

## Letterbox Convertible 6-part Cube and 8-point Stubby Star

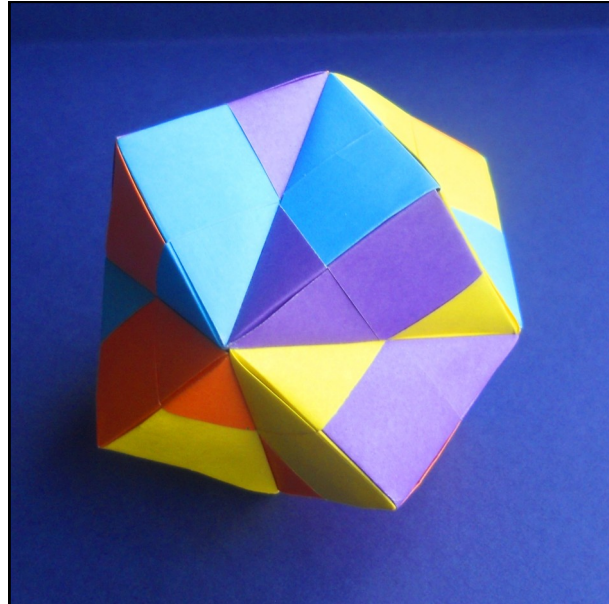
These diagrams show you how to make a 6-part cube and an 8-point stubby star from Letterbox parallelogram modules. Both designs can then be converted into each other without taking the modules apart.

I discovered parallelogram Letterbox modules in 1987.

I believe that I first became aware that cubes and 8-point stubby stars are surface analogues of each other

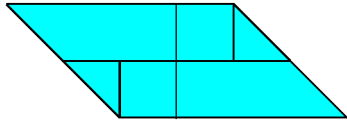
when I saw diagrams for Decoration by Sam Ciulla, essentially a stubby star version of the traditional waterbomb, in British Origami magazine ( issue and date at present unknown ). Seeing this design led me to experiment with a 6-part Sonobe cube and to discover that the transformation between the two forms could be achieved while the modules were assembled.

Diagrams for the basic Letterbox module can be found elsewhere on this site.



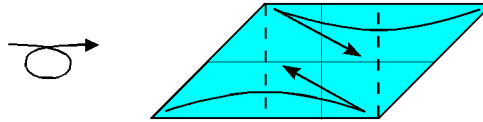
# Making a Convertible Cube

1



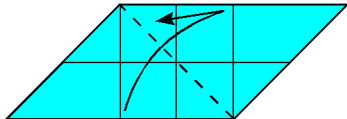
1. Begin by turning your first module over sideways.

2



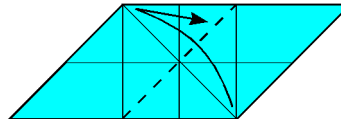
2. Fold the right and left points inwards as shown, then unfold.

3



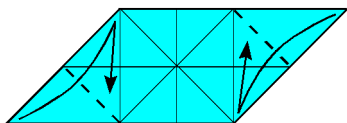
3. Fold in half diagonally from corner to corner as shown, then unfold.

4



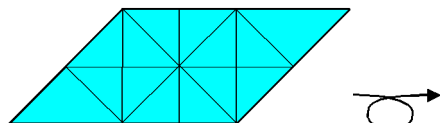
4. Make a second diagonal crease across the central square area in the opposite direction, then unfold.

5



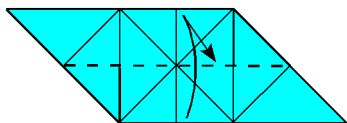
5. Fold the top right and bottom left corners inwards diagonally as shown then unfold.

6



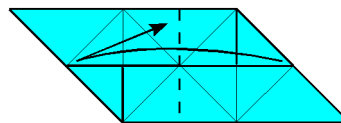
6. Turn over sideways.

7

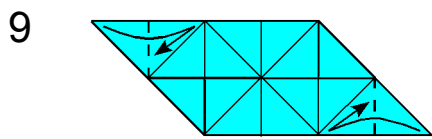


7. Fold in half downwards, then unfold.

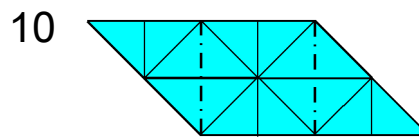
8



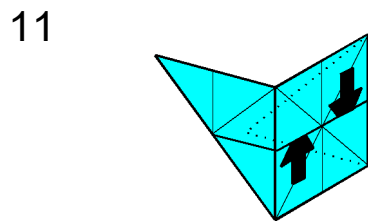
8. Fold in half from left to right, then unfold.



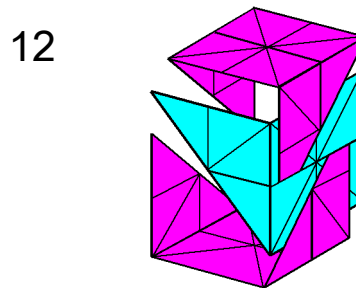
9. Fold the top left and bottom right corners inwards as shown, then unfold.



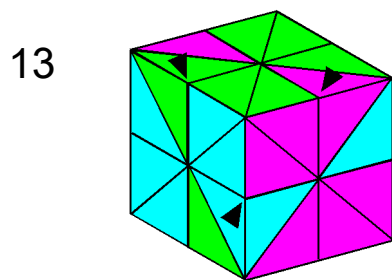
10. Flatten all the creases then fold both the tabs backwards at right angles.



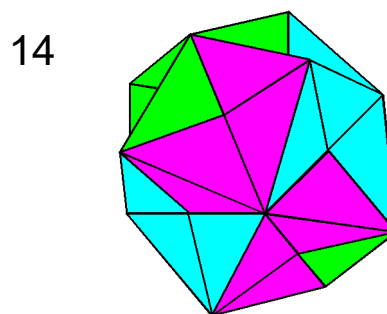
11. The module is finished. Make all six.



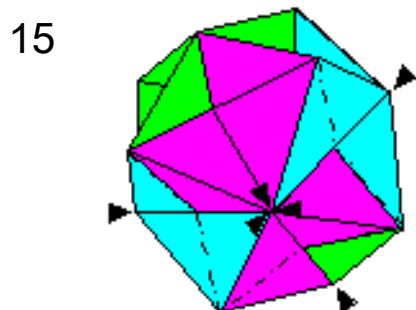
12. Three modules go together like this.



13. Continue adding modules in the same way until the cube is complete. To convert the cube to a Stubby Star press the centre of each edge inwards in turn to form valleys between the corners.

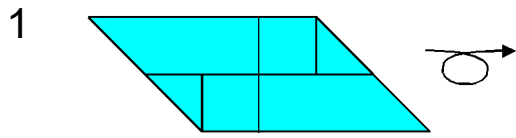


14. The finished Stubby Star will look like this.

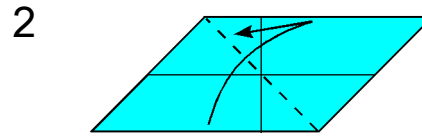


15. To convert back to the cube gently press each set of corners together so that the centre of the valley between them pops out.

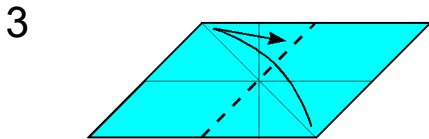
## Making an 8-point stubby star



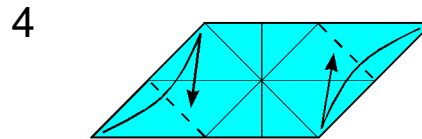
1. Begin by turning your module over sideways.



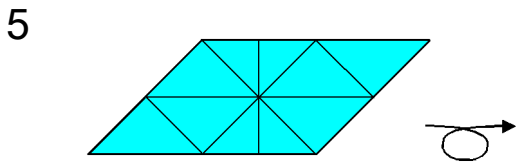
2. Fold in half diagonally from corner to corner as shown, then unfold.



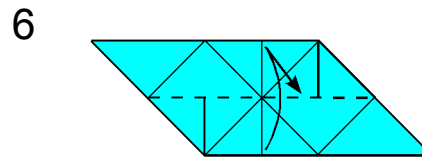
3. Make a second diagonal crease across the central square area in the opposite direction, then unfold.



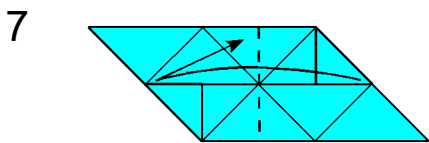
4. Fold the top right and bottom left corners inwards diagonally as shown then unfold.



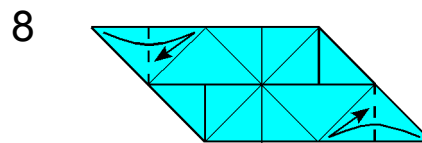
5. Turn over sideways.



6. Fold in half downwards, then unfold.

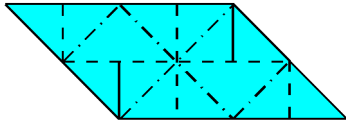


7. Fold in half from left to right, then unfold.



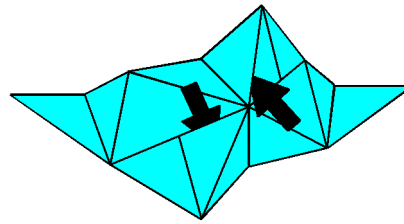
8. Fold the top left and bottom right corners inwards as shown, then unfold.

9



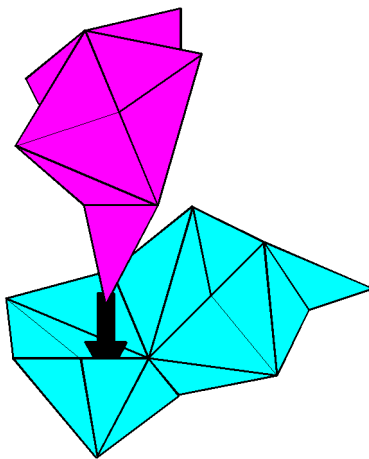
9. Use the creases you have made to collapse the module into the form shown in picture 10.

10



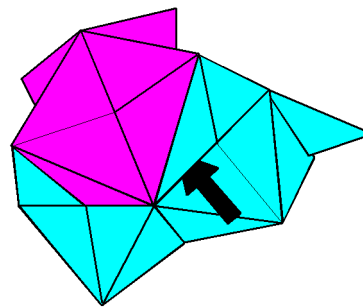
10. The arrows indicate the location of the pockets.

11



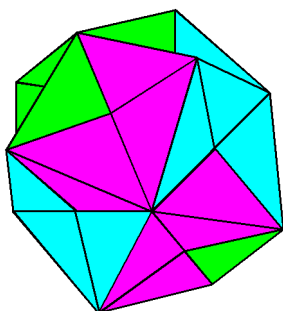
11. Two modules, of different colours, fit together like this.

12



12. A third module, of the same colour as the second, can be added by inserting one of its flaps into this pocket.

13

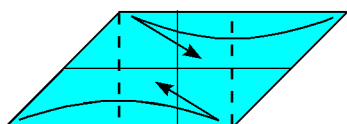


13. Continue adding modules in the same way until the finished Stubby Star looks like this.

## Converting the stubby star to a cube

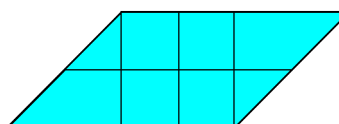
By adding two more creases to each module, in the way shown in steps 1a and 1b below, you can make a Stubby Star that will convert to a cube and back again. The finished modules are assembled in exactly the same way.

1a



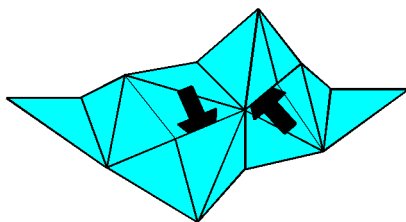
1a. Fold the right and left points inwards as shown, then unfold.

1b



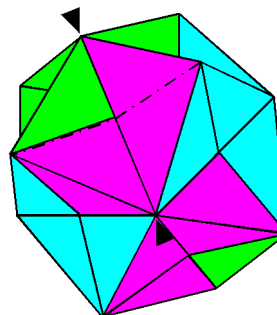
1b. The result should look like this. Continue with step 2.

10



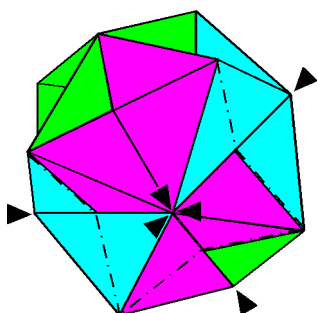
10. The finished modules will look like this. Assemble in the same way.

13



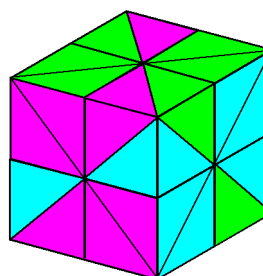
13. Begin converting your Stubby Star to a cube by squeezing two of the points gently like this so that the centre of the valley between them pops outwards to form an edge.

14



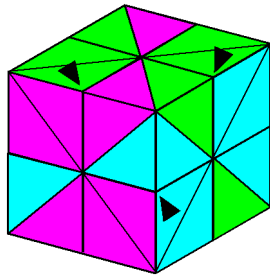
14. Repeat this action to pop out the other eleven edges of the cube in turn.

15



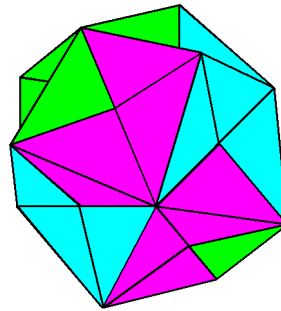
15. The converted cube will look like this.

16



16. To convert the cube back to a Stubby Star press the centre of each edge inwards in turn to re-form the valleys.

17



17. The re-converted Stubby Star will look like this.

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