

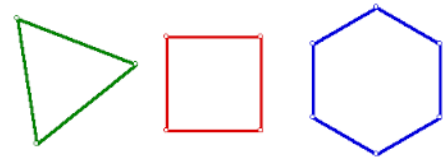
# A Simple Thing Became a Journey

What: **Bi-State Colloquium**

When: **Friday, December 4, 4pm**

Where: **Loras College, Hennessy 250**

Who: **Dick Smith and Kris Nelson**



This is a project that was started by Dick Smith in 2010. Dan Flath from Macalester University in the Twin Cities joined the project in April of 2015.

We start with regular polygons. We draw segments from each vertex to the two points that are one unit from the opposite vertex of each polygon. The result is a  $2n$ -gon embedded into the  $n$ -gon. Curious area ratios develop!!!! The ancient Greeks would be proud of us. We have proven the expression that gives those ratios for any  $n$ -gon and any side value of that  $n$ -gon.

Kris Nelson, an undergraduate at the University of Dubuque, joined the project in September 2015. He extended the concept into three dimensions. The 3-D extension has segments drawn from each of the six vertices of a cube to each of the three points that are one unit from the opposite vertex. The ratios of the cube and the resulting solids are exciting, also.

Dick Smith is an Associate Professor of Mathematics at the University of Dubuque. Kris Nelson is his geometry student.