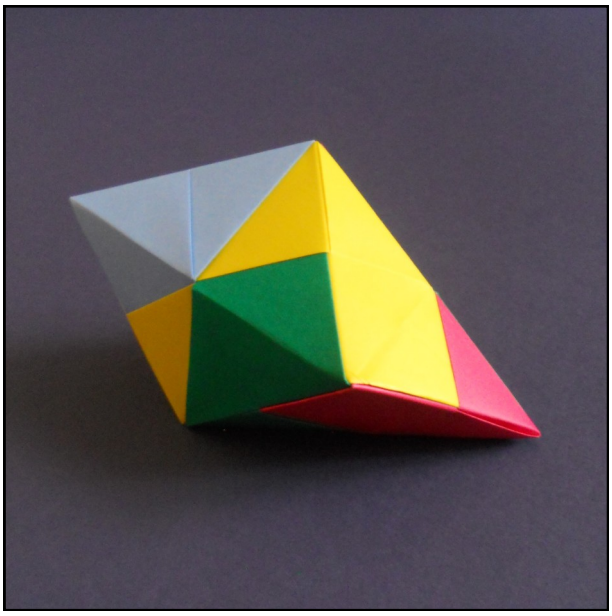
Letterbox Pop-up 4-Part Silveroctahedron



Designed by David Mitchell

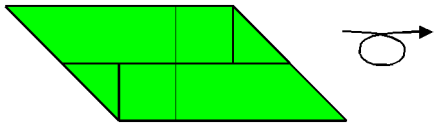
These diagrams show you how to make this rather unusual silveroctahedral form from Letterbox parallelogram modules by combining two alpha and two beta modules. They also show you how to collapse the form flat and pop it back into shape.

I discovered this form and design in 1989 but did not discover that it could be collapsed and restored to shape until 2016. There are other ways to make the same shape using Letterbox triangle modules.

You will need four squares of paper in four different colours. Diagrams for the basic Letterbox module can be found elsewhere on this site.

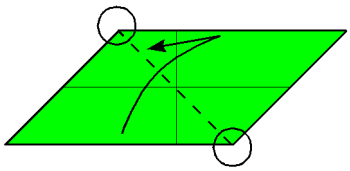
Configuring the alpha modules

1



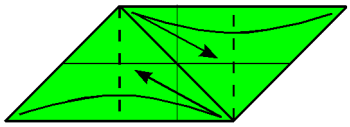
1. Begin by turning the basic module over sideways.

2



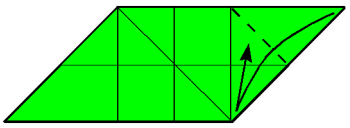
2. Fold in half diagonally from corner to corner as shown, making sure the new corners are sharp, then unfold.

3



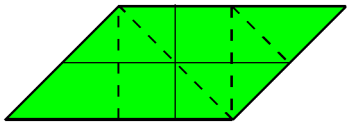
3. Fold both outside corners inwards as shown, then unfold.

4



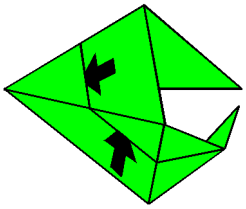
4. Fold the top right corner diagonally inwards as shown, then unfold.

5



5. Use the creases you have made to collapse the module into the form shown in picture 6.

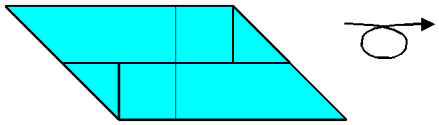
6



6. The alpha module is finished. The arrows indicate the location of the pockets. Make two in two different colours.

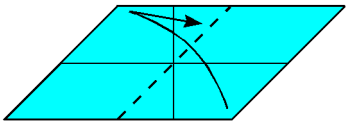
Configuring the beta modules

7



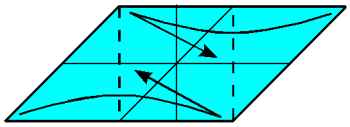
7. Begin by turning your module over sideways.

8



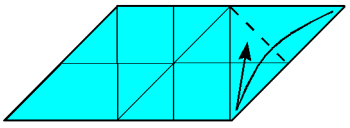
8. Fold in half diagonally as shown, then unfold.

9



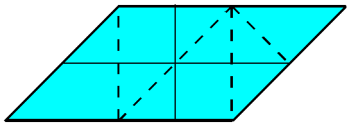
9. Fold both outside corners inwards as shown, then unfold.

10



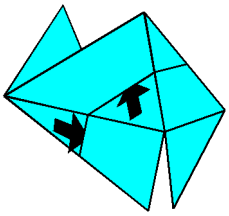
10. Fold the top right corner diagonally inwards as shown, then unfold.

11



11. Use the creases you have made to collapse the module into the form shown in picture 12.

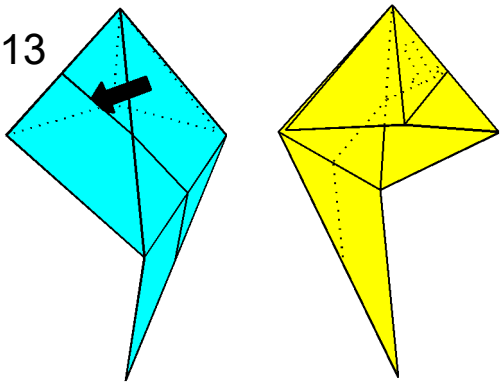
12



12. The beta module is finished. The arrows indicate the location of the pockets. Make two in two more colours. You should have four modules, all of which are different colours, two alpha and two beta, at this stage.

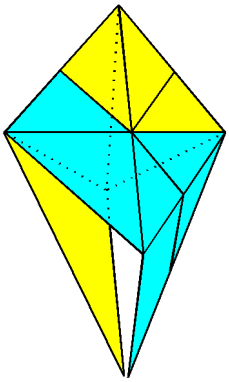
Putting the modules together

13



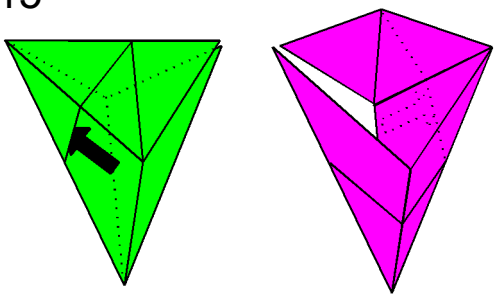
13. The two alpha modules go together to form a sub-assembly like this.

14



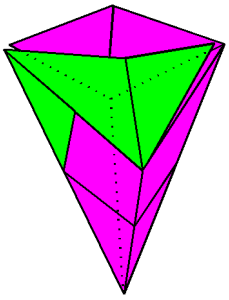
14. The finished alpha sub-assembly should look like this.

15



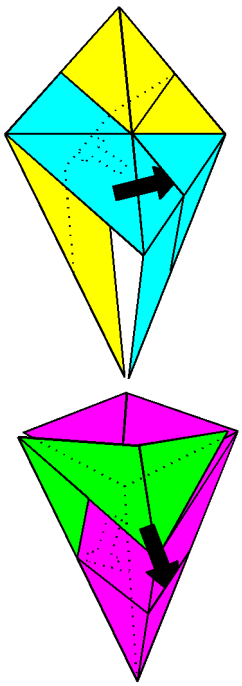
15. The two beta modules go together to form a second sub-assembly like this.

16



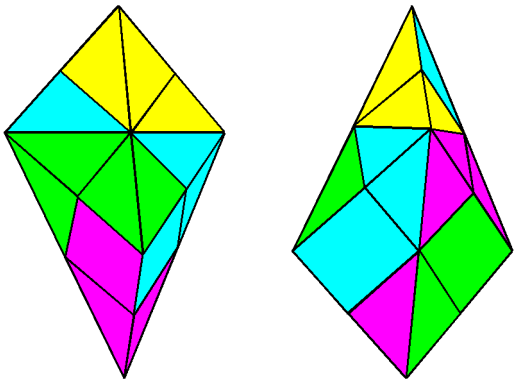
16. The finished beta sub-assembly should look like this.

17



17. The twp sub-assemblies go together like this.

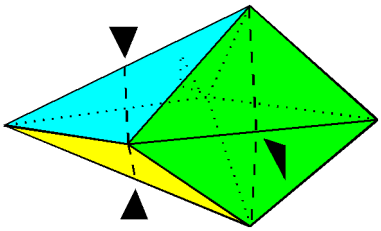
18



18. The 4-part Silveroctahedron is finished. The right hand picture shows the design after it has been rotated 90 degrees to the right.

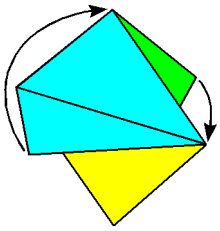
Collapsing and restoring the silveroctahedron

1



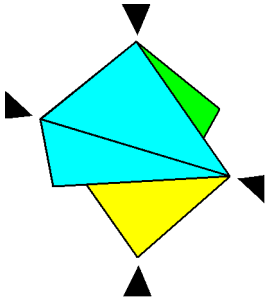
1. Arrange your Silveroctahedron like this and gently squash both ends as shown. The Silveroctahedron pictured here is one made from Corner-pocket Sonobe modules but the Letterbox version will collapse and pop back into shape in exactly the same way.

2



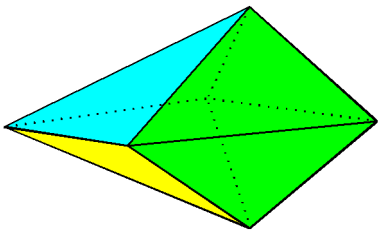
2. The result will be a form shaped like this. This form will collapse entirely flat if you swing the front flap upwards and the rear flap forwards. This will allow you to firm up the creases you have made.

3



3. Undo the folds made in step 2 then apply gentle, and equal, pressure in both directions marked with arrows here.

4



4. Your silveroctahedron will pop back into shape. The collapse will be easier to do a second time because the necessary creases now exist.

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