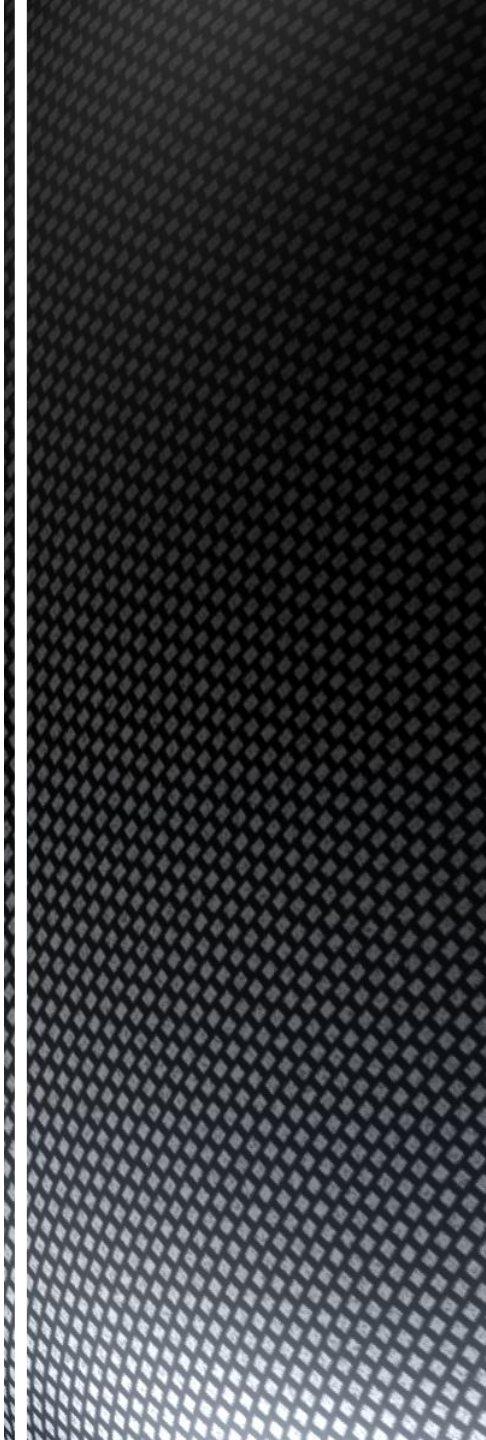
The {4,6|4} Coxeter-Petrie Sponge

Kaison Tanabe

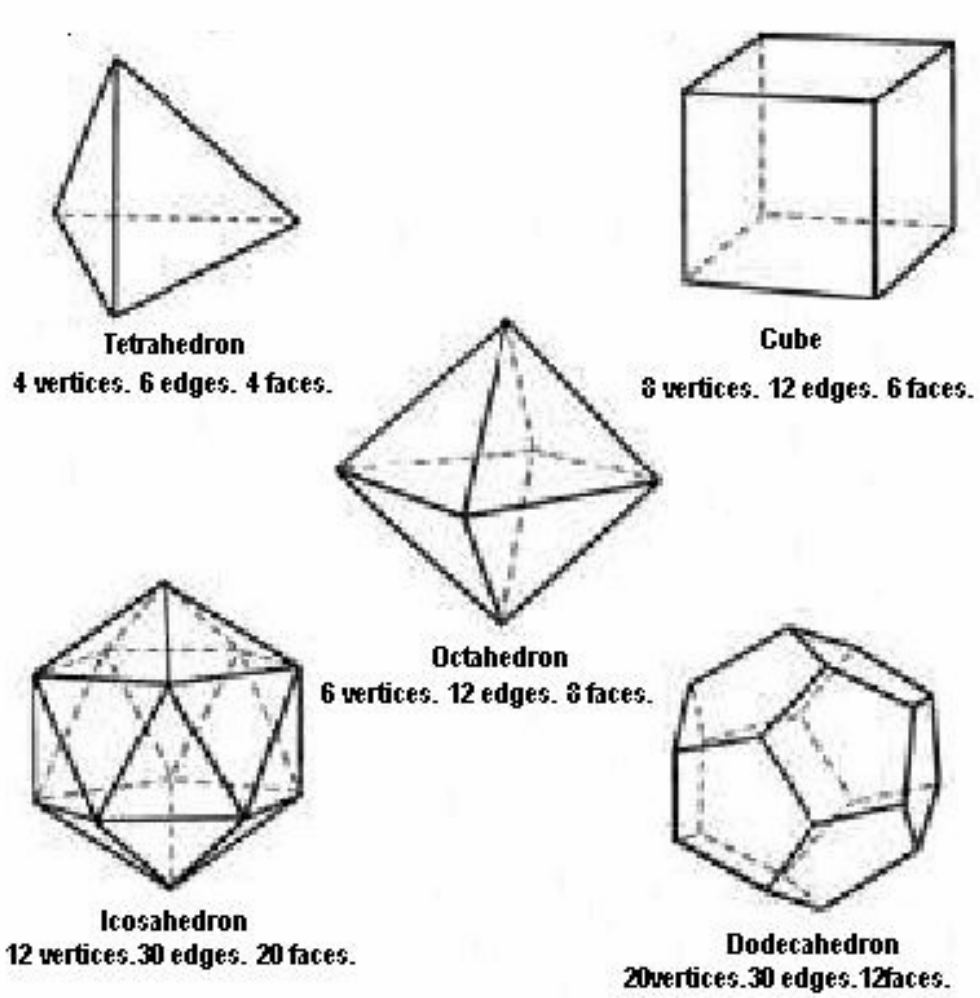


Regular polygons and polyhedra

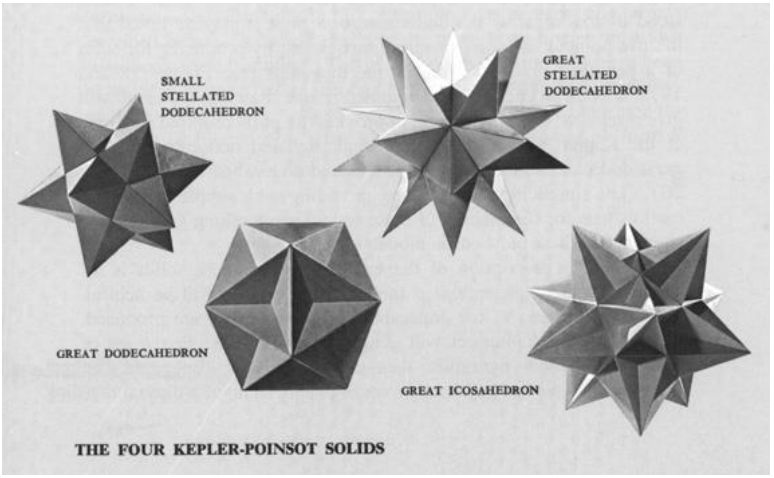
The Basics

- 9 Finite
  - 5 Platonic (convex, regular)
  - 4 Star Kepler-Poinsot solids (concave, semi-regular)
- 6 Infinite
  - 3 plane-fillings
  - 3 sponges

15 Regular Polyhedron



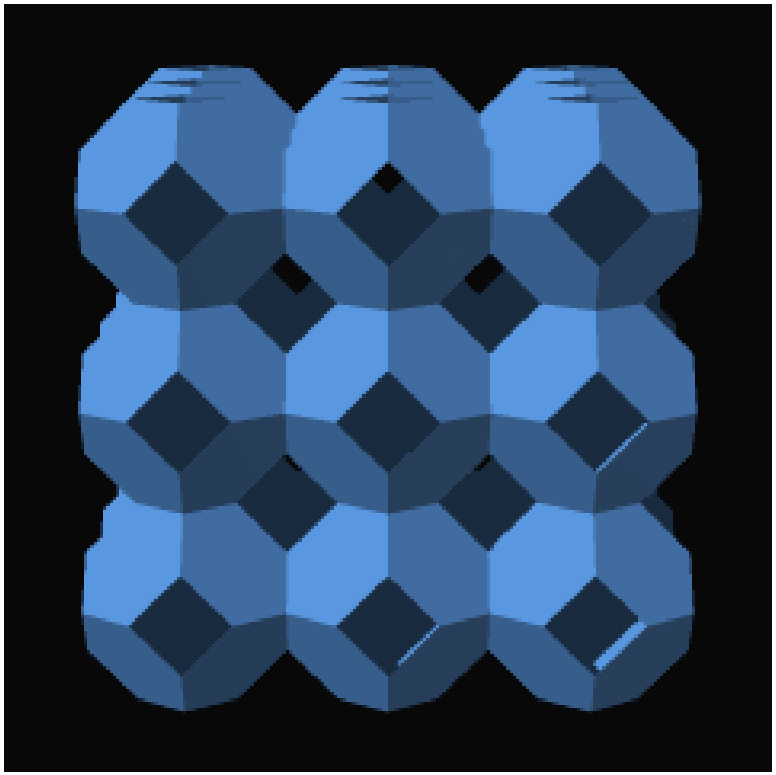
Platonic Solids



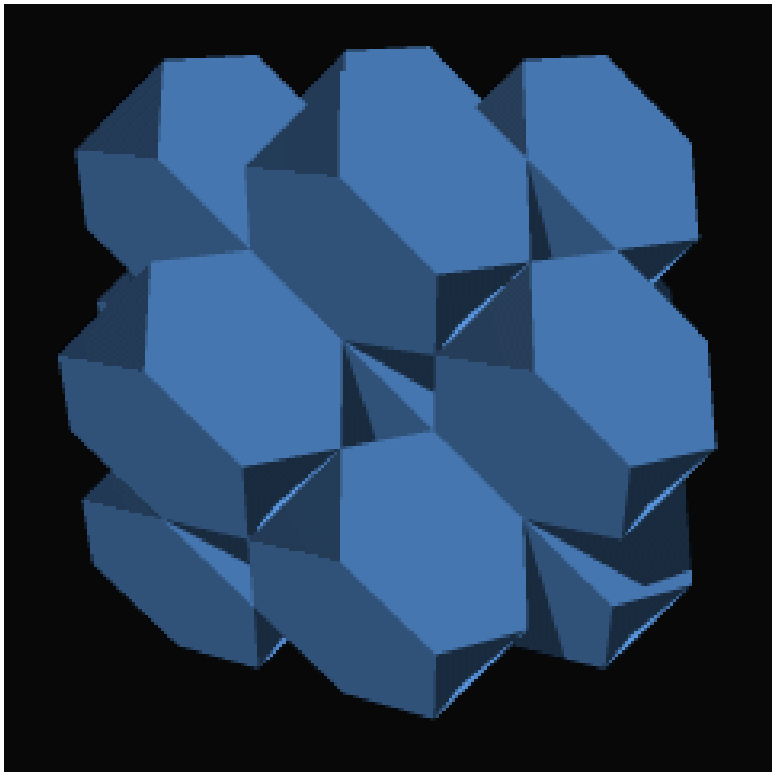
Kepler-Poinsot Polyhedra

Regular Skew Polyhedron

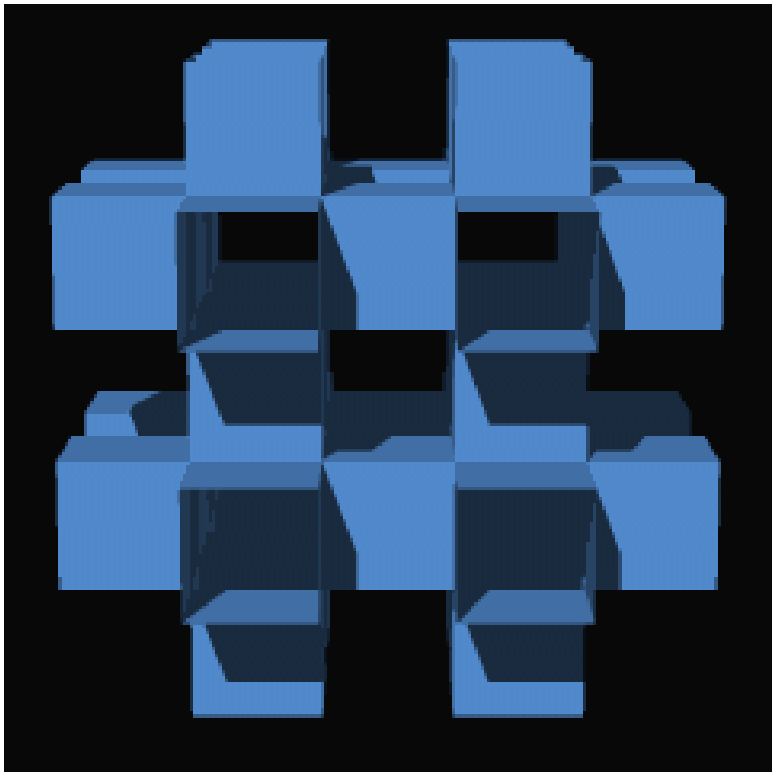
- {l,m|n}: *m* regular *l*-gons around a vertex, with *n*-gonal holes.
- $2\sin\frac{\pi}{l}\sin\frac{\pi}{m}=\cos\frac{\pi}{n}$
- $\{6,6|3\},\{4,6|4\},\{6,4|4\},$
- $\{3,6|6\},\{6,3|6\},\{4,4|\infty\}$



{6,4|4}



{6,6|3}



{4,6|4}