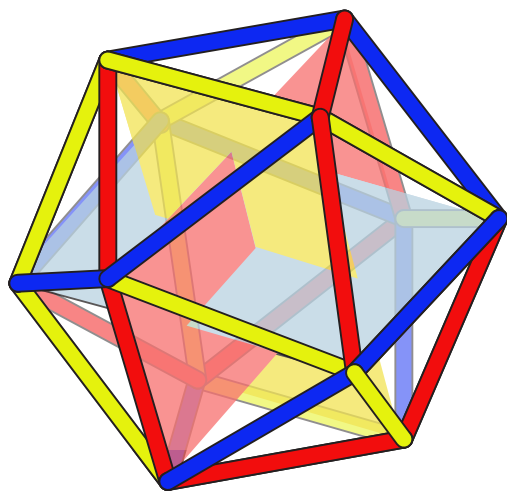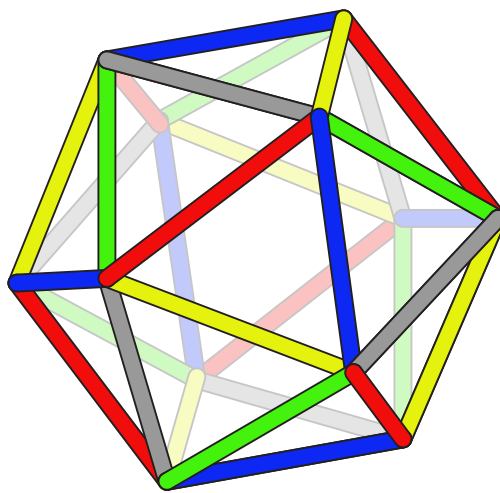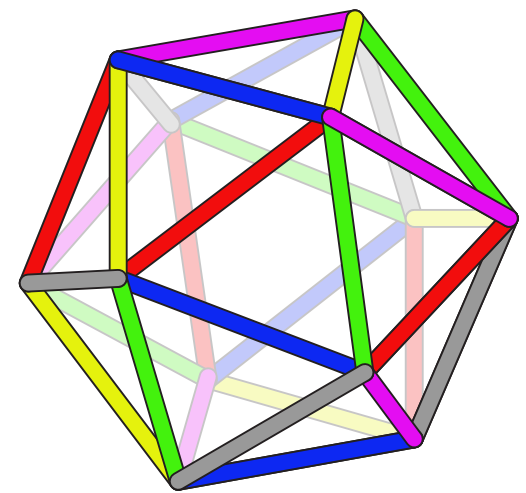# Regular Icosahedron

Three Colours

Six of the edges lie on the short edges of three intersecting golden rectangles. The long edges map to two pairs of two edges, one pair going above the rectangle, the other pair going below.

Five Colours

A regular icosahedron can be contained within a cube: each of six edges will lie on each face of a cube.
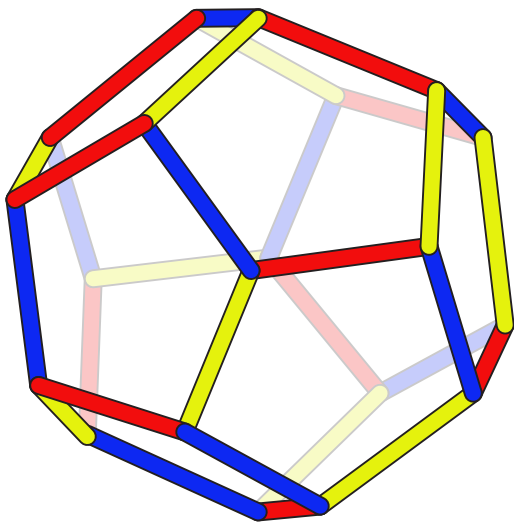
Six Colours

A regular icosahedron can be dissected into three objects: two pyramids with pentagonal bases and a pentagonal antiprism. Each colour forms a band on the wireframe antiprism: the units have rotational symmetry.
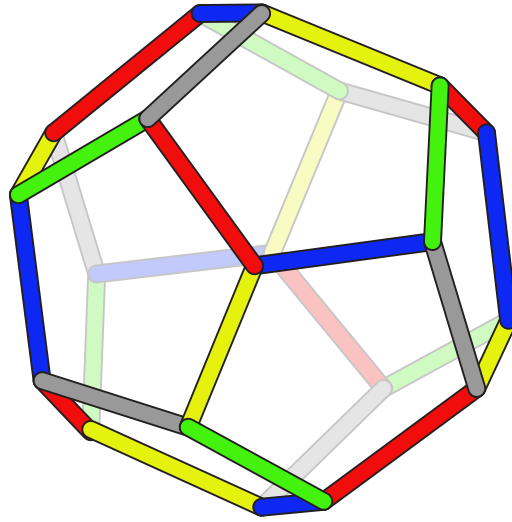
Regular Dodecahedron

The icosahedron and dodecahedron are duals: the number of faces and vertices swap (20 and 12 for the icosahedron, 12 and 20 for the dodecahedron, but both have 30 edges. Therefore for each colouring of the icosahedron there is an equivalent for the dodecahedron. The first row below shows the dodecahedra oriented so that the relationship between the colouring of the icosahedron and the dodecahedron is clear, e.g. the front face of the icosahedron is replaced by a vertex with three edges whose colours correspond to edges of the icosahedron's face. The second row slightly rotates the dodecahedra so that instead of viewing onto a vertex, we view onto a face.

Three Colours

Five Colours

Six Colours