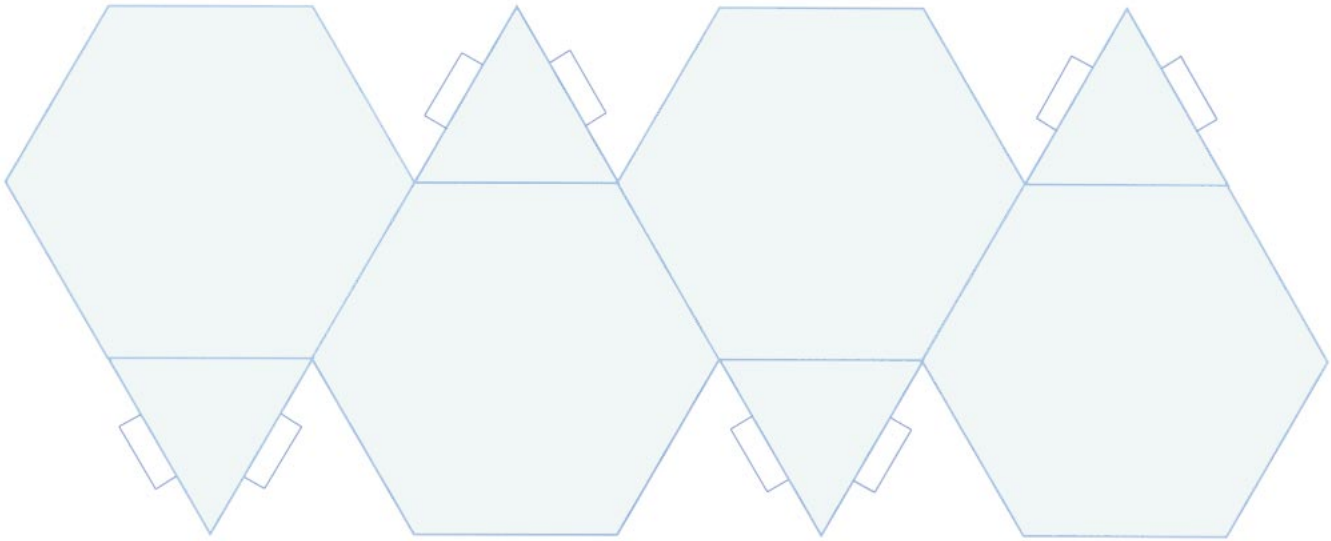
Truncated Polyhedra

Problem-of-the-Week

The Problem

The pattern below can be used to make a truncated tetrahedron. This solid, one of the semi-regular Archimedean figures, is formed by "cutting back" from an ordinary tetrahedron.

Create a pattern to make a truncated octahedron. Include written directions for making the model.



Strategies and Hints

1. An ordinary tetrahedron has 4 vertices or "corners." Imagine slicing off each corner so that the slice is parallel to the opposite face of the solid. What is the shape of the new face formed by each slice?

2. How many corners in a regular octahedron? If you slice off each corner as described above, what polygons result?

3. Two different regular polygons are used for the 14 faces of a truncated octahedron. One of these is the regular hexagon. Describe all the faces of this solid.