Bi-colour Harlequin Stars

Designed by David Mitchell

As the name suggests, Bi-colour Harlequin Stars are bi-colour versions of the famous Harlequin Star design which was independently originated by both Kenneth Kawamura and Robert Neale at an early date.

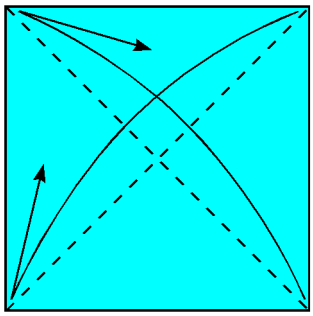
The bi-colour effect is obtained by the simple strategy of first blintzing the paper inside the module and then flipping some of the blintzes to the front so that part of the white side of the paper becomes visible. Four different bi-colour modules are possible, and they can, of course, be combined in many different ways to create many different patterns on the surface of the stars. The number of possible patterns can also be extended by twisting some of the modules through a quarter turn. I do not know precisely how many different patterns are possible altogether.

I first played with the idea of creating Bi-colour Harlequin Stars back in 1989 but did not fully develop them until I revisited the idea in 2016.

You will need six squares of irogami or duo paper for each star. The diagrams show you how to make some of the possible variations using two squares of irogami in each of three contrasting but complementary colours. The designs will, of course, also work equally well, or perhaps better, if all the squares are the same colour or pattern.

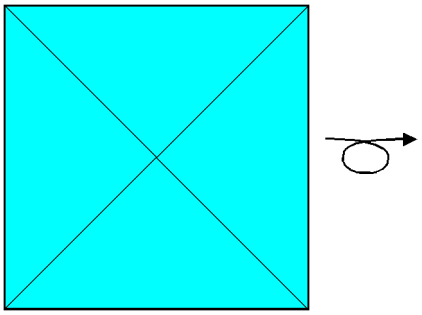
Begin folding with your squares arranged coloured side up.

1



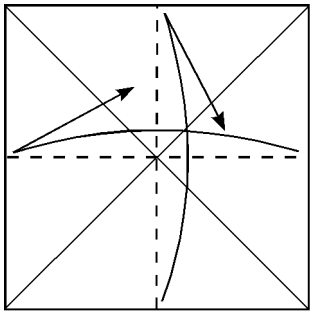
1. Fold in half diagonally, then unfold, in both directions.

2



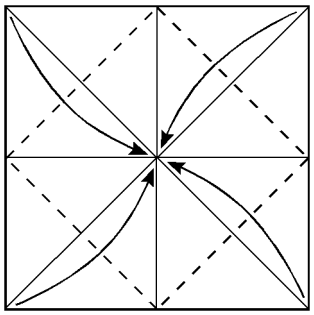
2. Turn over sideways.

3



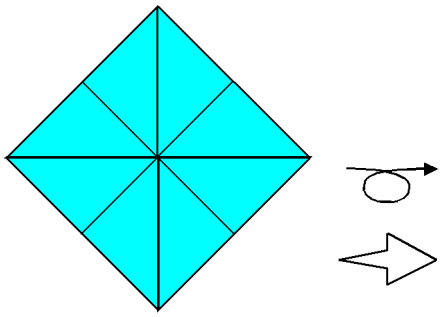
3. Fold in half edge to edge, then unfold, in both directions.

4



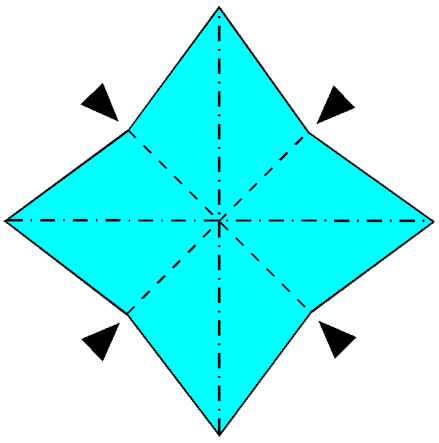
4. Fold all four corners into the centre.

5



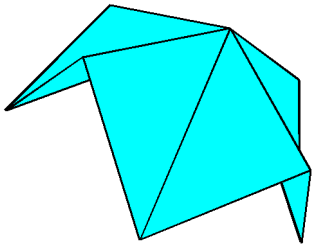
5. Turn over sideways. The next picture is shown on a larger scale.

6



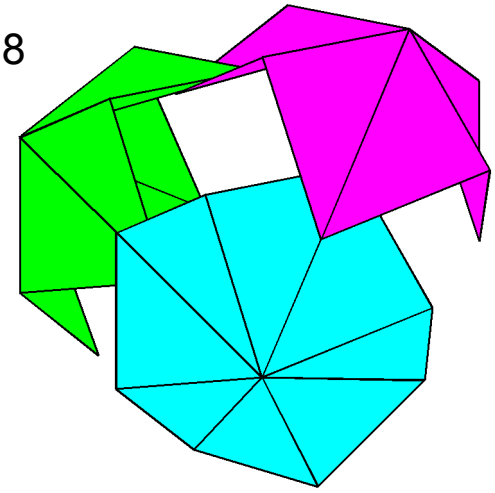
6. Collapse so that the centre rises up towards you.

7



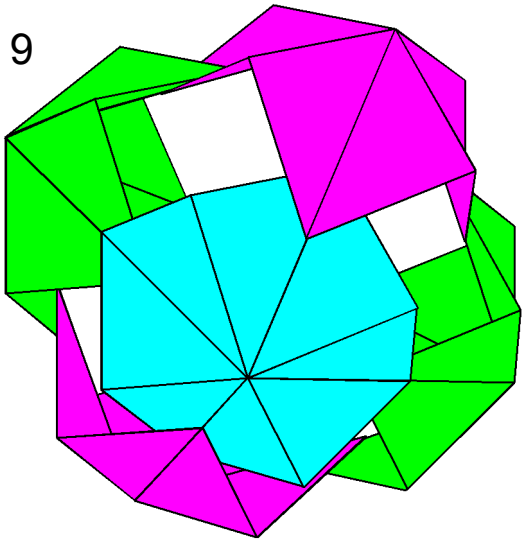
7. This is the basic form of the module. If you make six you can use them to construct a standard Harlequin Star like this.

8



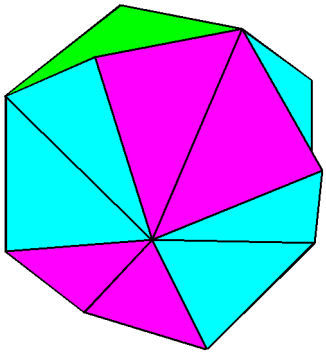
8. Three modules go together like this.

9



9. And all six like this.

10



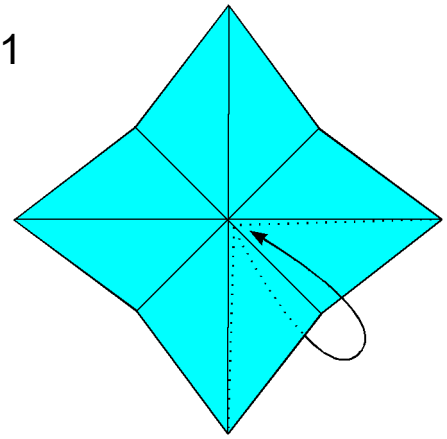
10. The finished standard Harlequin Star would look like this.

In order to create bi-colour stars one or more of the blintzes that currently form the underside of the modules must be flipped to the front. You will find that this is an easy, and rewardingly tactile, thing to do and that the shape of the module holds the flipped blintzes firmly in place. You may, however, find it improves the look of the finished star if you re-flatten any creases along the edge of the module which have been reversed during the flipping process.

The next twelve diagrams show you how to flip the blintzes to create the four possible bi-colour modules.

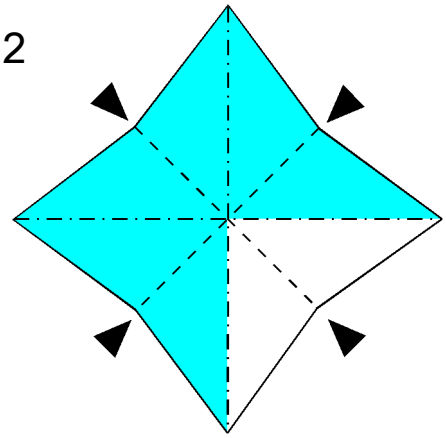
Flipping just one blintz to the front will create module A:

11



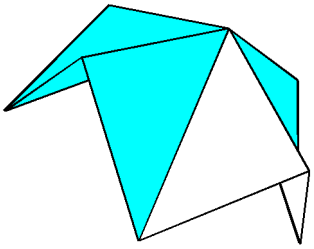
11. Flip the hidden blintz to the front.

12



12. Collapse the module into the shape shown in picture 13.

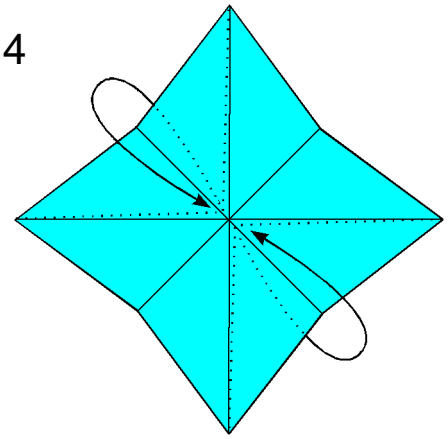
13



13. Module A is finished.

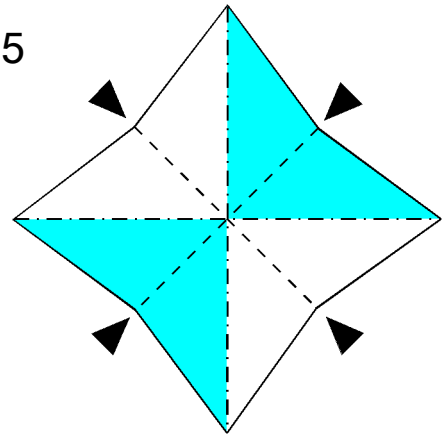
Flipping two opposite blintzes to the front will create module B:

14



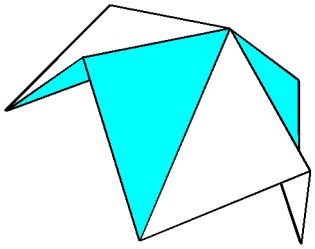
14. Flip the hidden blintzes to the front.

15



15. Collapse the module into the shape shown in picture 16.

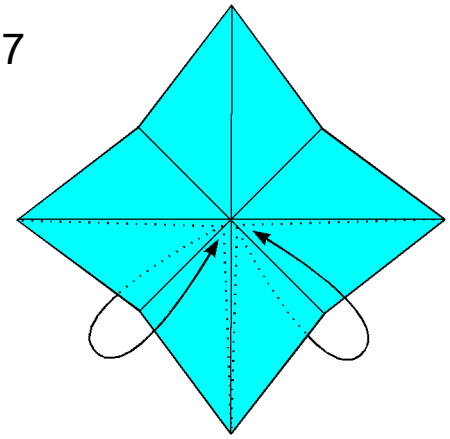
16



13. Module B is finished.

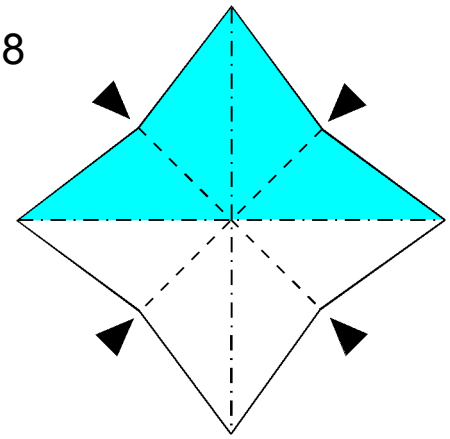
Flipping two adjacent blintzes to the front will create module C:

17



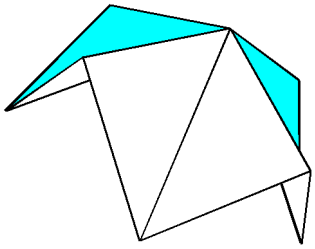
17. Flip the hidden blintzes to the front.

18



18. Collapse the module into the shape shown in picture 19.

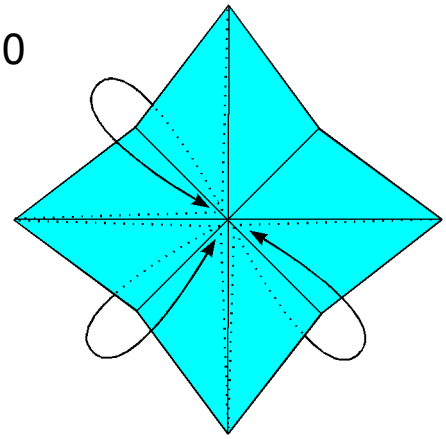
19



19. Module C is finished.

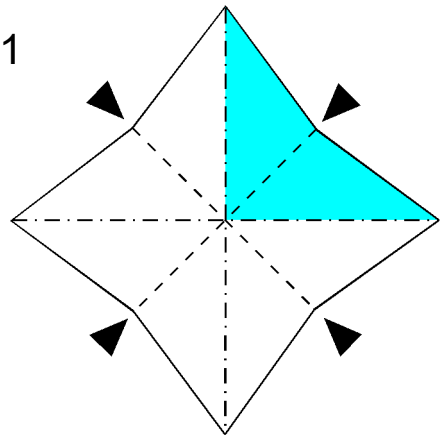
Flipping three blintzes to the front will create module D:

20



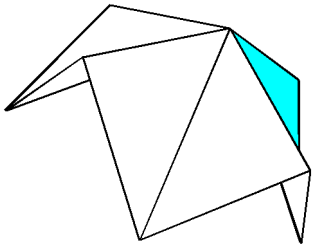
20. Flip the hidden blintzes to the front.

21



21. Collapse the module into the shape shown in picture 22.

22

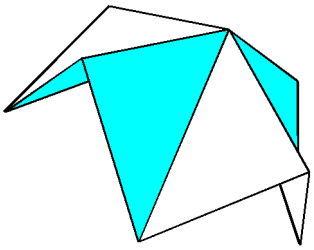


22. Module D is finished.

Each of the eight points of the Harlequin Star form is a three-sided pyramid. These pyramids can be patterned in four ways, all three sides coloured, all three sides white, two coloured and one white, or two white and one coloured.

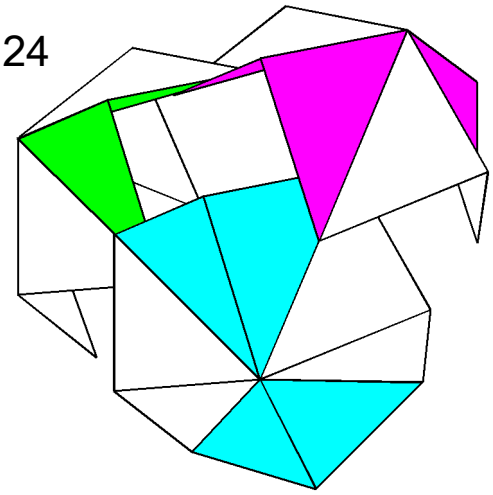
By combining six B modules it is possible to create a
Bi-colour Harlequin Star which is made up of four coloured and four white pyramids.

23



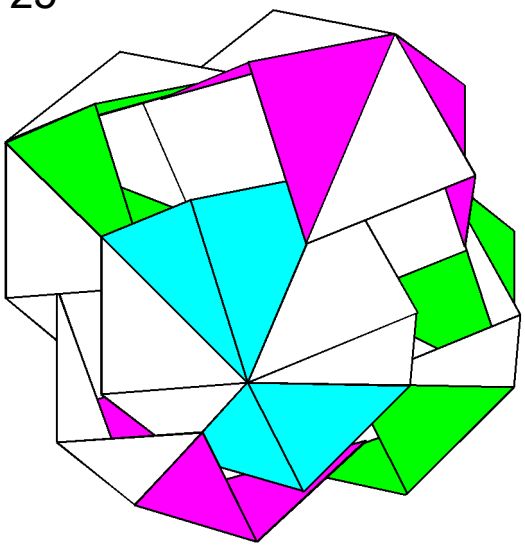
23. This is the B module.

24



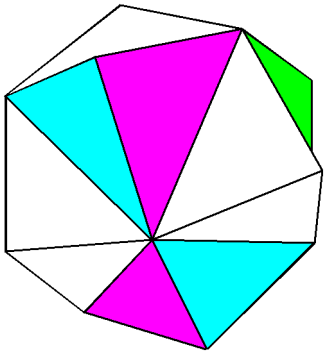
24. Three B modules go together like this.

25



25. And all six like this.

26



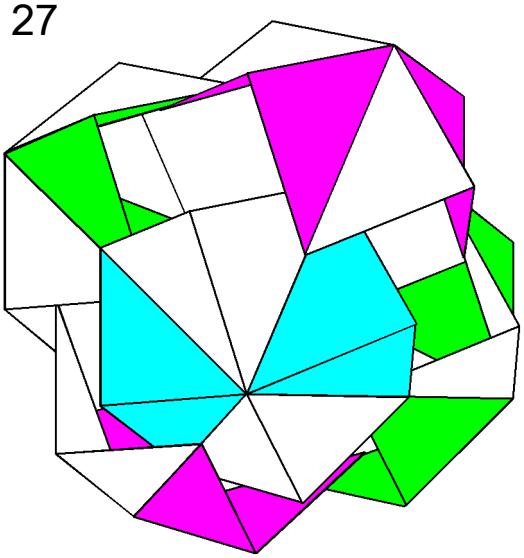
26. The resulting Bi-colour Harlequin Star has four pyramids which are coloured and four which are white.

Further bi-colour designs can be made by using six A, C or even D modules, or by combining a mixture of A, B, C and D modules in the same structure.

Another possible strategy for creating bi-colour patterns is to remove one or more modules from a design, give them a twist so that the symmetry of the white and coloured portions is altered, and replace them. I have not yet fully explored the possibilities inherent in this idea.

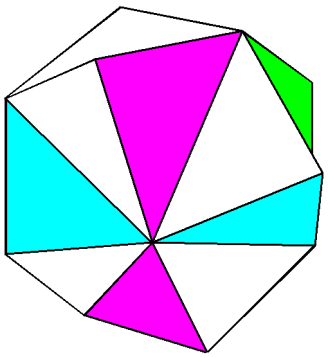
However, for example, if we were to take the design shown in picture 26, which is composed of six B modules, remove one module, in this case the blue one at the front, give it a quarter twist and replace it, the result would be the star shown in picture 30.

27



27. By comparing this picture to picture 24 you can see that the blue module at the front has been twisted through a quarter turn.

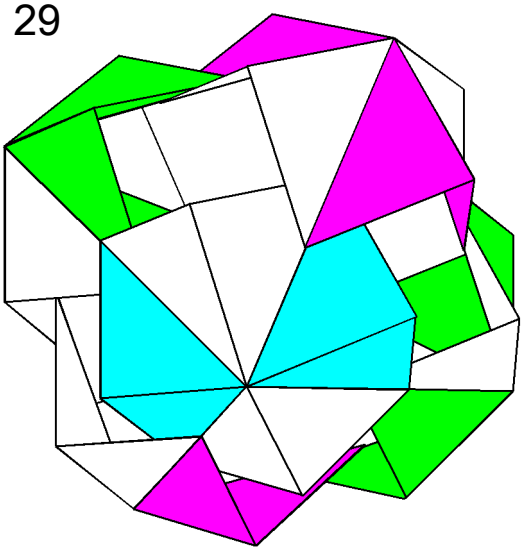
28



28. The fully assembled star resulting from twisting a single module through a quarter turn would look like this.

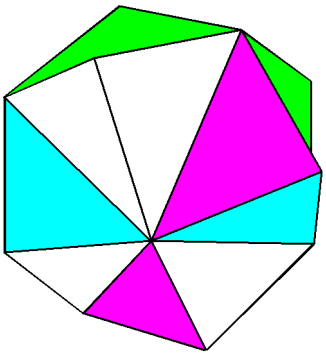
The pattern would change again if we were to also twist a second, adjacent, module, in this case the magenta module to the top right, through a quarter turn.

29



29. By comparing this picture to picture 24 you will see that both the front blue module and the upper right magenta module have now been twisted through a quarter turn.

30



30. This is what the result will look like.

As well as twisting just a single module and two adjacent modules it is also possible to create new patterns by twisting two opposite modules, three modules in a line or three adjacent modules. Twisting all six modules has the same effect as twisting none, twisting five has the same effect as twisting one, and twisting four the same effect as twisting two.

I hope you will enjoy playing with the many possibilities this design offers.