Center for Creative Learning
IIT Gandhinagar
Spicing Up the Curriculum

6V Reciprocal Geodesic Dome

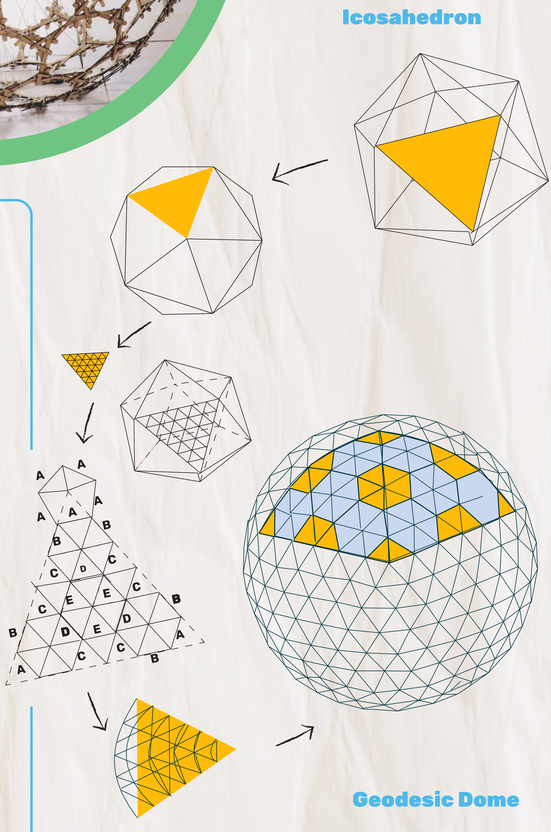
Made out of Bamboo Strips

It takes 720 sticks of 5 different sizes, 3600 ties and 5-50 hours of labor, depending on how LAZY you are!

We at CCL IITGN calculated the distance at which the holes should be placed in the bamboo sticks, using Spherical Geometry. Sticks need to be twisted at an angle of 10 degrees and weaved together. This makes the edges stay intact due to friction.

A 6v Geodesic ball is designed from an Icosahedron. It is a regular polyhedron with 20 equilateral triangles. Each side of its triangle is then divided into 6 equal parts, creating a 6v (frequency) geodesic sphere. This results in 36 smaller triangles in each of the 20 triangles. So a total of 36x20=720 triangles. All triangles are merged into 12 pentagons and 110 hexagons. To get more strength and stability, we duplicate each edge.

Number of sticks : 360 sticks
Edges in Pentagons = 12 x 5 = 60
Edges in Hexagons =110 x 6 = 660
Total Edges = 720 edges
Each edge is shared by two pentagons or hexagons
Total Sticks = 720 = 360 sticks
For strength 360 sticks x 2 = 720 sticks



Get in touch to make your own dome!

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