# Frequency Development for Three Diameters

From the first fold develops higher frequencies of triangular grids. Increased grid frequency increases the possibilities for reforming the circle. It starts with the first fold in half, a ratio of 1 crease and 2 parts. This is reflected in 3 diameters that form the circle pattern for grid development.
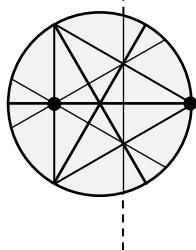
1-frequency diameter
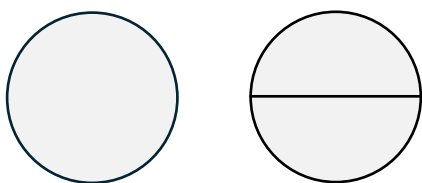
Touching 2 imaginary points on the edge and crease folds the circle in half. Fold the half folded circle into thirds and crease. This is a 2-frequency diameter grid.
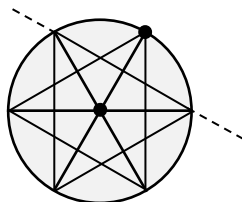
2-frequency diameter
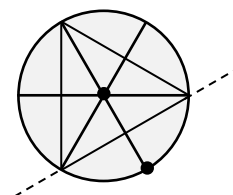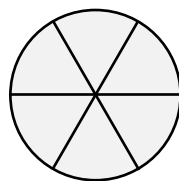
Folding every other point to the center point and creasing forms an infolded equilateral triangle.
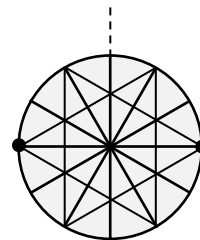
Tetrahedron net

Touch the 3 triangle points to the opposite sides of the triangle and crease. This forms the tetrahedron net in the circle.
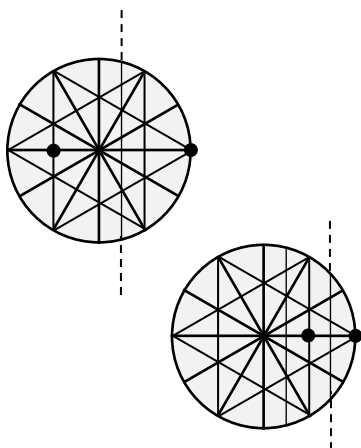
Fold all 6 points to the center point to reveal the hexagon star.
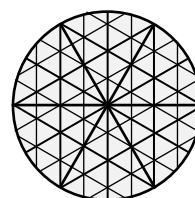
4-frequency grid

Fold end point of each diameter to the opposite end point generating 3 more diameters.

Folding all 6 star points to the new points on each diameter will divide each diameter into 8 equal segments forming the 8-frequency triangular grid, a folded octave of spatial organization.
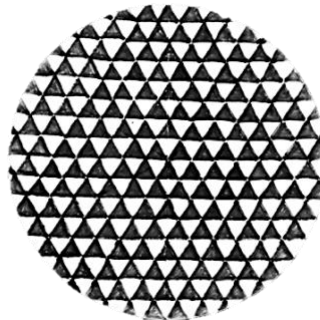
8-frequency grid

The tetrahedron net as it appears within the 8-frequency grid.

16-frequency grid

Alternate triangles filled in to give an idea of the complexity held in something as simple as a triangle grid when folded into the circle.

32-frequency grid

This 1:2 division process sequentially increases the triangular frequency of the 3 diameters forming grids of varying densities. Repeating the same process of touching new points on each diameter, 8 divisions become 16, then 32, 64 frequency and so on. Using 9" circles works well up to a 16-frequency grid, more than that is too much. Best to start with 2, 4, and 8 frequency diameter grids.

All lower frequencies are imbedded in the higher frequencies grids, as shown with the tetrahedron net and 4-frequency grid as they appear in the 8-frequency grid. The levels of grid frequencies and reconfigurations of the 4:8 and 5:10 symmetries are inherent to the 1:2 ratio of the first fold.