.org/resources/islamic-geometric-patterns.

©2020 Denise Gaskins, denisegaskins.com

PREVIEW