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De Villiers, Michael

An investigation of some properties of the general Haag polygon.

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From the text: The famous Dutch artist, M. C. Escher (1898–1972) investigated in his notes a tiling of the plane first mentioned in a paper by Haag in 1923 with a specific type of congruent non-regular hexagon, called a Haag hexagon by John Rigby. For this investigation we'll be looking at applying the Haag 'circle' construction mentioned here to a general triangle as well as to other polygons such as quadrilaterals, hexagons, etc. to create what I'm choosing to define as a 'Haag polygon' and to explore some of its general and specific properties. The mathematical results discussed here are elementary and could be a suitable investigative activity for high school learners and teachers, giving them an opportunity to apply some basic geometric properties and theorems in a novel context. The reader is invited to dynamically explore some of the properties discussed below at <http://dynamicmathematicslearning.com/haag-hexagon-tiling.html>.

Classification: G90

Keywords: Haag polygon; tilings; tessellations; Haag hexagon; concurrency property; generalisation; polygons; hexagons; triangles; quadrilaterals; proofs; pentagons; Haag octagon; Haag dodecagon