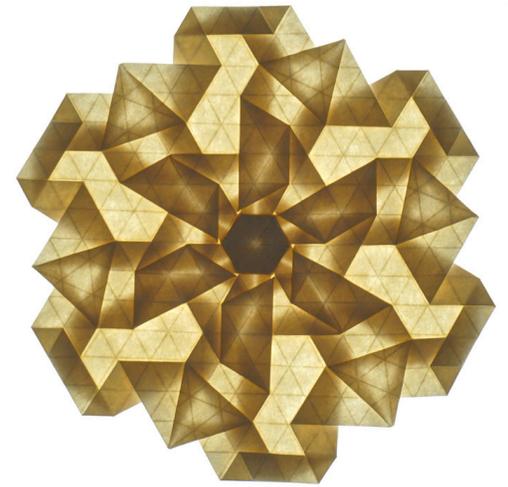
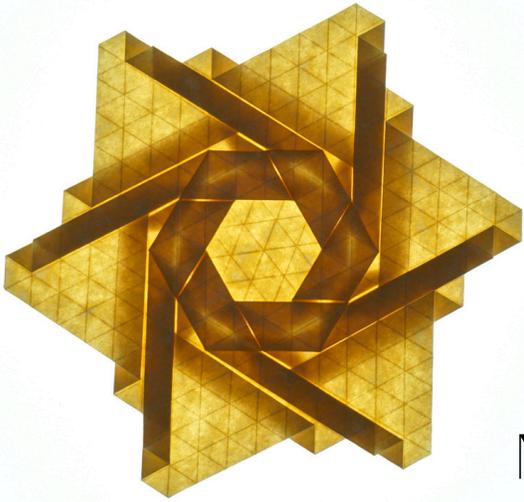




Advent of Tessellations

2025



Madonna Yoder
Gathering Folds

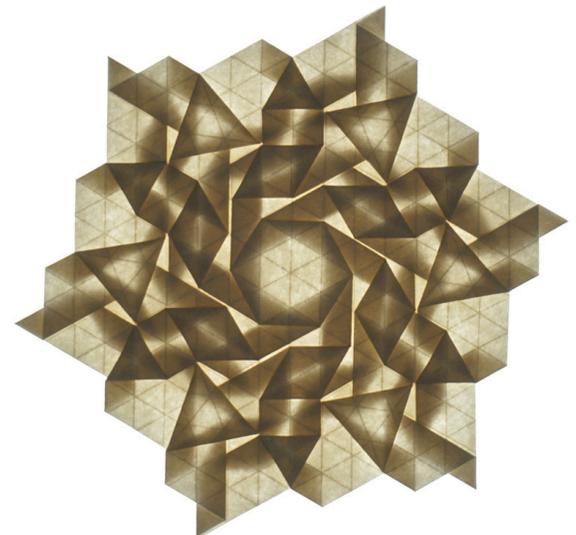
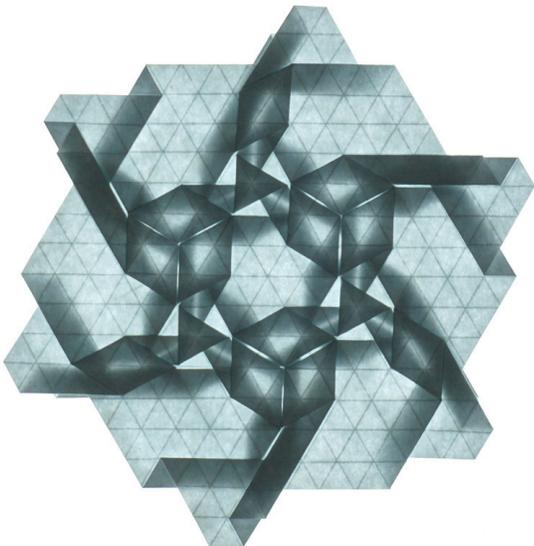


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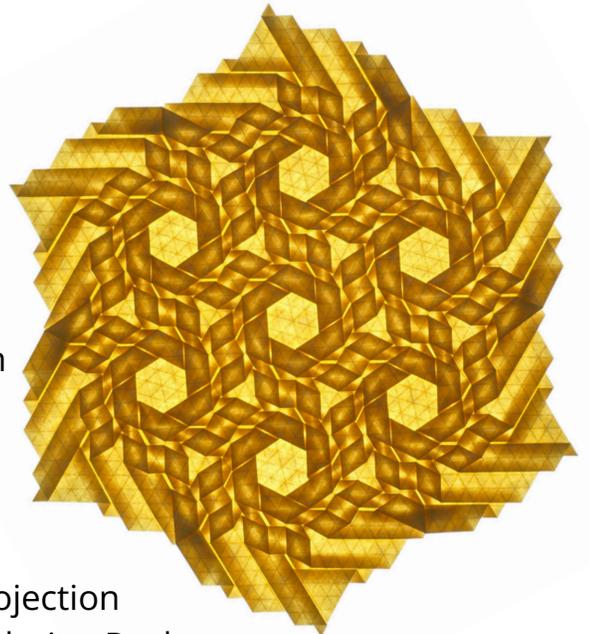
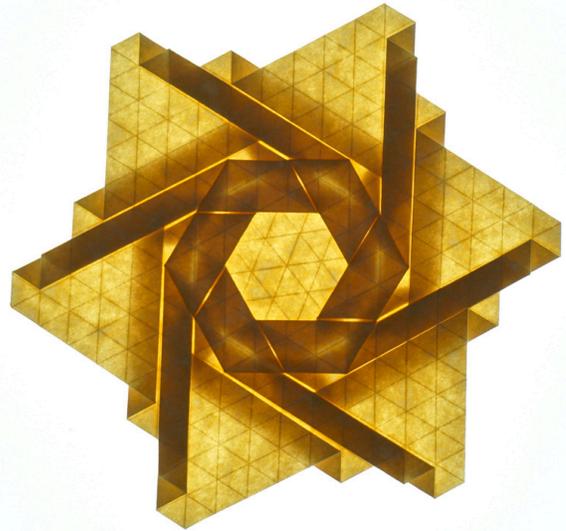
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Crease Patterns

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Additional Resources

Crease Pattern Template Files, Paper and Tools, Tessellation Garden



Advent of Tess: A Daily Tessellation Challenge from Gathering Folds

SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Why participate in Advent of Tess?

When most people first find origami tessellations, they think they should precrease everything and collapse all at once, but that's actually the hard way to fold them.

Advent of Tess teaches how to fold one twist at a time, adding new creases to the grid as you go - **see all the tutorials and related videos for this year [here](#)**.

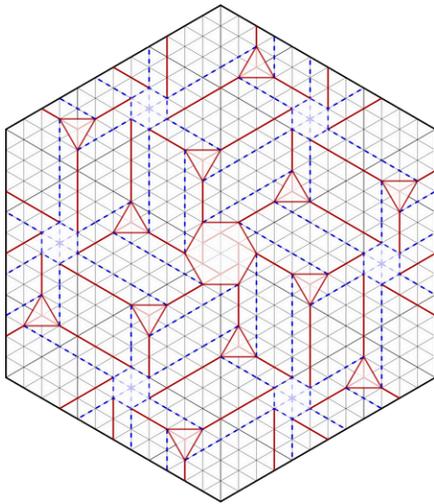
The challenge starts with the easiest twists and builds up over 25 days to more and more interesting (and difficult) twists and arrangements of twists (called tilings).

The goal is to help you see that tessellations aren't out of reach, that they don't have to take many hours to make, and that there's tons of patterns to explore even on small grids - all the core patterns use 24 grid divisions on a hexagon.

While you don't have to complete the challenge in 25 consecutive days, having a condensed period of learning is really useful to help the folding make more sense.

For a truly beginner starting point, check out [Tessellation Foundations](#) (free) first.

How to Read Crease Patterns



First, identify all twists

Before you start folding a new origami tessellation, you should be able to recognize what twists are used in it.

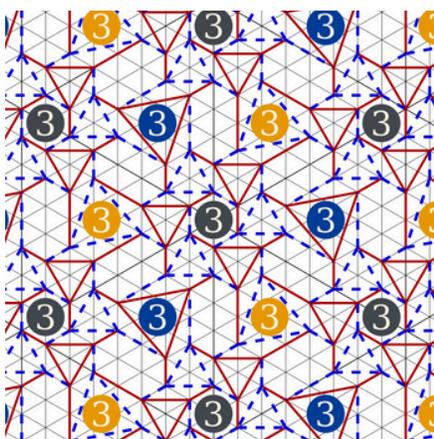
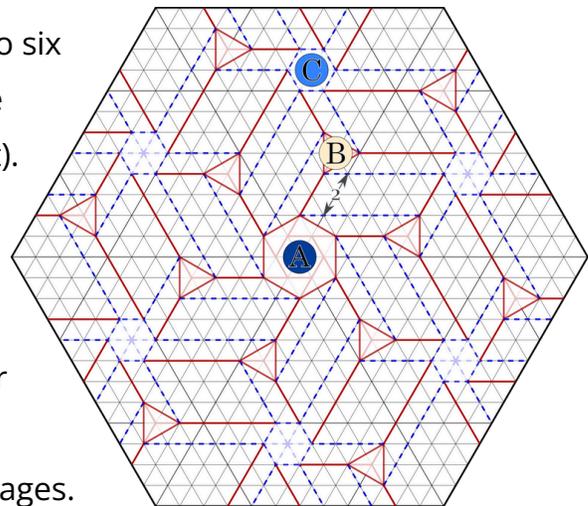
Twists may be on the front or back of the paper, and most of the twists used in the Advent of Tess patterns can be found on the [Twist Database](#) site.

This example (Roundabout, Day 6) has open hexagon twists and closed triangle twists on the front and closed hexagon twists on the back.

Next, notice connections and spacing

In this tessellation, each hexagon is connected to six triangles and each triangle is connected to three hexagons (two on the back and one on the front).

The triangles connected to the central hexagon are all the same distance away - two grid spacings between pleats - but the connections to the outer hexagons are variable, either two or four spaces along the mountain folds. The twist label colors will match the shapes on the tiling pages.



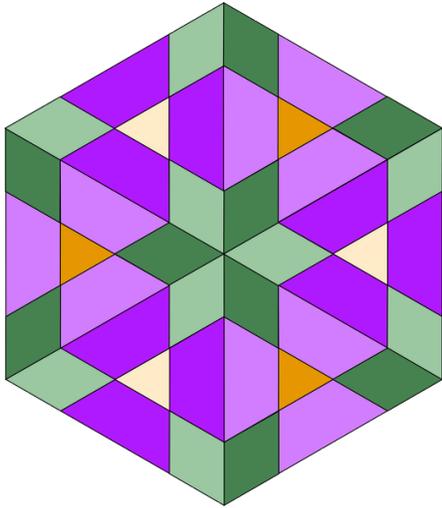
Finally, look for repetitions

Tessellations repeat forever, and therefore follow certain symmetry rules that determine how they repeat.

The Advent of Tess patterns follow either triangular or hexagonal rules and these positions of symmetry are consistent for the tiling (where they're marked), crease pattern, and folded forms of these tessellations.

For a more thorough guide to reading crease patterns, check out my [Tessellation Starter Sequence](#) course.

How to Fold from a Tiling Diagram



Fold in rings around the center

The biggest mistake that new tessellation folders make is trying to fold a twist as soon as they recognize where it needs to go, causing an explosion of pleat overlaps.

The next biggest mistake I see is trying to fold all six positions of an identified twist right away, then all six of the next twist.

When you work your way around the center, folding one twist at a time, you minimize pleat overlaps and arrive at nice stopping points where there are no overlaps that I call “tiling breaks”.

Knowing the tiling is essential

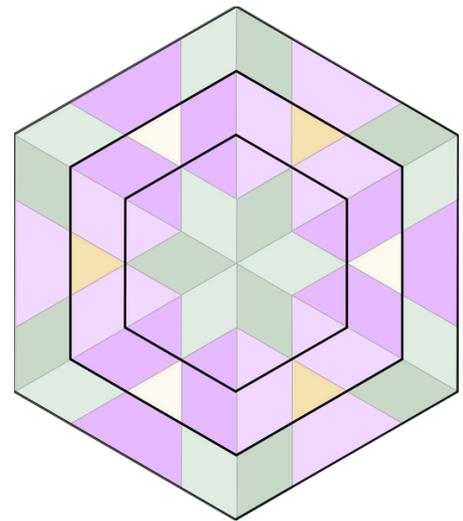
You can see how much is included in each ring around the center by looking at the break lines, which will either cut through some tiles like the first line around the center in this example or be entirely on tile edges like the second and third break lines here.

When a break line cuts through a tile, the pleats going into the corresponding twist will be laid down flat and you’ll wait to finish the twist until the next ring around the center.

Which direction you go along the ring around the center often comes down to trial and error, and I prioritize a direction that prevents pleats from crossing existing twists.

Different tilings will have different distances between break lines and there will often be characteristic sequences of what’s included in certain rings around the center, like the Hex-Tri-Rhomb-Tri tiling where every other ring around the center has hexagon, triangle, and rhombus twists and the remaining rings have only triangles and rhombi.

You can learn more about the characteristics of specific tilings in my [Fold More Repeats](#) playlist, my [Tessellation Academy](#) membership, and my [Tessellations by Tiles](#) course.



How to Choose Your Grid

For a practice piece

All of the Advent of Tess patterns are based on an equilateral triangle grid on a hexagon, and so the same grid can be used to fold any pattern.

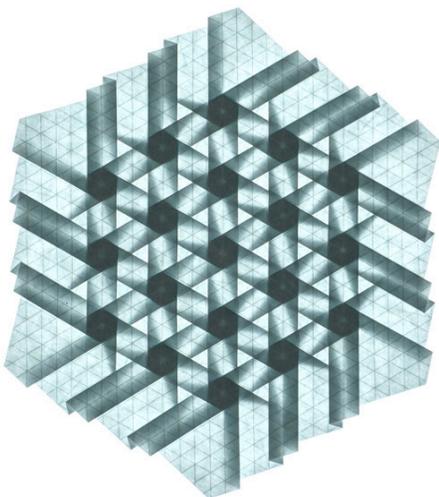
If you want to practice folding more repeats of the tutorial patterns I'd recommend using 32, 40, 48, or 64 divisions for your practice grid, either with a standard grid or a diagonal grid on a hexagon, and you can learn to fold these grids for free in Tessellation Foundations.



For a display piece

What grid is best for a display piece is very specific to what pattern will be folded. The repeats of each tessellation have an orientation relative to the grid, which means that if you want the repeats (or the tiling breaks) to line up with the edge, you'll need to use a rotated grid that matches this orientation.

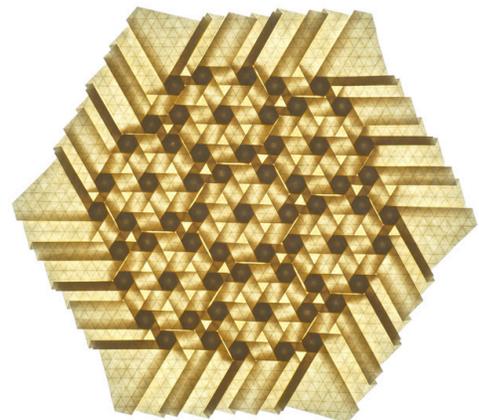
Each pattern cover page has the necessary a/L fractions calculated and you can go here to see how to use them and learn more in my Project Planning Masterclass.



How many repeats will fit on X grid divisions?

The center of the CP is where I start folding each tessellation, and if you count grid spacings out from the center you can see when you pass each repeat (taking your orientation into account).

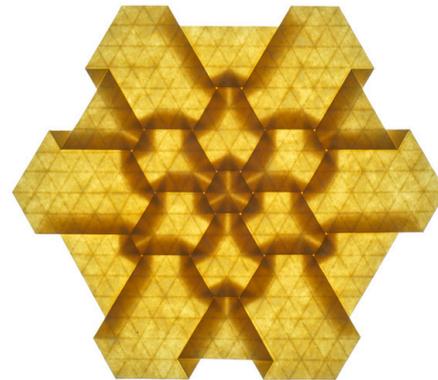
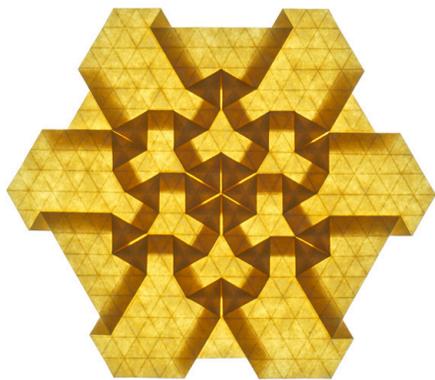
Counts out from the center should be multiplied by two to get your full number of grid divisions, and every eighth grid line in my CPs is bolded for ease of counting. Check out a video with examples here.





Advent of Tessellations

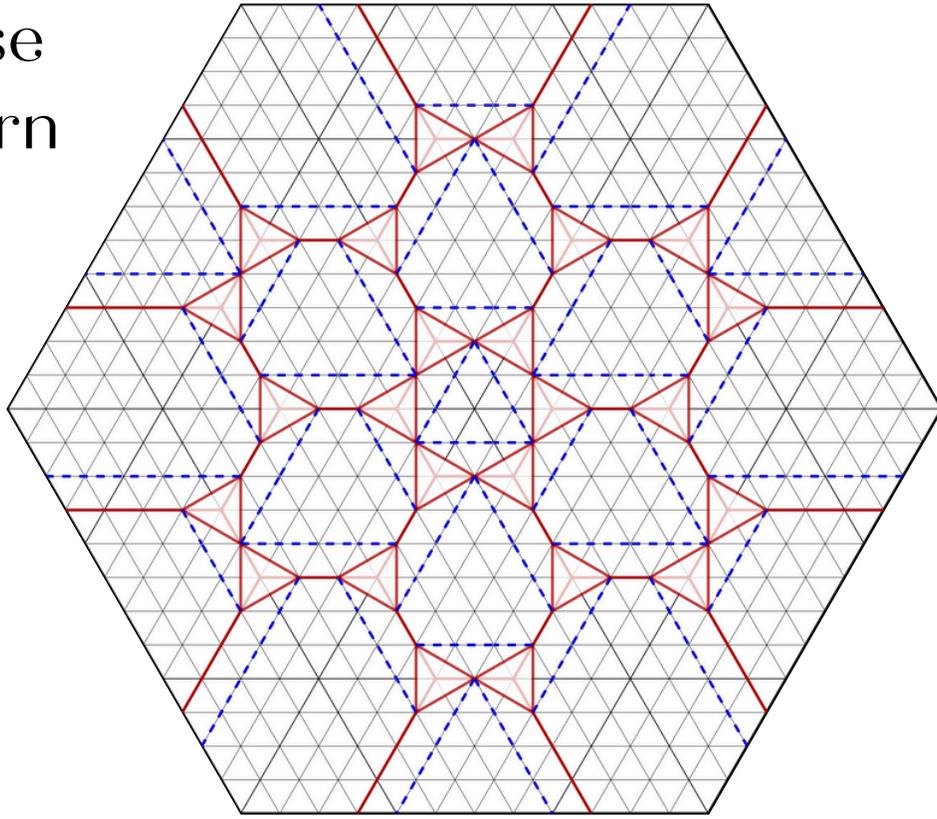
Day 1: Winter Lights



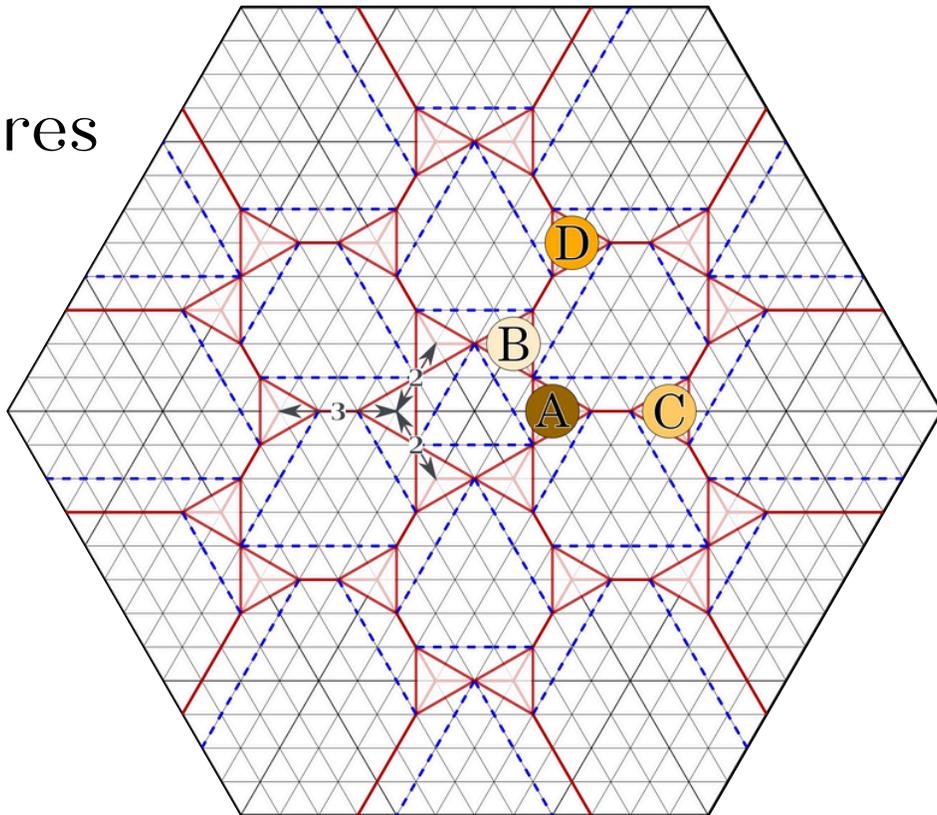
Discovered by: Madonna Yoder
Diagrammed by: Madonna Yoder
Twists used: Closed Triangle
Difficulty: ★ ★ ☆ ☆ ☆



Crease Pattern

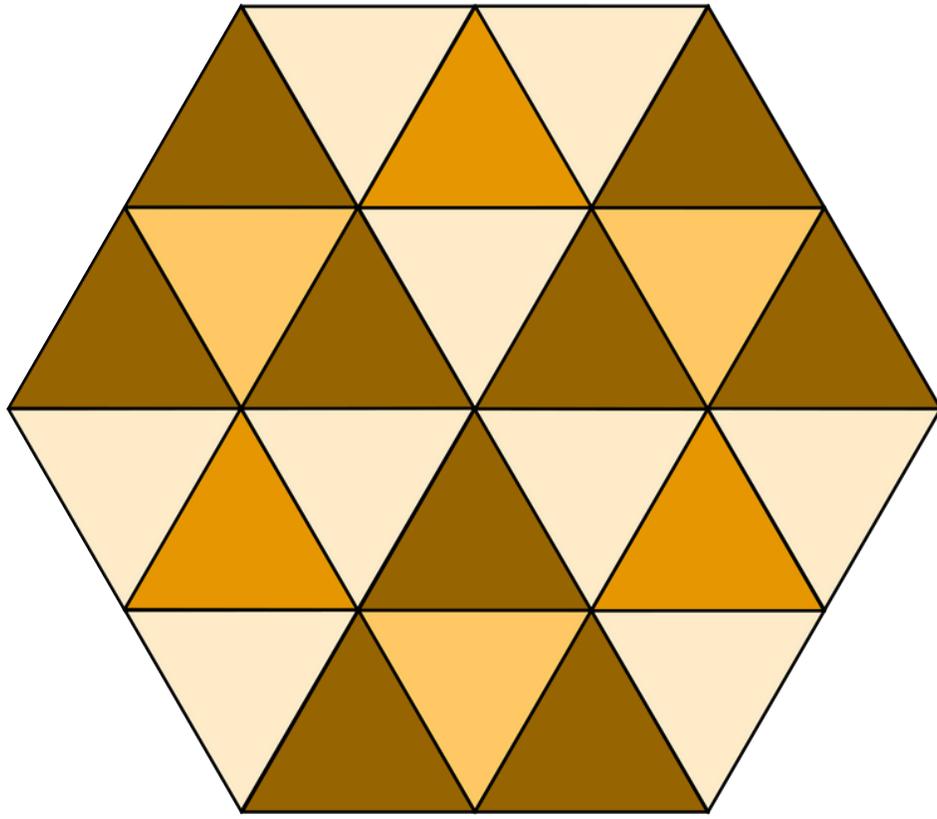


Key Features

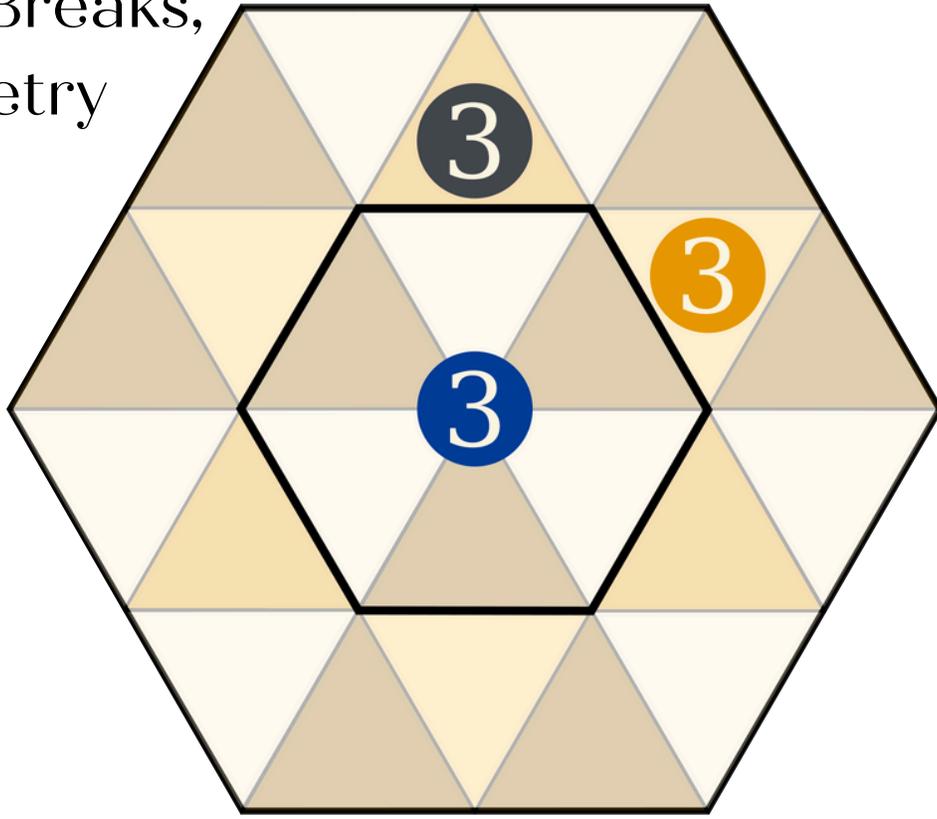




Tiling



Tiling Breaks, Symmetry Points



Winter Lights

Designed by: Madonna Yoder

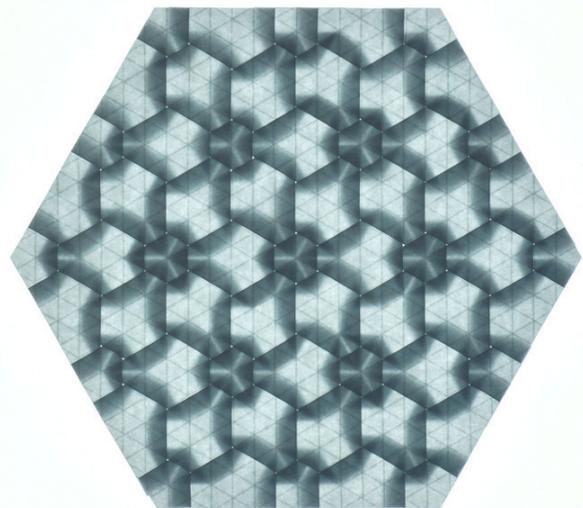
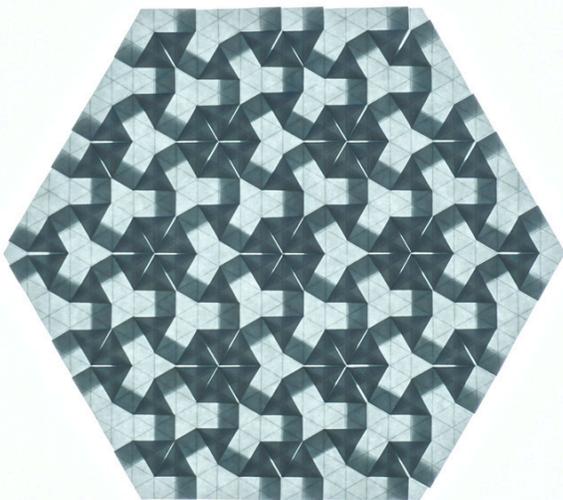
Diagrammed by: Madonna Yoder

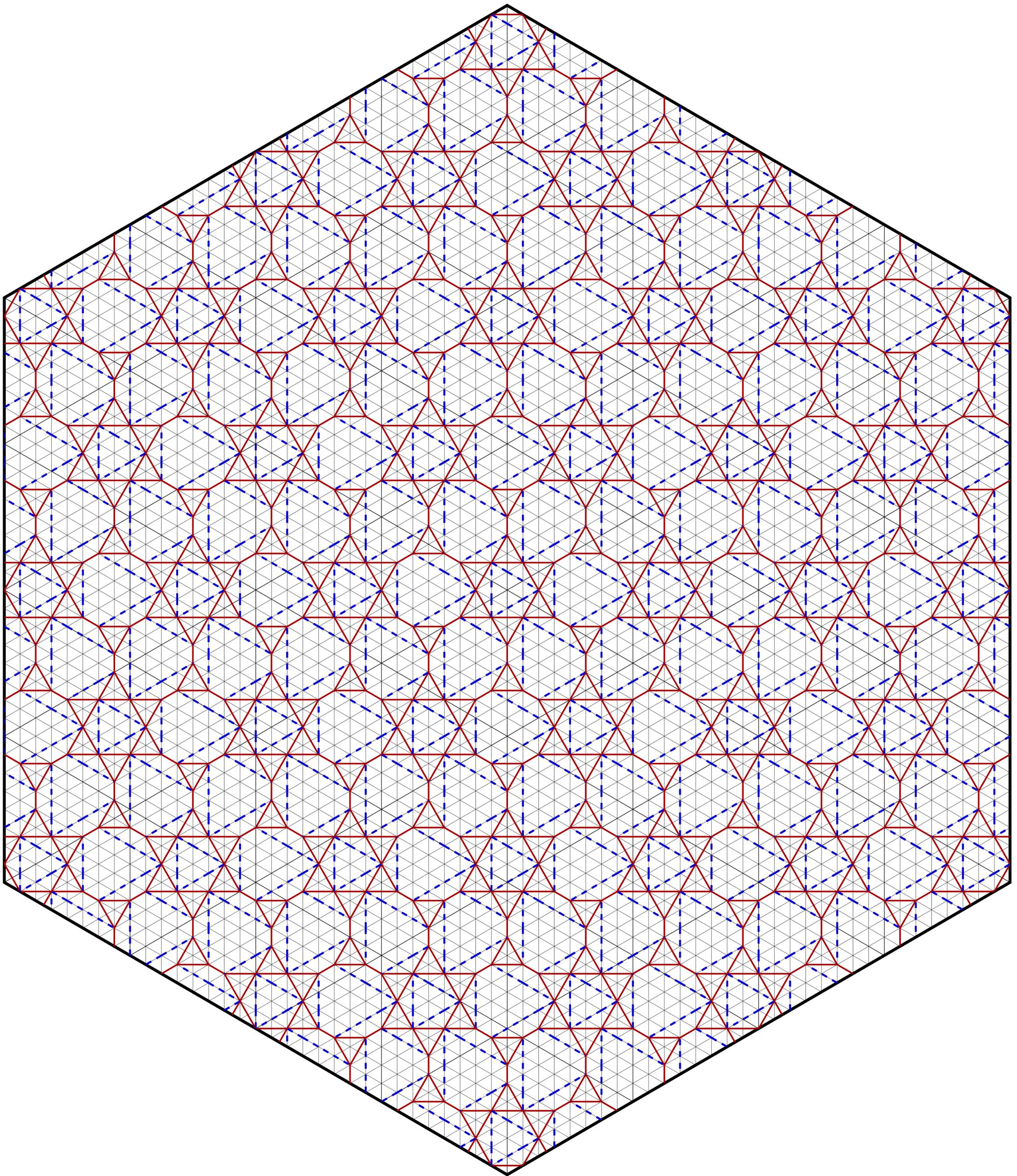
Tiling: Eq. Tri, Cluster 4

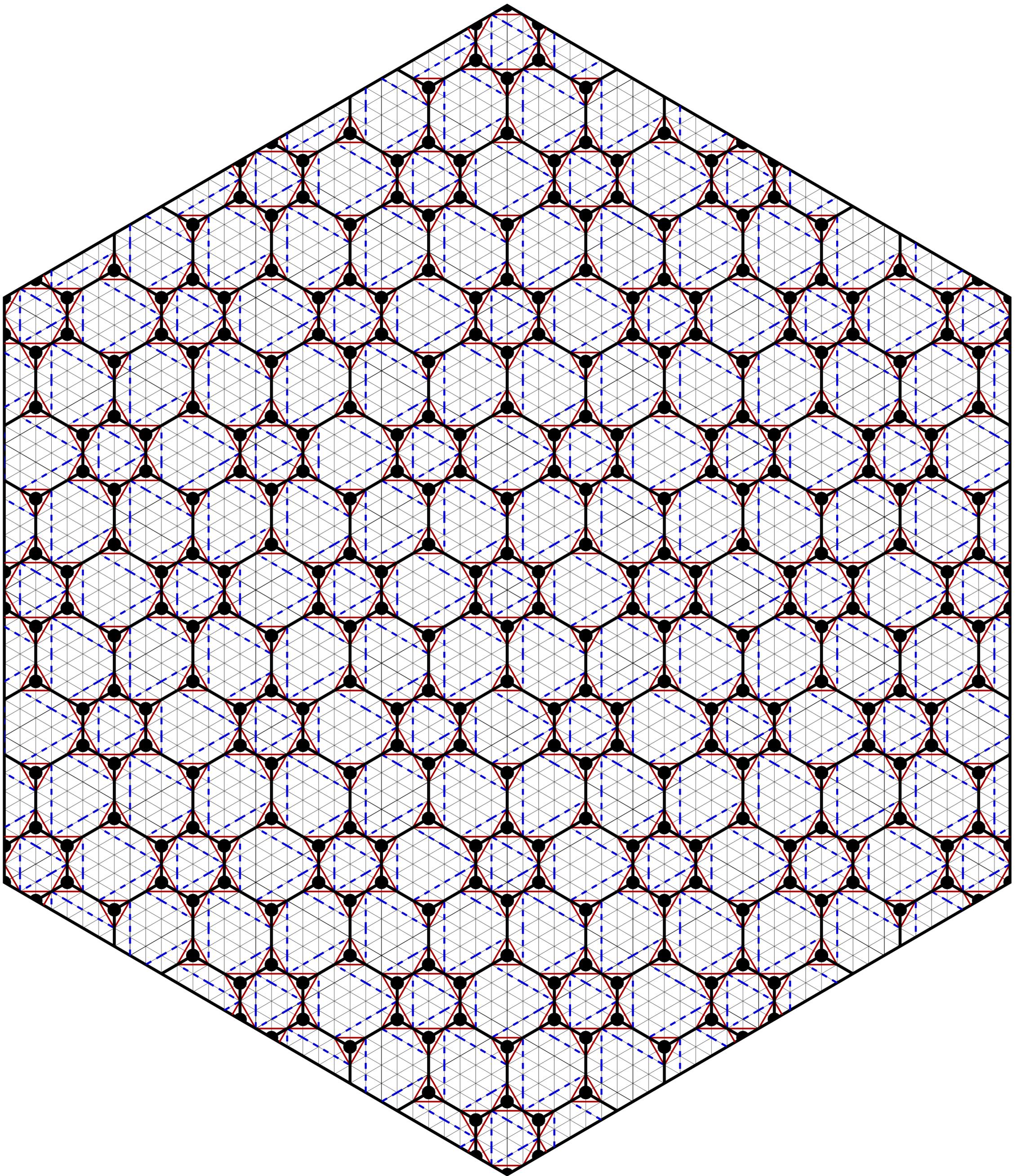
Twists used: Closed Triangle

Rotation a/L: 1/2

Difficulty rating: ★ ★ ☆ ☆ ☆







Winter Rings

Designed by: Madonna Yoder

Diagrammed by: Madonna Yoder

Tiling: Mirror 5 Tri 2 Rhomb

Twists used: Closed triangle/rhombus

Rotation a/L: 1/2

Difficulty rating: ★★☆☆☆

