

The Enigma Bowl

Designed by David Mitchell

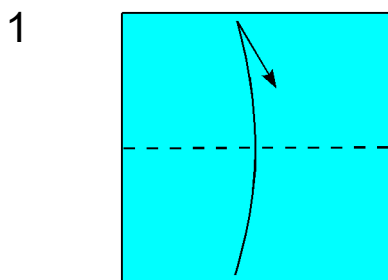
The Enigma Bowl is a complex geometrical paperfold of great intrinsic beauty which can also be put to practical use. The flat rim of the bowl is an 8-pointed star surrounding an octagonal hole, while the base of the bowl is square. In order to accommodate these differences, the final move stretches the corners into triangular facets.



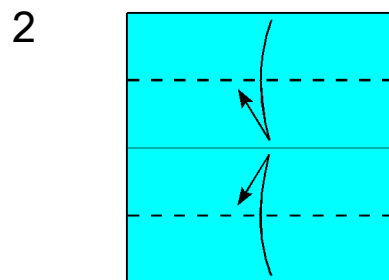
The Enigma Bowl is so called not because it is enigmatic but because it is developed from a base I call the Enigma Fold. I have also developed my modular design Gaia from this base, as well as many other, less worthy, designs. The sequence of steps from step 24 to step 38 which develop this base is probably the most enjoyable folding sequence in the whole of origami.

I designed the Enigma Bowl in 1988.

You can make the Enigma Bowl from a square of any kind of paper. If you are using irogami begin with your paper arranged coloured side up.

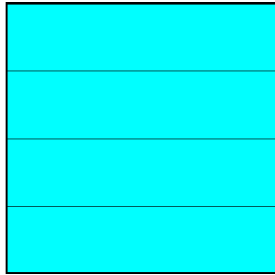


1. Fold the template in half upwards, crease, then unfold.



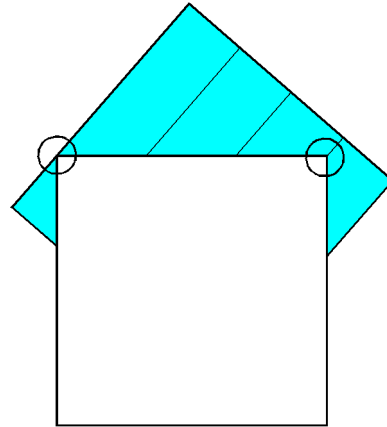
2. Fold both the top and bottom edges to the middle, crease, then unfold.

3



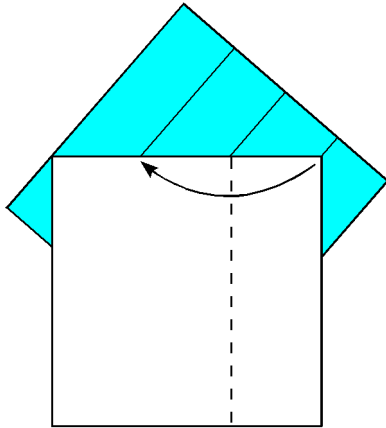
3. The template is finished.

4



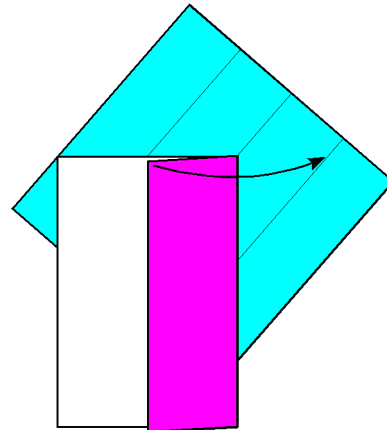
4. Lay your paper in front of the template like this. Make sure the side you want to form the inside of the bowl is facing towards you.

5



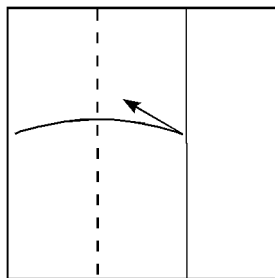
5. Fold the right hand corner inwards as shown. Make sure the two squares don't slip out of alignment as you make this fold.

6



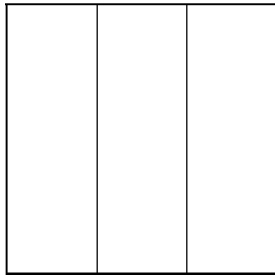
6. Open out the fold made in step 5 and remove the square from the template.

7



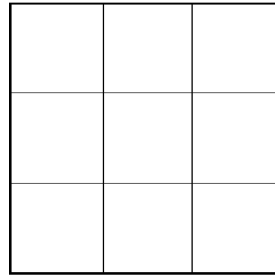
7. Fold the left hand edge onto the crease made in step 5, crease, then unfold.

8



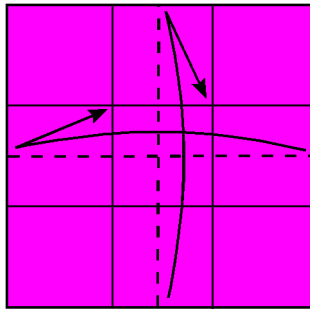
8. Your paper is now divided into thirds. To divide the paper into thirds in the other direction as well, rotate through ninety degrees and repeat steps 4 through 7.

9



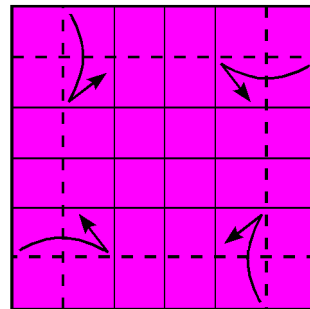
9. This is the result. The paper is now divided into 9 smaller squares.

9



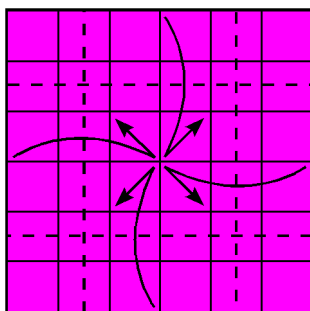
9. Fold in half edge to edge, then unfold, in both directions.

10



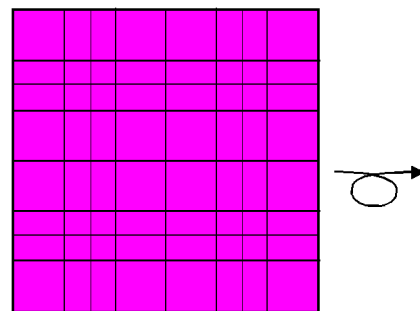
10. Fold each edge inwards as shown, then unfold, in turn.

11



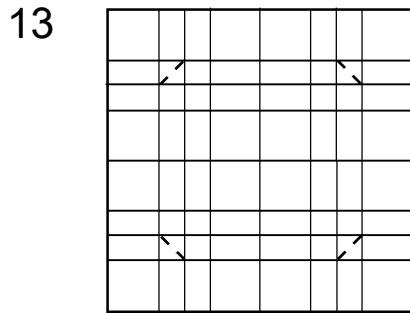
11. Fold each edge into the centre, then unfold, in turn.

12

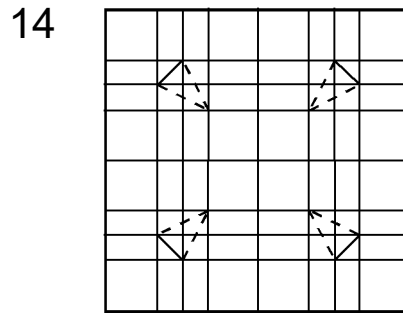


12. Turn over sideways.

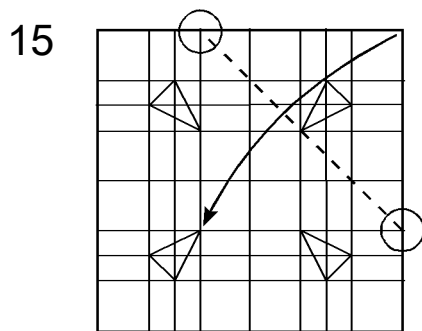
Steps 13 and 14 are optional. The move in step 47 that opens out the bowl can be carried out in the absence of pre-creasing but pre-creasing these tiny triangles makes the move much easier to carry out neatly.



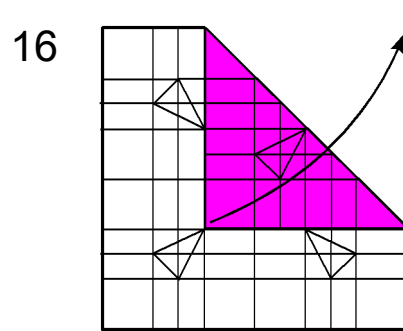
13. Make four tiny diagonal creases in the way shown here.



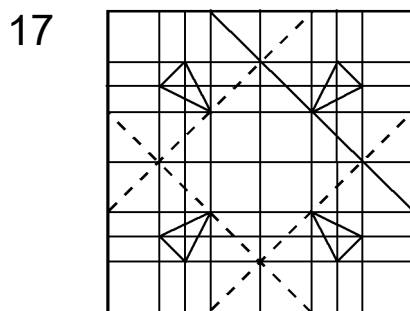
14. Crease in the other sides of four tiny triangles.



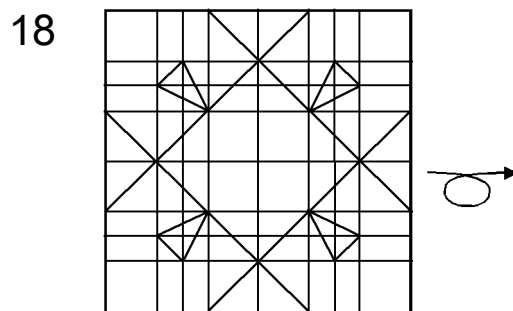
15. Fold the top right hand corner inwards diagonally.



16. Open out the fold made in step 15.

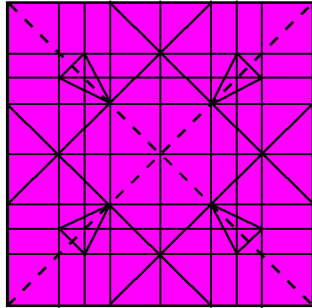


17. Repeat steps 15 and 16 on the other three corners.



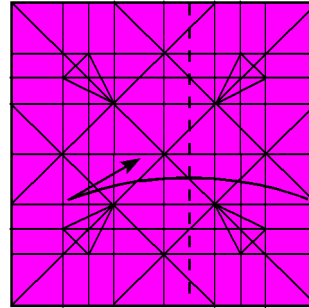
18. Turn over sideways.

19



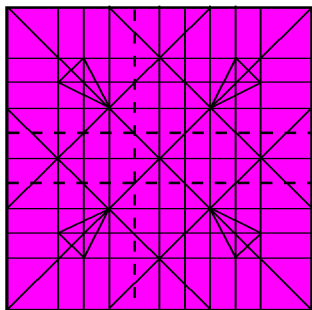
19. Crease in both diagonals.

20



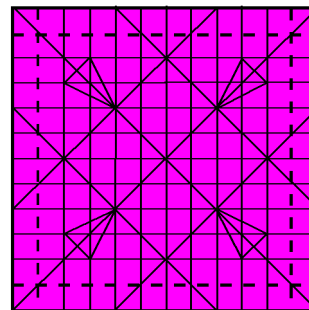
20. Fold the right hand edge onto the vertical crease nearest the left hand edge, crease, then unfold.

21



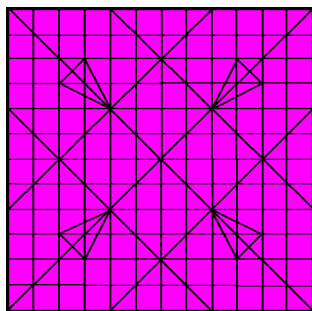
21. Add three further creases in a similar way.

22



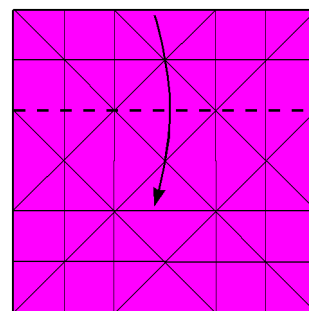
22. Complete the 12 x 12 grid by folding the outer sixths in half all the way round.

23



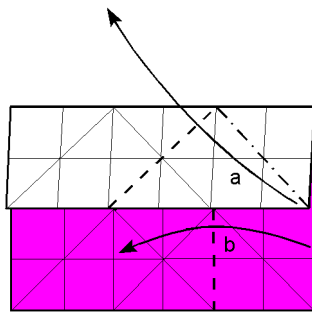
23. Check that you have made all these creases before moving on. The remaining pictures would be too difficult to read if all these creases were shown all the time. From here onwards only the creases you need to see to understand the folding instructions are shown.

24



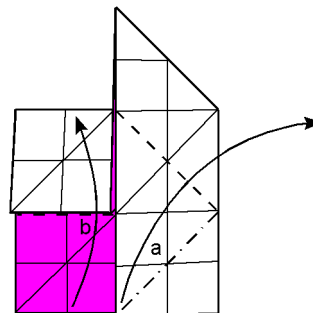
24. Fold the top third of the paper downwards.

25



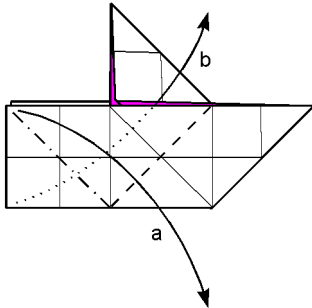
25. Make fold a then fold b using the existing creases.

26



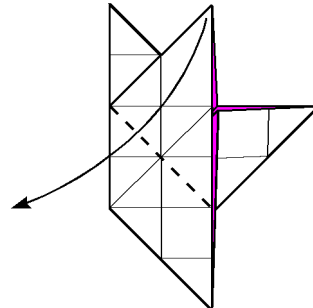
26. Make fold a then fold b using the existing creases.

27



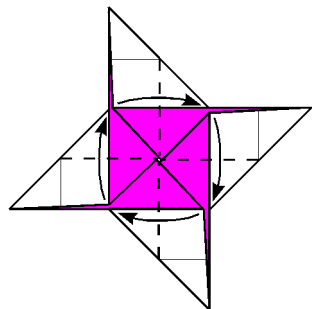
27. Make fold a then fold b using the existing creases.

28



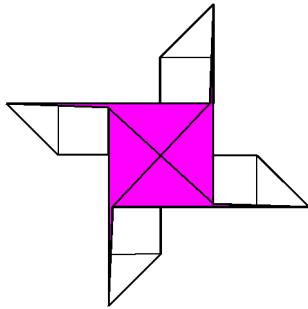
28. Open out the remaining flap.

29



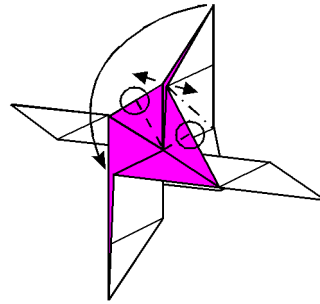
29. Take the right hand arm of the Pinwheel and fold it in half downwards in the way shown. This fold is made through all the layers of the arm. Repeat this fold on the other three arms working anticlockwise around the design. The paper will not lie flat until you have completed all four folds. Flatten and crease firmly.

30



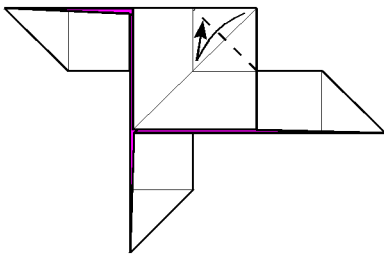
30. This is the result. Lift one of the arms upwards and towards you so that it looks like picture 31.

31



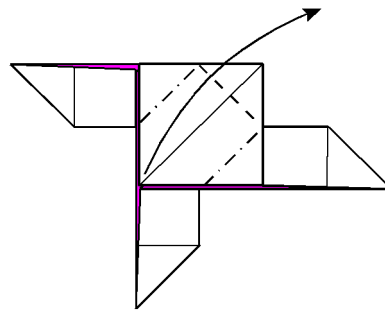
31. Open the centre of this arm then squash it flat. The centres of the two flaps marked with circles fold away from you to allow this to happen. Picture 32 shows what the result should look like.

32



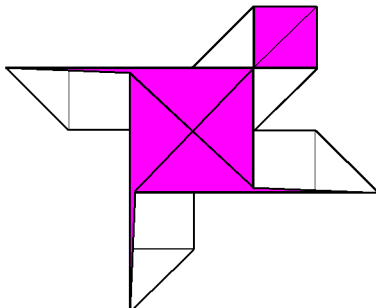
32. Fold the top right hand corner inwards using the existing creases as a guide, crease firmly, then unfold.

33



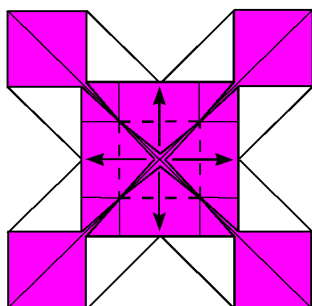
33. Fold the front flap up to the right using the crease made in step 33 and squash symmetrically. The two creases marked with mountainfold lines will form as you flatten the flap into its new position.

34



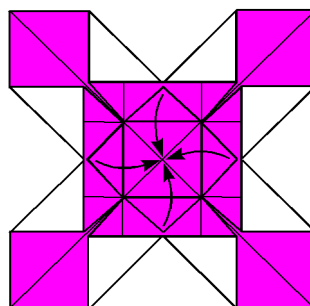
34. Repeat steps 30 through 33 on each of the other three arms in turn. The next picture is on a larger scale.

35



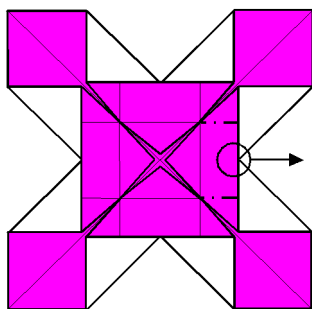
35. Fold all four small central front flaps outwards using the existing creases.

36



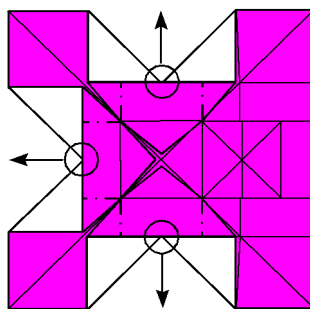
36. Undo the folds made in step 35.

37



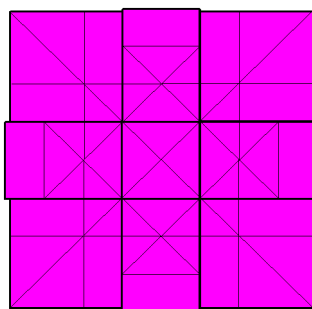
37. This is the result. Take hold of the front layer at the point marked with a circle and pull gently to the right. Squash symmetrically to look like picture 38. All the creases you need to do this are already there.

38



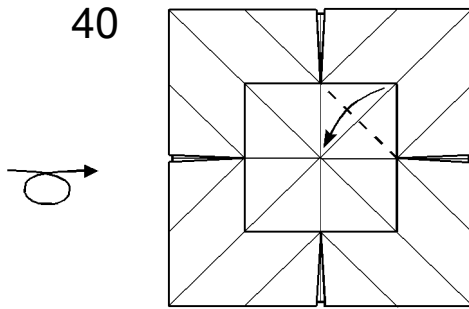
38. Repeat step 37 on each of the other three edges in turn.

39



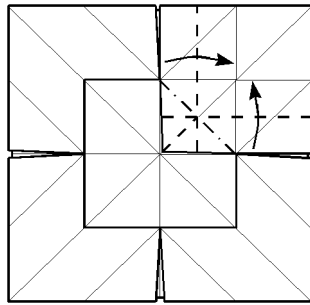
39. This is the Enigma Base. Turn over sideways.

40



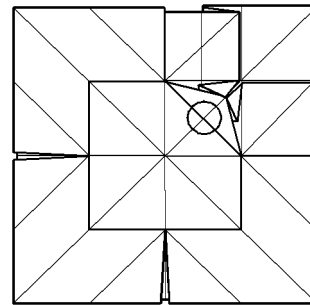
40. Fold the top right hand corner of the central square inwards.

41



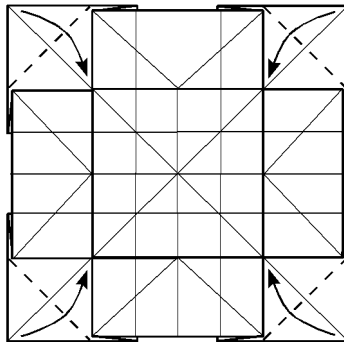
41. Fold the left hand and bottom edges of the front layers outwards simultaneously. The result of doing this is shown in picture 42.

42



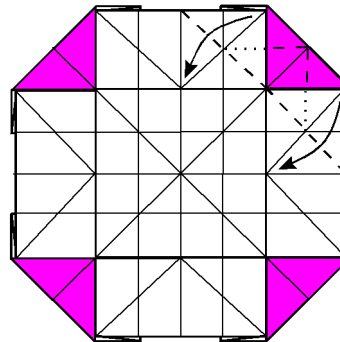
42. Fully flatten the flap marked with a circle and repeat folds 40 and 41 on all four corners of the central square.

43



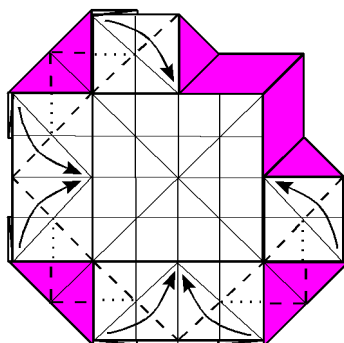
43. Fold all four corners inwards.

44



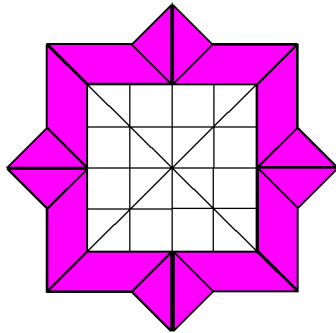
44. Make these two folds simultaneously. As you flatten them other folds will automatically form behind them. Flatten these as well. You don't need to make any new creases when doing this.

45



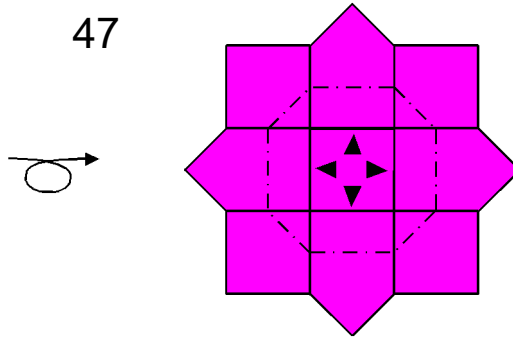
45. The result should look like this. Repeat fold 44 on the other three corners.

46



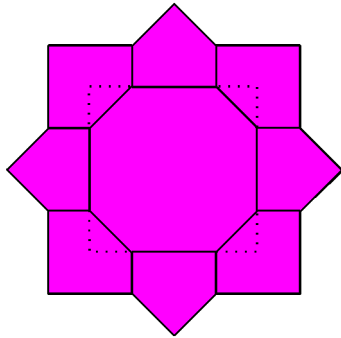
46. Flatten all the creases firmly then turn over sideways.

47



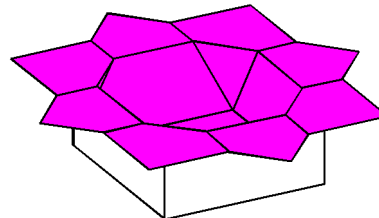
47. Insert your fingers in the centre of the design to open out the body of the bowl along the existing crease lines shown. As you do this small triangular collars (bounded by the creases made in steps 13 and 1, if you made them) will appear and flatten inside the bowl at each corner. This manoeuvre is difficult, but persevere, the result is worth it. The position of the collars inside the corners of the bowl can clearly be seen in picture 49.

48



48. The result is an octagonal hole with a square base. The position of the triangular collars is indicated by the dotted lines.

49



49. The Enigma Bowl is finished.

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