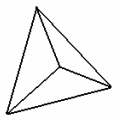
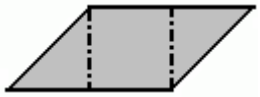
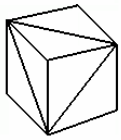
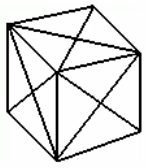
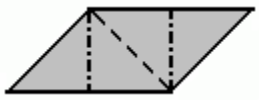
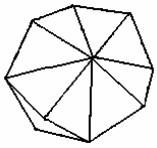
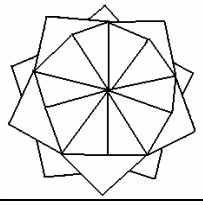
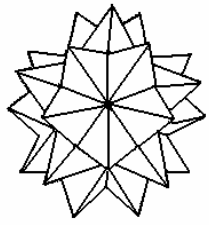
Sonobe Assembly Guide

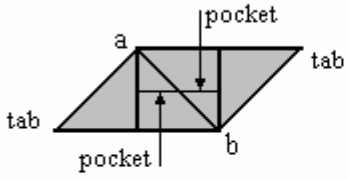
With minor addition of folds made to a finished unit, Sonobes can be assembled into many different models: 3-unit Toshie's Jewels, 6-unit cubes, 12-unit cubes, 12 unit stellated octahedra, 30 unit stellated icosahedra, many other bigger polyhedra and even other objects such as compounds of polyhedra, birds, wreaths etc.

Finished Sonobe Crease Pattern Table

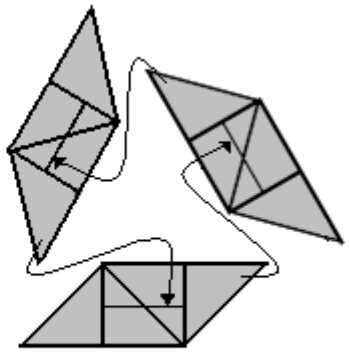
	Model	Finished Unit Crease Pattern	# of Units	Shape
1.	Toshie Takahama's Jewel		3	
2.	Cube		6	
3.	Large Cube		12	
4.	Stellated Octahedron		12	
5.	Stellated Icosahedron (and other higher degree polyhedra)		30	
6.	Spiked Pentakis Dodecahedron		60	

Sonobe Assembly Basics

Sonobe assemblies are essentially "pyramidized" polyhedra, each pyramid consisting of three sonobe units. The figure below shows a generic sonobe unit and how to form one pyramid. While constructing a polyhedron, the key thing to remember is that the diagonal ab of each sonobe unit will lie along an edge of the polyhedron.



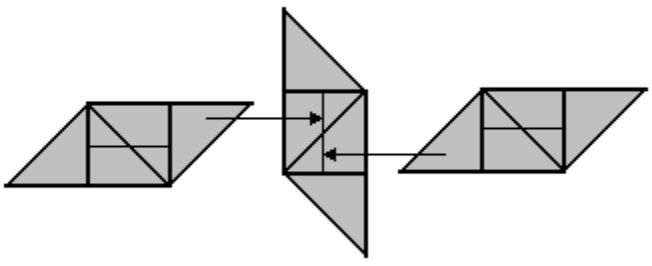
A generic sonobe unit


Forming one pyramid

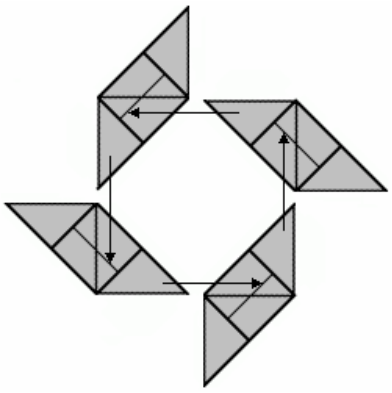
Sonobe Assembly Guide for some Polyhedra

1) **Toshie's Jewel**: Let the 3 units be A, B and C. The idea is that the tabs of each unit go into the pockets of every other unit. So, the tabs of A go into the pockets of B and C, the tabs of B go into the pockets of C and A and the tabs of C go into the pockets of A and B. Another way to explain would be - form a pyramid as above, then turn assembly upside down and make another pyramid with the three loose tabs.

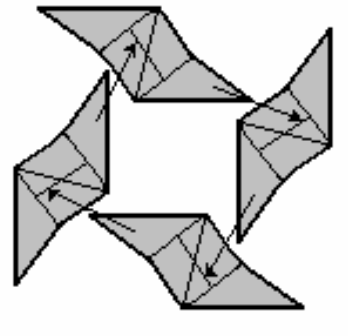
2) **6-unit Cube**: The center squares of each of the 6 units form the faces of the cube. So, each face consists of the center square of one Sonobe unit and the tabs of 2 other Sonobe units. Continue interlocking as shown below to arrive at the finished cube.



3) **12-unit Large Cube:** The 12-unit large cube is the only assembly that does not involve pyramidizing. Each face is made up of 4 units as shown below. Continue forming each of the six faces similarly to complete the cube.



4) **12-unit Stellated Octahedron**: Assemble 4 units in a circle as shown. Take 4 more units and add to the loose ends to form a ring of 4 pyramids. Complete model by forming a total of 8 pyramids arranged in an octahedral symmetry.



5) **30-unit Stellated Icosahedron**: Assemble 5 units in a circle as shown. Take 5 more units and add to the loose ends to form a ring of 5 pyramids. Complete model by forming a total of 20 pyramids arranged in an icosahedral symmetry.