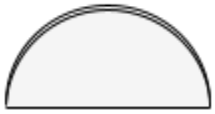
Wholemovement: folding circles

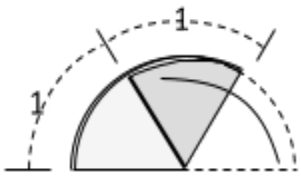
One diameter

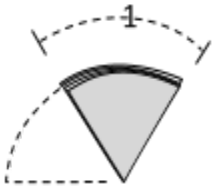
Fold circle in half by touching any two points on the circumference together and crease.

Three diameters

One folded forward, one folded to the back.







Fold corner <u>over</u> to center of circumference where the two parts look equal. Do not measure, use your eyes to fold into thirds.

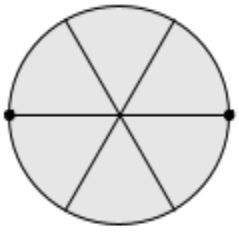
<u>Do not crease yet.</u>

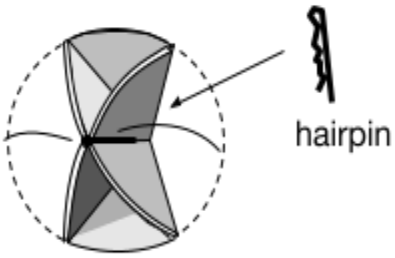
Fold unfolded part <u>under</u>, even all points and edges by sliding ends back and forth.

<u>Crease when everything is even</u>.

Vector Equilibrium sphere (VE)

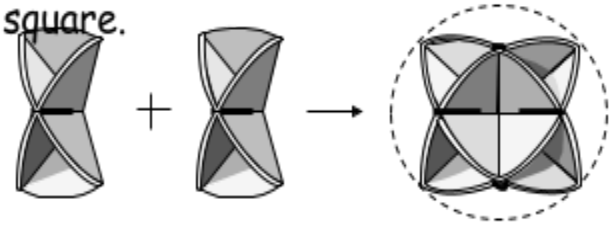
Open to the circle with three diameters. Bring the ends of one diameter together holding creases with a hairpin.





VE continued

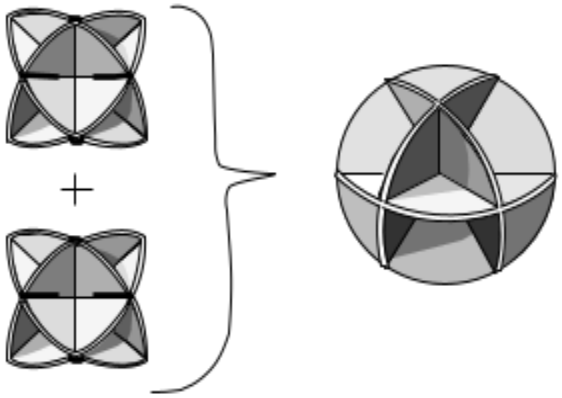
Fold another circle the same as above. Join the 2 sets on the straight edges, consistence to the individual units. The four open tetrahedra are in a circle pattern showing a square.



2 sets of 2 joined together on the radii using two more hairpins to hold them together.

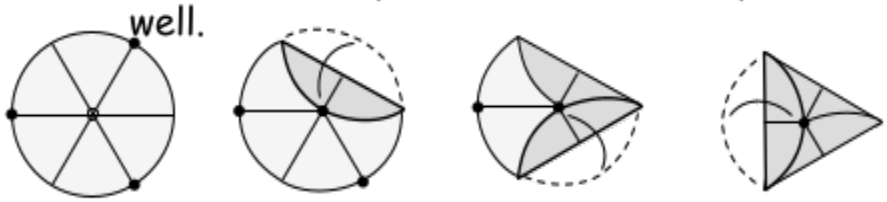
Make another set of 2 folded circles the same as above..

Use hairpins to join the two sets of two circles together on their straight edges and hold with hairpins.

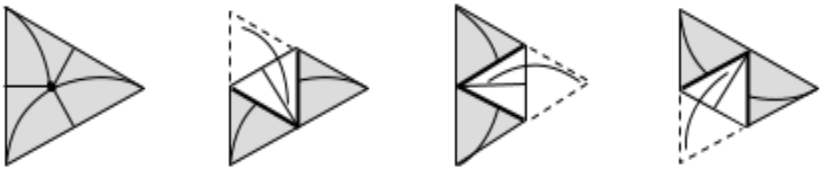


Tetrahedron

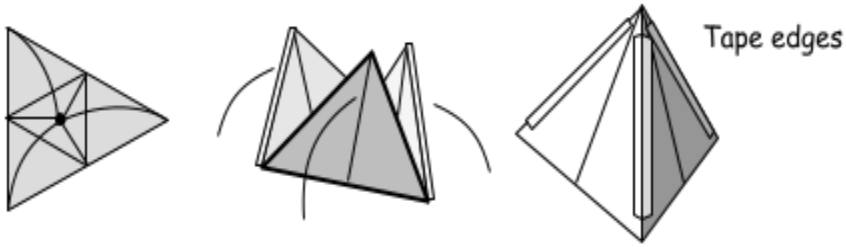
Fold 3 alternate points to the center point and crease well.



Fold each end point to the point on the opposite side and crease well. Do one at a time.



Fold the three end points together on the new creases and tape edges together.

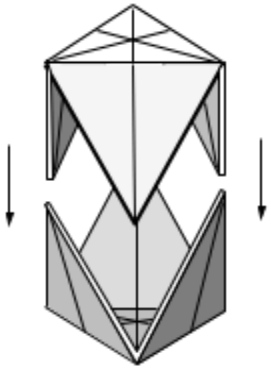


Tape edges

Octahedron

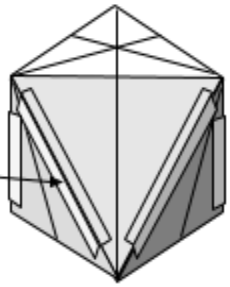
Fold a tetrahedron

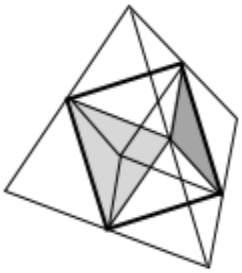
Open halfway

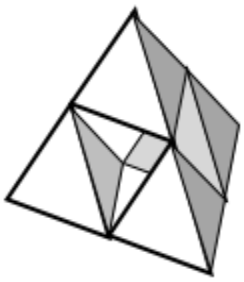


Put 2 open tetrahedra together.
The triangles of one fit into the triangle spaces formed by the other.

Tape the 6 joining edges with masking tape.





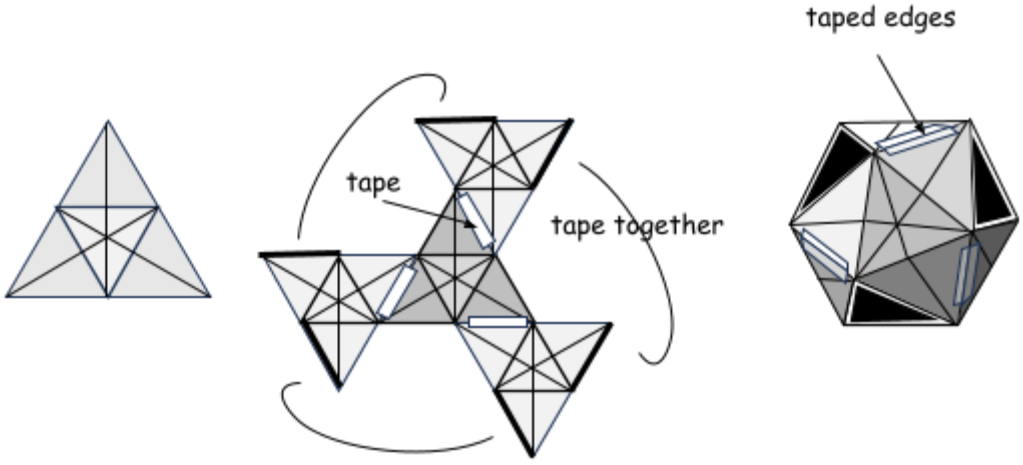


Four tetrahedra will fit around the octahedron forming a "solid" 2-frequency tetrahedron. Join 4 tetrahedron leaving open the octahedron center.

Make multiples of each of these and explore the many combinations of how they go together. The tetrahedra and octahedra fit into the VE sphere, points going in and going out.

These are the first two of the Five Platonic Solids that are reciprocal to each other that is not obvious when formed individually. They are 1 and 2 circles folded to the same 9 creases.

Icosahedron



Fold 4 tetrahedra. Open them to flat triangle nets arranging them 3 triangles around the center triangle. Off-set 3 triangles by 1/2 edge length around the center triangle. Tape half edge-to-half edge; on both sides for added strength.

Join each of the three outside triangles to each other in the same sequence on edges of the center triangle, by tapping alternating edges.

This forms 20 triangle planes. 16 are solid planes and 4 are open triangle planes that are in a tetrahedron arrangement. This half edge arrangement can be right or left hand depending on which side of the center triangle they are placed. Each pentagon vertex point is surrounded by 4 closed triangle planes and one open triangle.

The tetrahedron, octahedron, and the icosahedron, 3 of the five Platonic Solids have been form by folding tetrahedra in a geometric progression of 1, 2, 4. The vector equilibrium is also in progression; 1 circle is 2 tetrahedra, 2 circles is 4 tetrahedra, 4 circles and 8 tetrahedra.

Two other regular polyhedra, the cube and the dodecahedron, can be modeled by systematically placing tetrahedra on each faces of the octahedron and icosahedron stellating various combinations on these regular polyhedra.

Thus begins an endless exploration of forming, reforming, and joining multiples circles using the 9 creases that form the tetrahedron net.