

## 8 Triangles 2 Squares

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The project is an exploration of the various polyhedrons made with 8 equilateral triangles and 2 squares, all having the same side length. For simplicity's sake when any math was done and when we used GeoGebra the side lengths of the polygons were all one unit. Throughout the project we have looked at finding all various polyhedrons that can be made with the 8 triangles and 2 squares. Each unique polyhedron is categorized by how the two squares are positioned in relation to each other in the shape. The categories are defined as the two squares parallel to each other, the two squares sharing a side and coplanar, the two squares sharing a side and creating an obtuse angle, the two squares sharing a side and creating an acute angle, the two squares meeting at a vertice and making an obtuse angle, and the two squares meeting at a vertice and creating an acute angle. Then within these shapes and categories we quantified the number of vertices and the number and kinds of polygons meeting at each vertice. To aid with this process we used magnetic shapes to discover and look at each shape. Then to get a more in depth look and make sure that each shape in fact fit together smoothly and were polyhedrons we modeled the shapes in GeoGebra which also allowed for color coding and easier quantifying of the vertices.