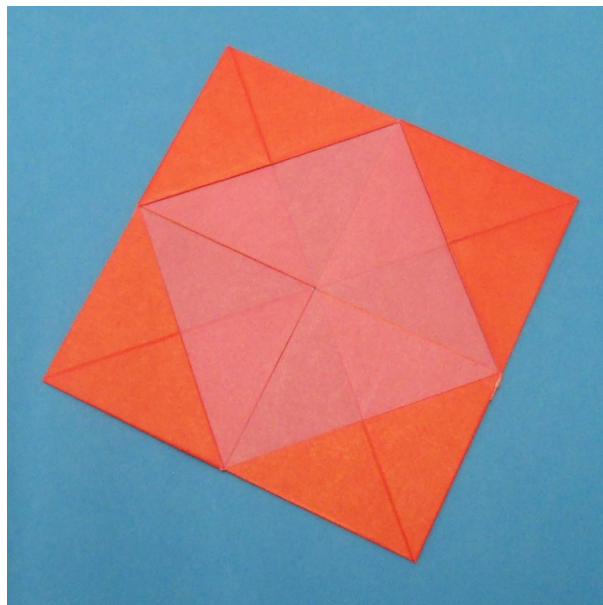


The Windmill Flexagon

Designed by David Mitchell

Despite the name, the Windmill Flexagon is strictly not a flexagon at all, although it is very like one and behaves in a similar way. It is made from a single square sheet of irogami with the aid of two small cuts.



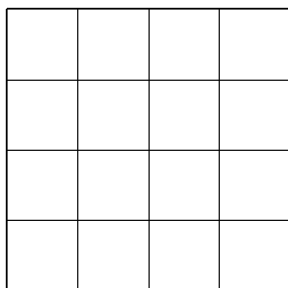
The resulting apparatus provides two challenges.

The first challenge is to discover how to flex it to reveal the second square face, something which will not prove at all difficult if you are already familiar with silverflexagons, but which should entertain you if you are not.

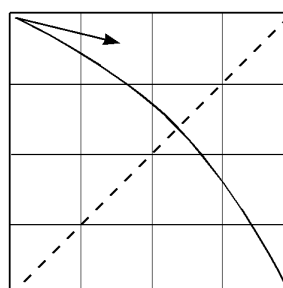
The second challenge is to find the windmill pattern concealed within the folds. This is rather more difficult and requires some lateral thinking.

The Windmill Flexagon was designed in 1996.

1



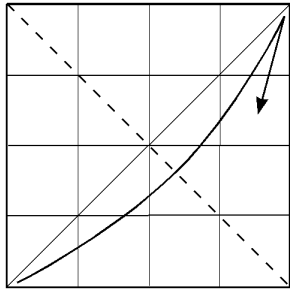
2



1. Begin by folding your square into a 4x4 grid.

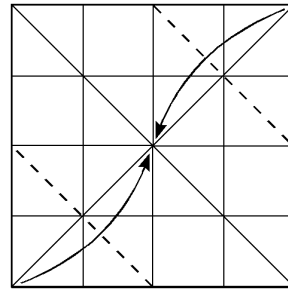
2. Fold in half diagonally, then unfold.

3



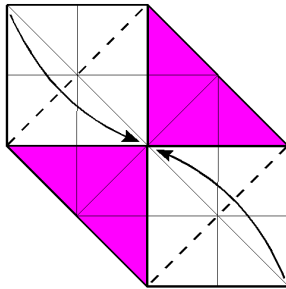
3. Fold in half diagonally in the opposite direction, then unfold.

4



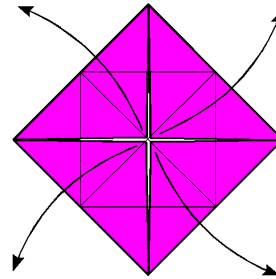
4. Fold two opposite corners to the centre.

5



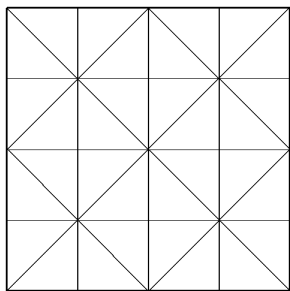
5. Fold the other two corners into the centre as well.

6



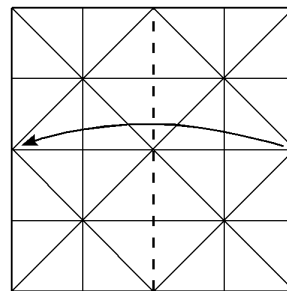
6. Open out.

7



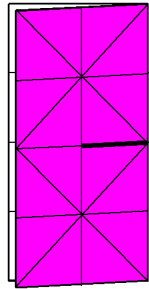
7. Check that you have made all the creases shown in this picture.

8



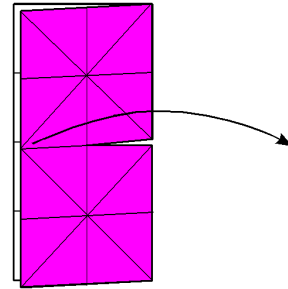
8. Fold in half from right to left.

9



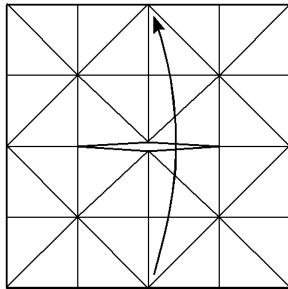
9. Cut along the crease marked with a thick black line. Cut through both layers. Try to make the cut as accurately as possible.

10



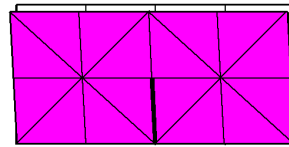
10. Open out.

11



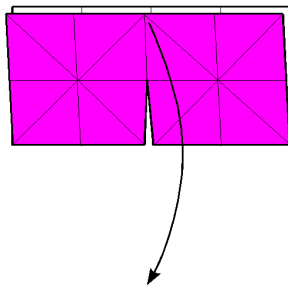
11. Fold in half upwards.

12



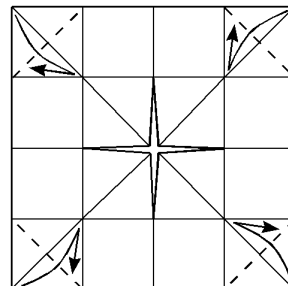
12. Cut along the crease marked with a thick black line. Cut through both layers.

13



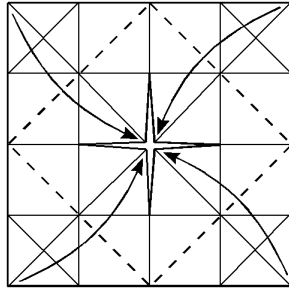
13. Open out.

14



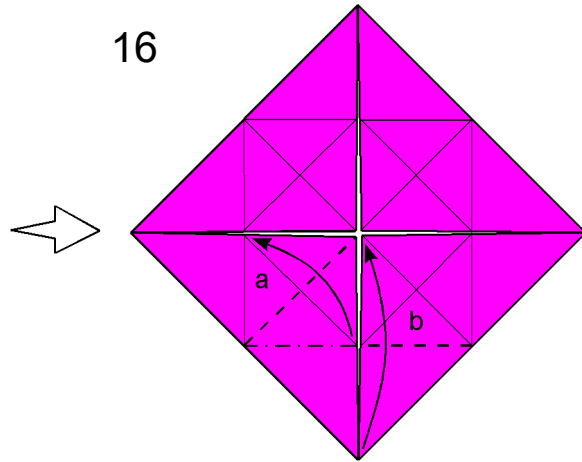
14. Fold all the small corner squares in half inwards, then unfold.

15



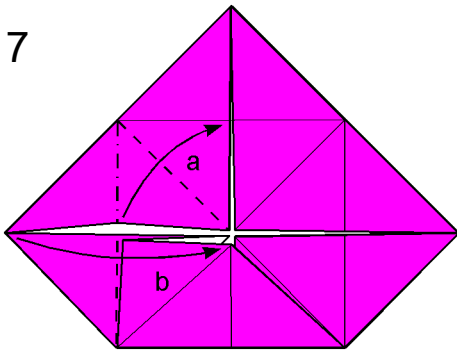
15. Fold all four corners into the centre using the existing creases.

16



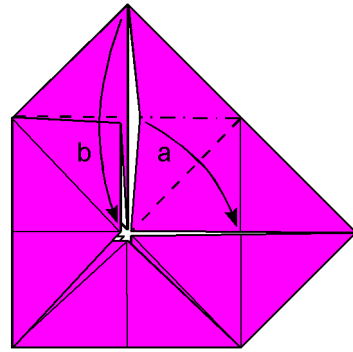
16. Make the two small folds shown. As you make fold a (just in the front layer), fold b will happen automatically.

17



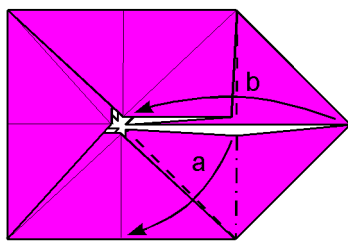
17. Repeat fold 16 on the left hand part of the paper.

18



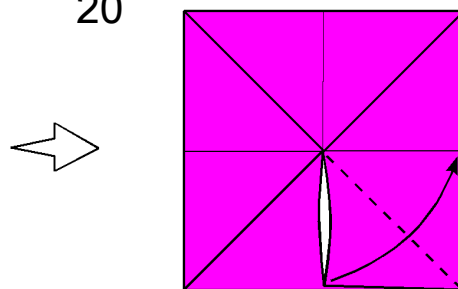
18. And on the top part of the paper as well.

19



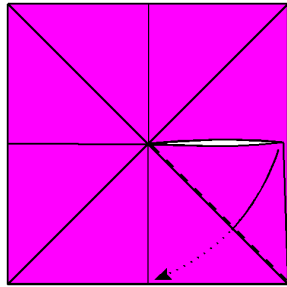
19. And finally on the right hand part.

20



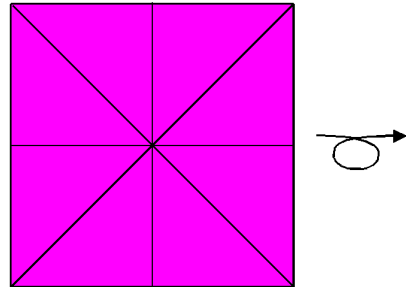
20. Fold the loose flap upwards to the right.

21



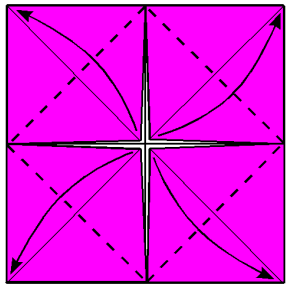
21. Then tuck it out of sight into the pocket. You will need to curl the flap to achieve this.

22



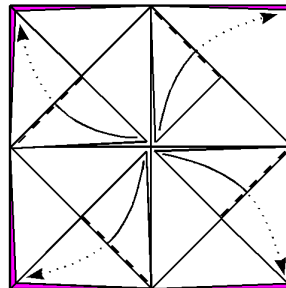
22. Turn over sideways.

23



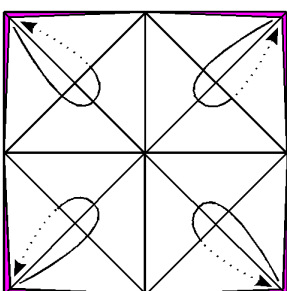
23. There are four loose corners at the centre. Fold them all outwards.

24



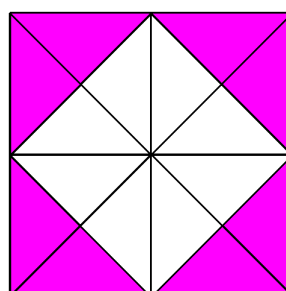
24. Fold the pointed flaps away into the pockets in front of them. Make sure the points do not get bent and that they go all the way into the corners.

25



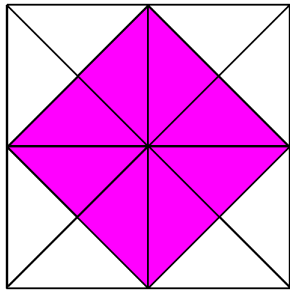
25. Fold the front flaps out of sight into the pockets behind them. Make sure the points do not get bent and that they go all the way into the corners.

26



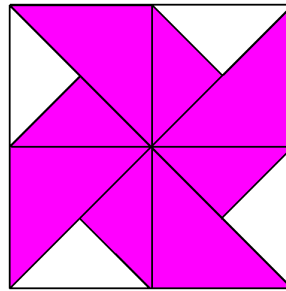
26. The Windmill Flexagon is finished. There are two challenges for you to solve.

27



27. Challenge One: Can you discover how to flex the flexagon to find the face that looks like this?

28



28. Challenge Two: Can you discover this pattern concealed inside the folds of the flexagon?

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