

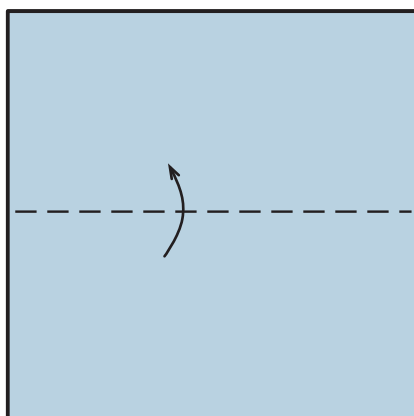
# Magic Star

## Spiral Version

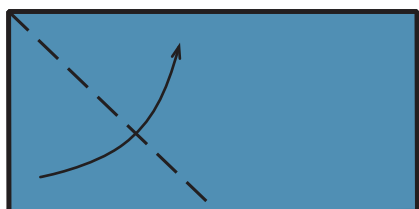
★☆☆☆☆  
Use 8 squares  
Finished model ratio 1.4

The result of step 5 is Robert Neale's original unit. His classic *Pinwheel-Ring-Pinwheel* appears in *Origami, Plain and Simple* by Tom Hull, p. 36-37 as well as many other places. By making one extra fold in step 6, the appearance changes dramatically on one side. Neale's units are stable when at least two are joined, but this spiral version is only stable when at least three units are joined. Three other models in this section use the same type of sliding mechanism as Neale's original.

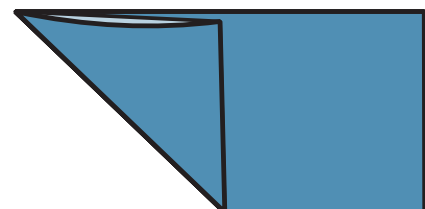
## Module ★



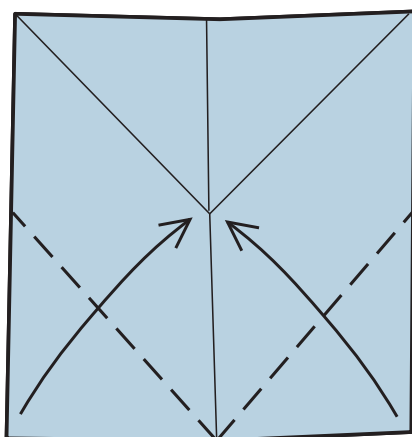
1 Fold in half.



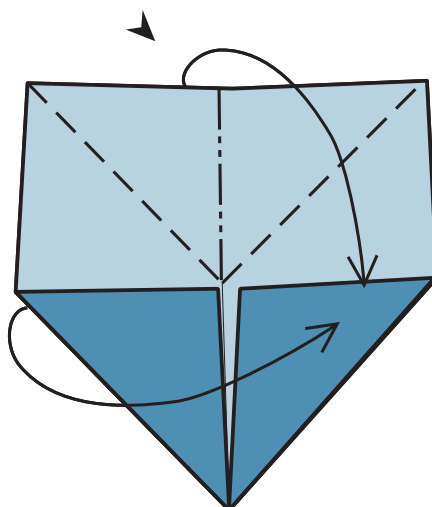
2 Fold the corner.



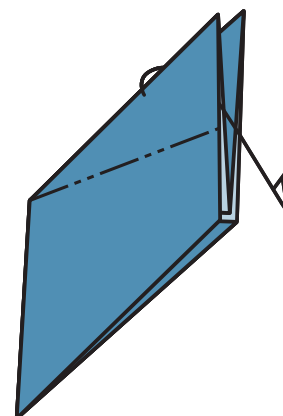
3 Unfold.



4 Fold the corners without creases to the centre.

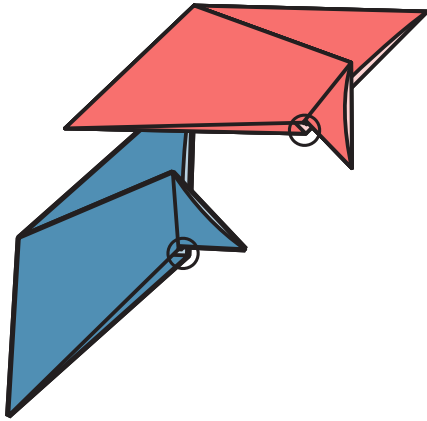


5 Make both partial diagonals valley folds. Use these folds to make a reverse fold as you close the paper in half.

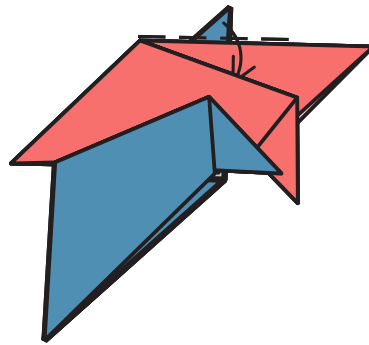


6 Fold the front flap inside. Leave the rear flap unfolded. You need eight units; two or four colours works well.

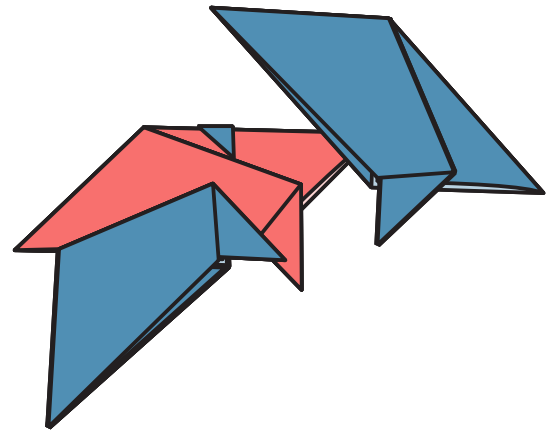
# Assembly ★



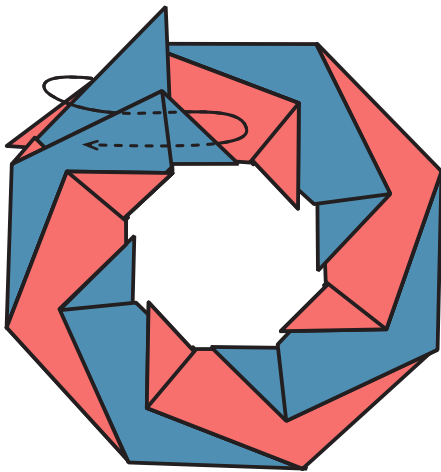
- 1** Slip the second unit into the arms of the first unit. The circled points will be the centre of the ring.



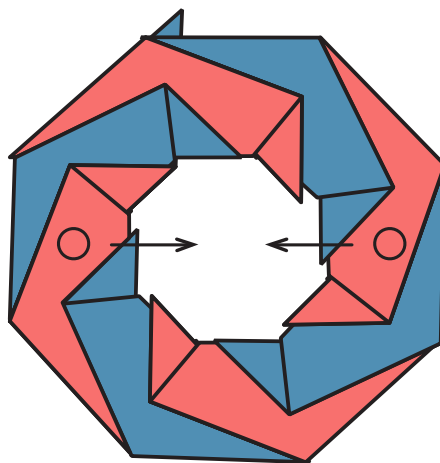
- 2** Fold the tip of the first unit over the second to create the sliding mechanism. Leave a small gap so that units slide easily.



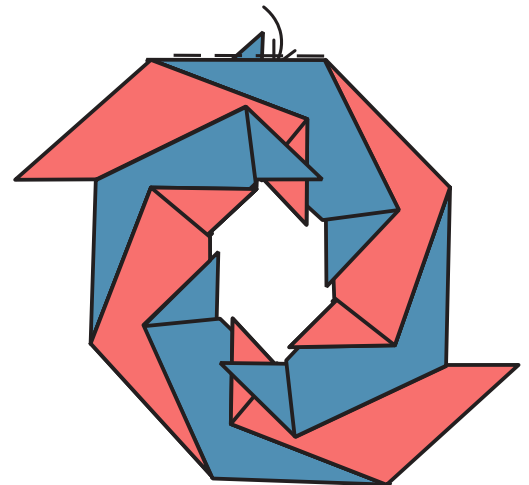
- 3** Continue adding units in a clockwise direction: slip the third unit into the arms of the second unit.



- 4** To make adding the last unit easier, remove the first unit and add this as your new last unit. To make this helix into a ring, flip the start of the ring towards you and tuck it into the arms of the last unit. Carefully bend the ring to do this.



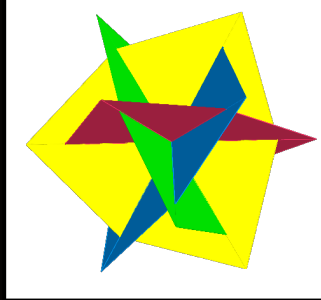
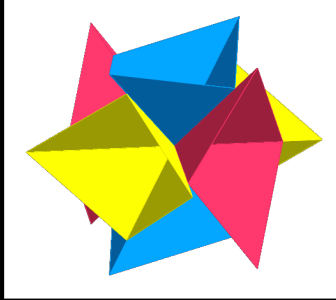
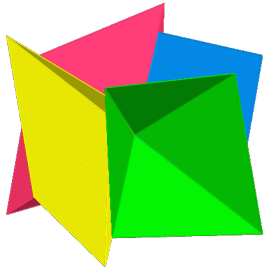
- 5** Whenever adding a unit or tucking a tip is difficult, slide the existing units to make the space you need.



- 6** Tuck the tip of the last unit into the first.

## Action

Slide the units by pushing them towards, or pulling away from, the centre. The ring will not close if you push the units too far: slide the ring open and try again.



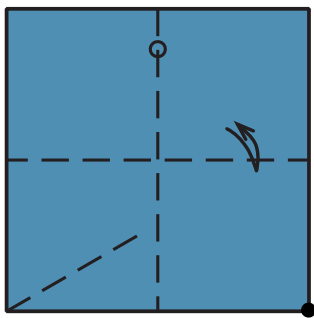
# Beak Unit



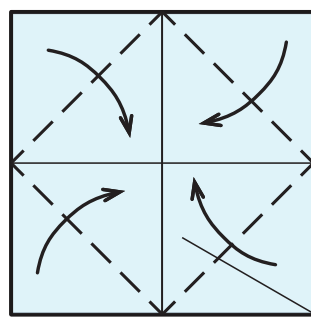
Use 4, 6 or 12 squares  
Finished model ratio 0.8

**T**his single module can make three different planar models: a cube and two kinds of cuboctahedra. It's related to the unit for the *Blintz Icosidodecahedron* [Petty 13]. As always, make sharp and accurate creases. In particular make sure that the folds in steps 4 to 8 go through the centre. You can make more 60° folds in step 1 for more accuracy. You can make some other folds to improve accuracy, but these need some extra creases that show in the final model. If you find a folding sequence that better suits your paper and folding style, then use it instead of the diagrammed sequence.

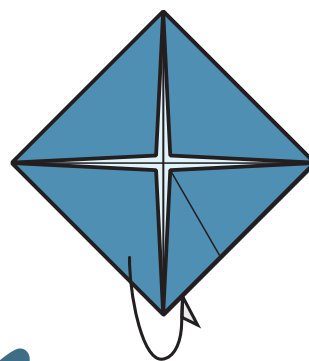
## Module ★★★



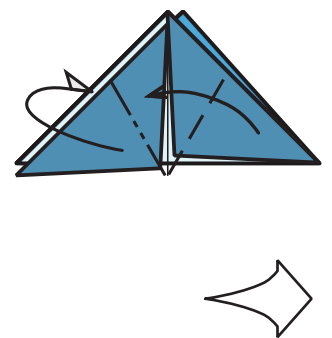
**1** Divide a square into a 2x2 grid. Make a 60° fold at the bottom left corner. Turn over.



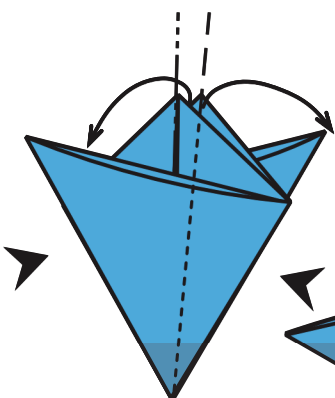
**2** Fold the corners to the centre.



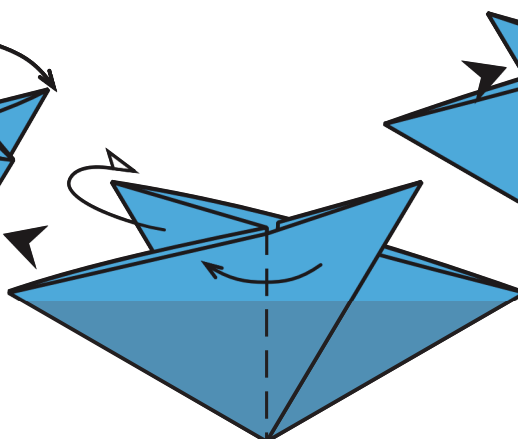
**3** Fold the bottom half behind.



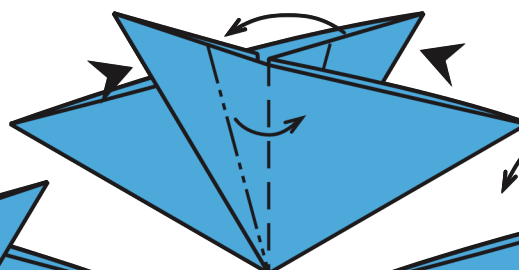
**4** Use the 60° fold made in step 1 to divide the angle into thirds at the midpoint of the base.



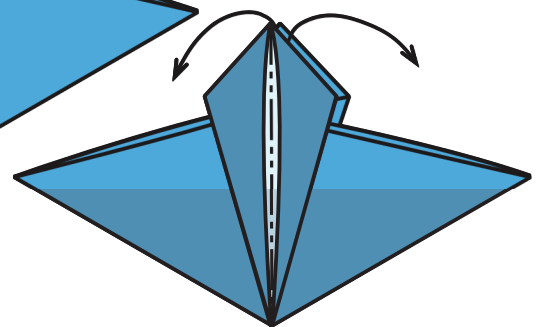
**5** Open and squash.



**6** Fold the front flap to the left. Repeat behind.

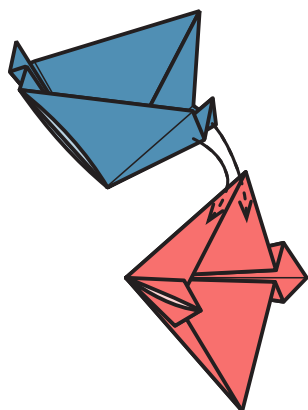


**7** Squash the flaps.

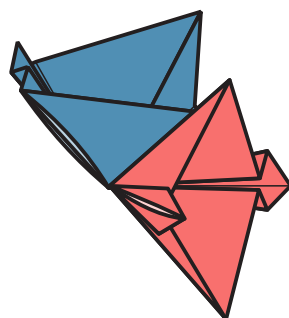


**8** Open out slightly.

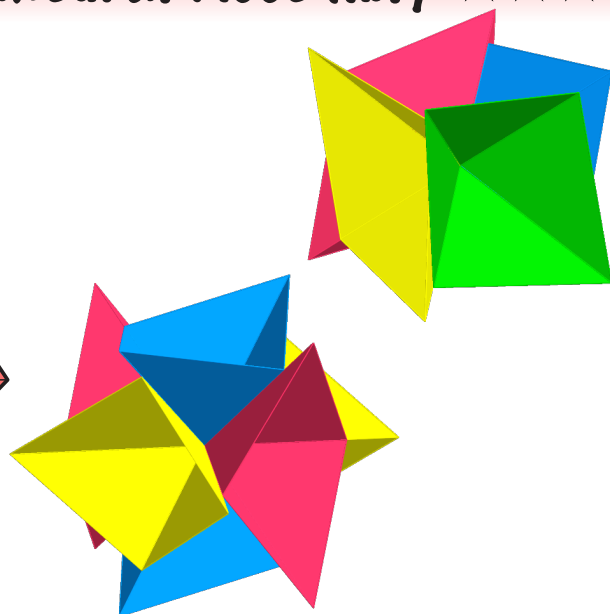
## 4-piece Cubic and 6-piece Cuboctahedral Assembly ★★★



**1** Tuck the tips of the first unit into the pockets of the second unit.

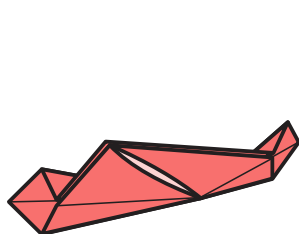


**2** Two units joined. To join six units, add more units with mirror symmetry. Three colours work well.

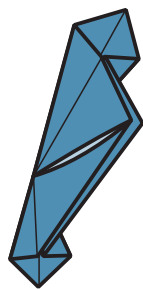


**3** To join four units, tuck the tips of the second unit into the pockets of the first unit. Then add the third and fourth units with rotational symmetry. Two or four colours work well.

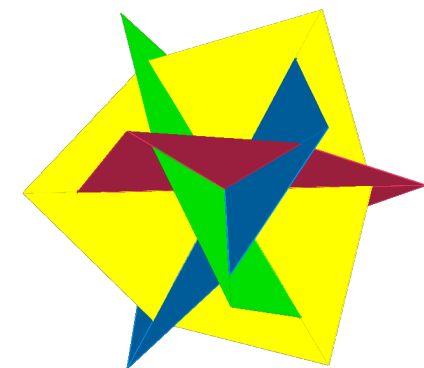
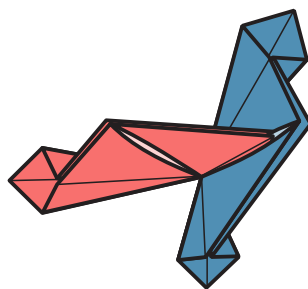
## 12-piece Cuboctahedral Assembly ★★★



**1** In module step 8, open the module and squash. Tuck the tips of the first unit into the pockets of the second unit.



**2** Two units joined. To join twelve units, add more units with rotational symmetry. Four colours work well.



**3** Observe the pattern of triangles and squares.

### Action

Gently cup opposite vertices in your palms and blow. Or gently hold the the model between the fingertips of each hand and blow. Each method uses an axis of rotation.