

# Regular polyhedral assemblies of carbon atoms

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<http://web.me.com/whitby/Octahedron/Welcome.html>

## References

Octahedron1stEd.pdf

QuasicryOcta.pdf

CarbonCube.pdf

CarbonHedra.pdf

## Introduction

The carbon atom has an equilateral triangular face which enables it to join with other carbon atoms in regular polyhedral assemblies. In each assembly, the carbon atom acts as a facial panel and the join between the adjacent carbon atoms is along the edge of the triangular face. The orthodox chemist views the atom as a ball which he places at the vertex of the dual of the regular polyhedron. The chemist describes the polyhedron so formed as the dual of the actual polyhedron defined by the planar carbon atoms. The octahedron defined by the carbon atoms is described as a cube and the icosahedron defined by the carbon atoms is described as a pentagonal dodecahedron. The figure shows the relationship of the carbon atom to the polyhedron it defines and the dual to which it is ascribed.

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The yellow octahedral triplet on the left is a representation of a carbon atom. Carbon atoms acting as facial panels produce each of the polyhedra shown at the tops of the three columns—tetrahedron, octahedron, and icosahedron. The second polyhedron in each column is the dual of the polyhedron at the top—negative tetrahedron, cube, and pentagonal dodecahedron. The third entry in each column shows the polyhedron with its dual. The vertexes of the dual just touch the facial centroids of the polyhedron. At the bottom of each column, a transparent carbon atom has been placed as a panel on the near face of the polyhedron to show its relation to the polyhedron and its dual. Where the atom is erroneously viewed as a ball, it is placed on a vertex of the dual and the shape of the assembly is taken as that of the dual.

