

Hierarchy of Polyvertexia (Polyhedra)

"Polyhedra should be reidentified as polyvertexia." –Buckminster Fuller

"30 Verti"

6 Great Circles (Icosidodecahedron)

6 Decagons, 60 edges, 30 radii
12 pentagons, 20 triangles



10 Great Circles (10 hexagons)



Icosahedron – "12 Verti"

Dodecahedron – "20 Verti"



Rhombic Triacontahedron



5 Vector Equilibria (5 cuboctahedra)



5 Octahedra – "6 Verti"



5 Cubes 10 Tetrahedra – "4 Verti"



5 Rhombic Dodecahedra



5 Truncated Rhombic Dodecahedra

**"60 Verti" Lesser
Rhombicosidodecahedron**

**"120 Verti" Greater
Rhombicosidodecahedron**

See Lesson 1

[http://www.rwgrayprojects.com/
Marvin/Intro.html](http://www.rwgrayprojects.com/Marvin/Intro.html)

*Forms a pentagram within
each of the 12 pentagons
of the 30 Verti*

See 5 VE in the 30 Verti in

[http://www.rwgrayprojects.com/
Marvin/Intro.html](http://www.rwgrayprojects.com/Marvin/Intro.html)

*This flow chart of polyhedra, unlike traditional
polyhedra charts starts, not with the Platonics, but
with a "30 Verti."*

*The Platonic poly's are derivative and emerge,
except for the Icosahedron and dodecahedron, as
compound 5 polyhedra. The ratio of the radius to
the edge of "30 Verti" is the golden ratio, 1.618..*

*Zometool instructions are available upon request for getting started in the construction of this hierarchy
of polyvertexia.*