

## Dodecaflexagon Friezes

Earlier this year I had been exploring the dodecaflexagon frieze patterns, and have just recently had a chance to put together the maps for the 3, 4, and 5 sided dodecaflexagons. I have posted diagrams for 7 of these frieze patterns on the first dropdown item of the dodecaflexagon menu item.

Scott Sherman (see: <http://loki3.com/flex/dodeca.html> ) recently made an important observation in the Yahoo flexagon-lovers newsgroup that patterns for flexagons made with polygons of differing length sides can have more variation in flexagon frieze patterns than for flexagons created with the same polygon with all sides equal. So, the dodecaflexagons not only have more varied face patterns than the traditional hexaflexagons, but, they also have more varied frieze patterns as well. All three of the 4 sided frieze patterns are rather nice symmetric geometric patterns. The five sided friezes are comparatively more complex geometric patterns.

For one of the 5 sided dodecaflexagon frieze patterns I have a down loadable template on [www.flexagon.net](http://www.flexagon.net). A second pattern is composed of a rather straight strip of triangle groupings. This one will fold up into the 4-sided hexagon frieze pattern after six initial folds and then into the spiked pattern of the 3 sided dodecaflexagon after 6 more folds. The third 5-sided frieze is composed of 5 triangle units. Each of these units and it's reflection repeat alternatively 3 times to become the frieze for the pentadodeca flexagon. The frieze is a 3D twisted spiral which after 6 folds can become the wonderful 6 pointed star pattern for the 4 sided dodecaflexagon. The symmetrical beauty of this flexagon is one to appreciate from the twisted spiral frieze (see photo on [www.flexagon.net](http://www.flexagon.net)) to the intermediate patterns as it is folded, to the menagerie of flexed face patterns in the complete model. Flexagon frieze patterns can be just as interesting as the flexagons themselves.

When I get a chance I plan to post the patterns for the 6 sided hexadodecaflexagons.