

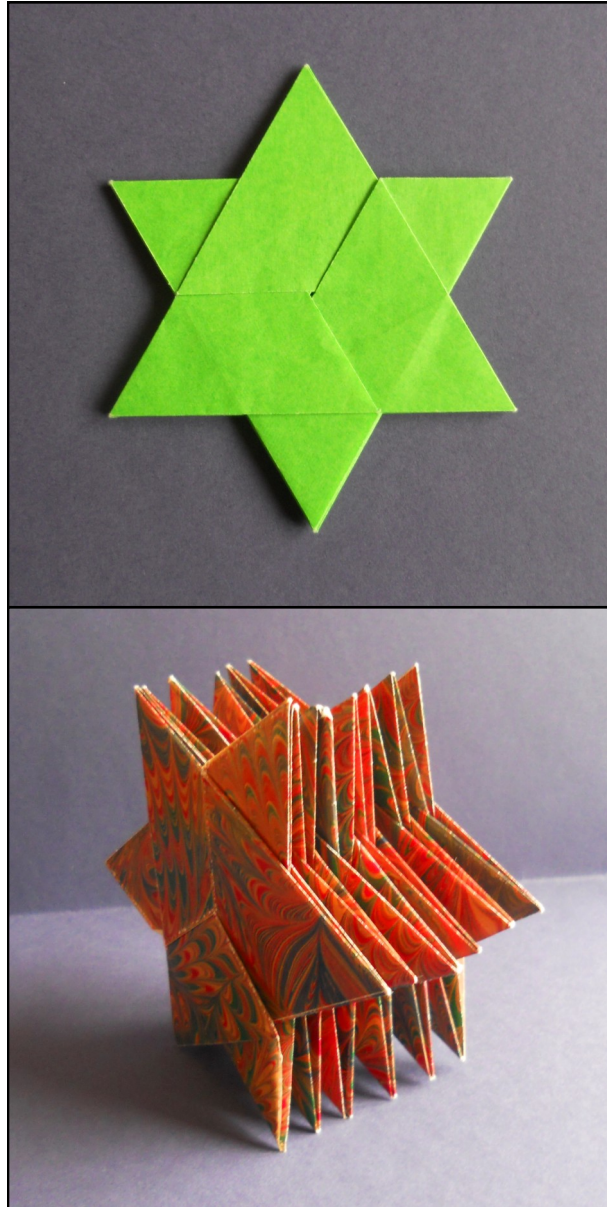
David's Star

Designed by David Mitchell

This design is very much a serendipitous one.

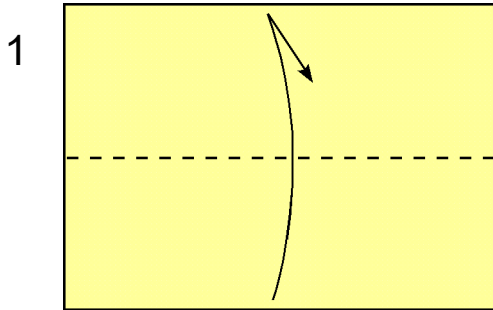
Sometime in 2004 I was playing with a three-dimensional tessellation, folded from an A4 sheet of paper, when I discovered that it would collapse sideways into a curved shape. It immediately occurred to me that if I changed the starting shape to a bronze rectangle it might then collapse into a star of David, and, indeed, with a little gentle persuasion, it did and does.

The top photo shows the design in its original form. The bottom photograph shows a more complex concertina-like version, also folded from a bronze rectangle, but in which the crease pattern is turned in the alternate direction and tripled up. The concertina could be increased in length by folding it from a strip of two (or more) bronze rectangles (linked short edge to short edge).

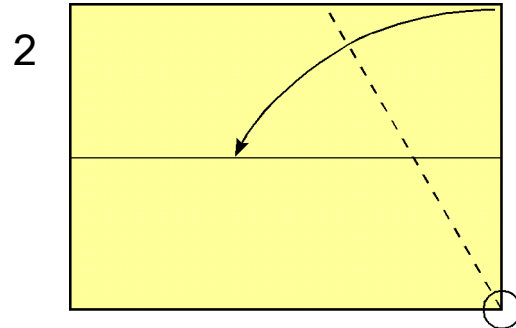


You will need two sheets of A4 or US letter size paper, one to act as a template and the other to cut down into the bronze rectangle.

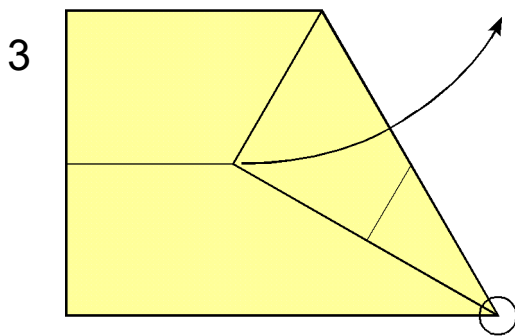
Preparing the template



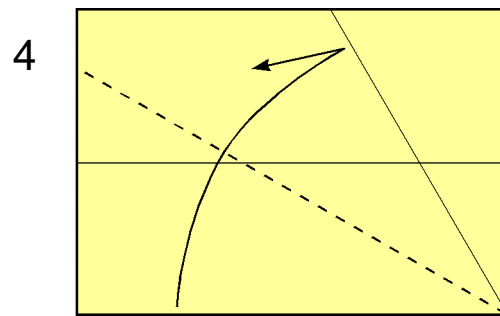
1. Fold in half upwards, crease, then unfold.



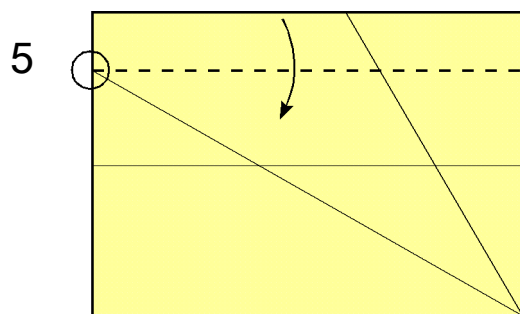
2. Fold the top right hand corner onto the horizontal crease making sure the crease starts from the bottom right hand corner.



3. Make sure the point of the bottom right hand corner is sharp. Open out the fold made in step 2.

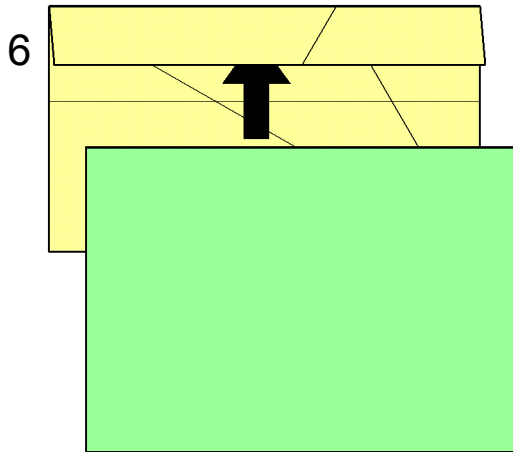


4. Fold the bottom edge onto the crease made in step 2, crease, then unfold.

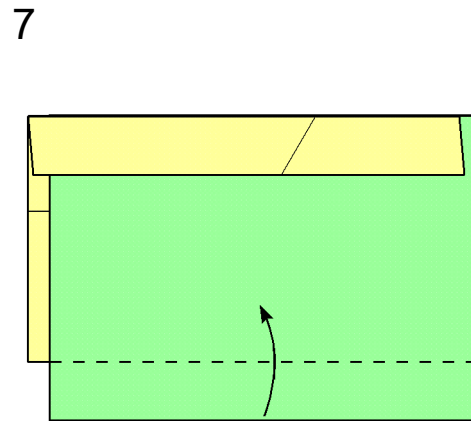


5. Fold the top edge downwards. Use the top left hand edge of the fold made in step 4 to locate this new crease accurately.

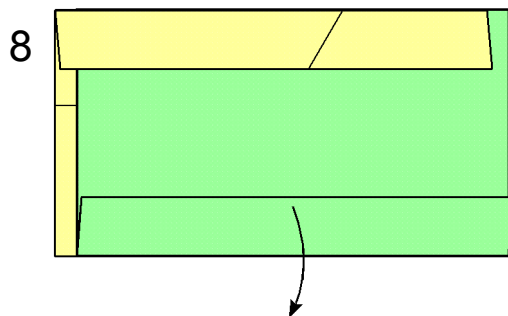
Making the bronze rectangle



6. Insert the paper you want to fold David's Star from underneath the flap. Make sure you push it all the way in.



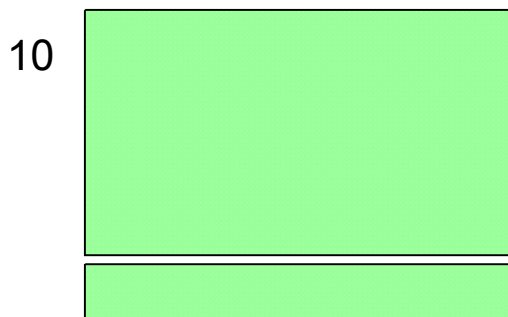
7. Fold the bottom edge upwards along the bottom edge of the template. It is important you do this as accurately as possible.



8. Open out the fold made in step 8 and remove the paper from the template.

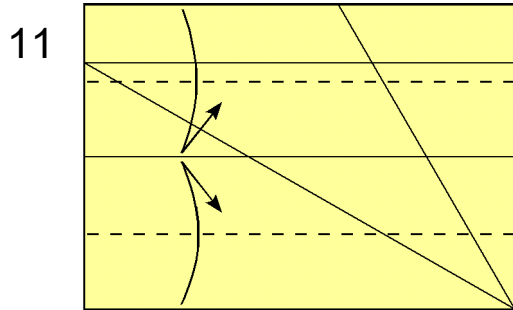


9. Separate the two parts of the paper along the horizontal crease.



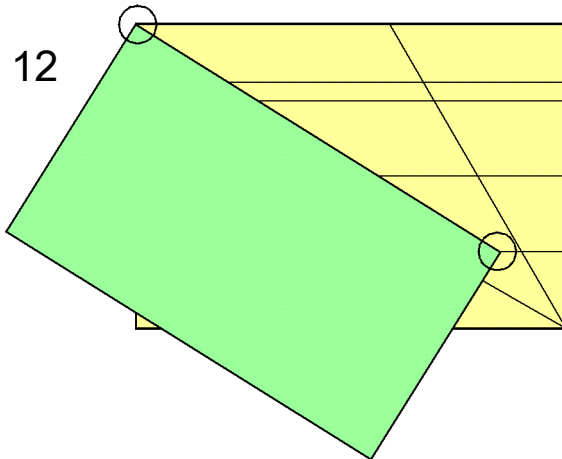
10. The larger piece is a bronze rectangle. The smaller piece is no longer required.

Rejigging the template

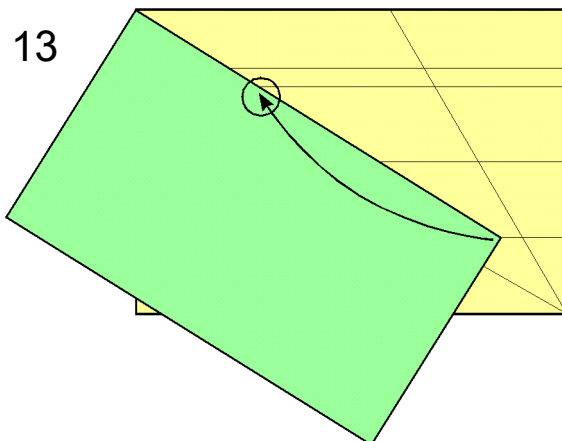


11. Fold both the top and bottom edges into the centre, crease, then

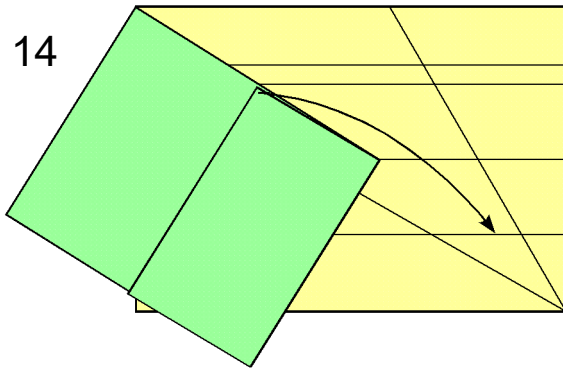
Folding David's Star



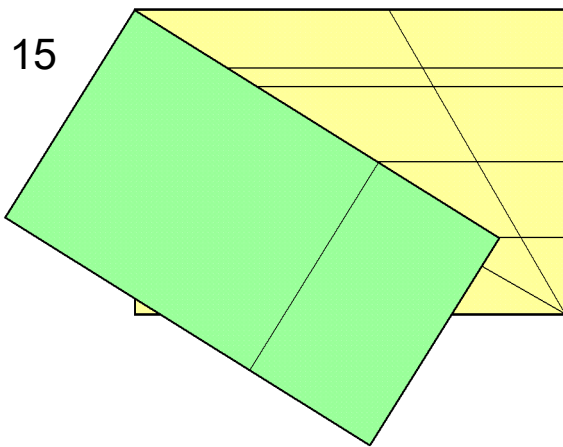
12. Lay the paper on top of the template and align it like this.



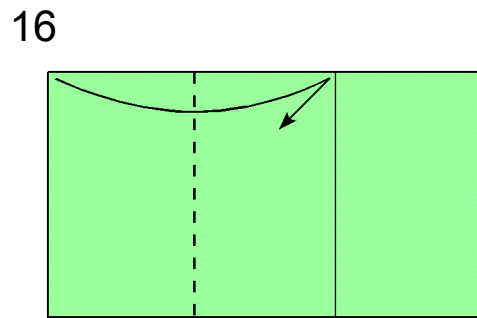
13. Fold the top right hand corner of the paper onto the top edge at the point where it intersects the second to top horizontal crease.



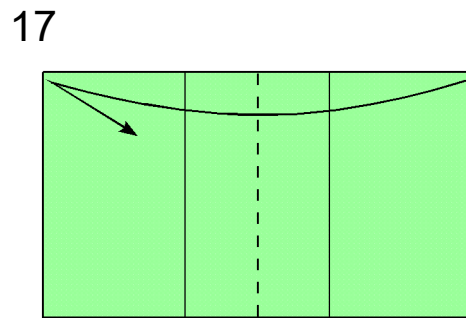
14. Undo the fold made in step 13.



15. Remove the paper from the template. The template is not needed any more.

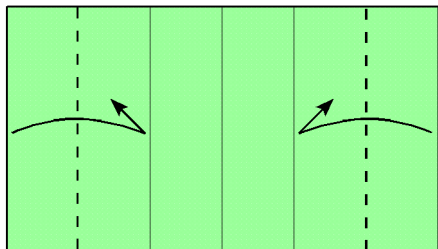


16. Fold the left hand edge onto the crease made in step 12, crease, then unfold.



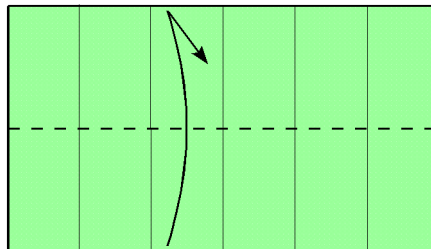
17. Fold in half sideways, crease, then unfold.

18



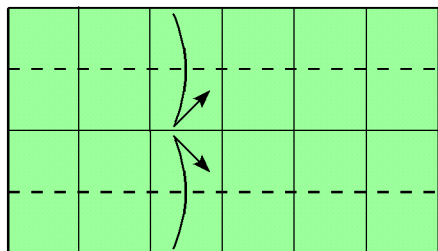
18. Fold the two outside thirds in half sideways, crease, then unfold.

19



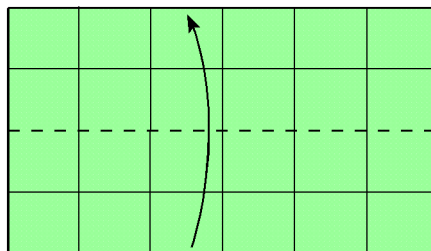
19. Fold in half upwards, crease, then unfold.

20



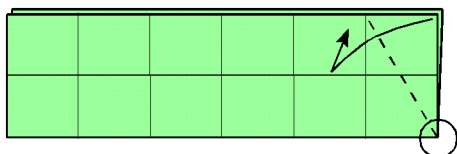
20. Fold the top and bottom edges onto the crease made in step 19, crease, then unfold.

21



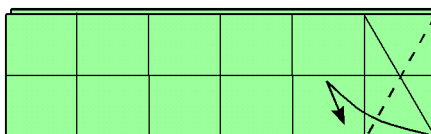
21. Fold in half upwards again.

22



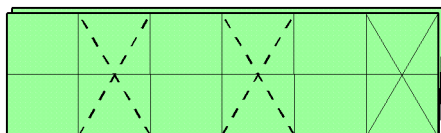
22. Fold both layers of the top right hand corner onto the horizontal crease making sure the crease starts from the bottom right hand corner, crease, then unfold. This is the same type of fold as you made

23



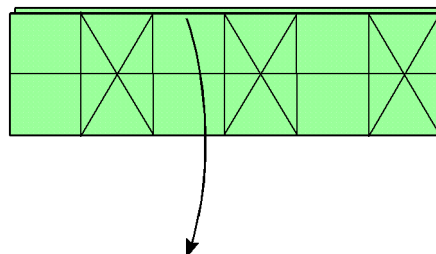
23. The result is a diagonal crease across the right hand sixth of the paper. Make a similar fold to crease in the other diagonal.

24



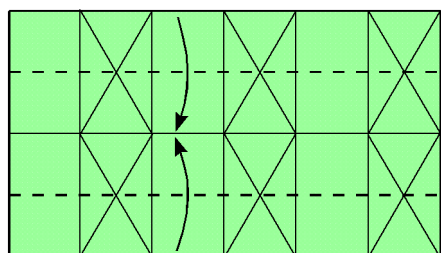
24. Use a similar technique to crease in both diagonals of the third and fifth sixths from the right like this. Try not to make any creases in the other sections as you do this.

25



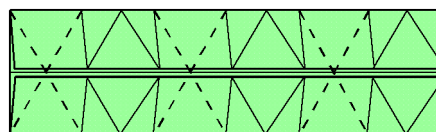
25. Open the paper out completely.

26



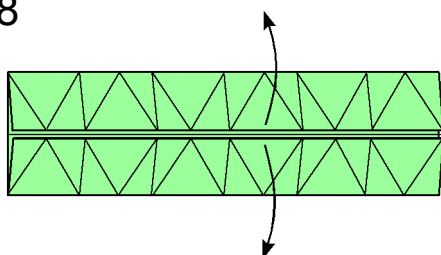
26. Fold the top and bottom edges into the middle using the existing creases.

27



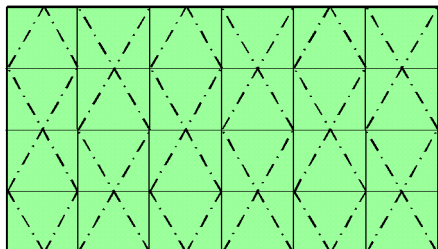
27. Make diagonal creases across the remaining sections of the paper like this.

28



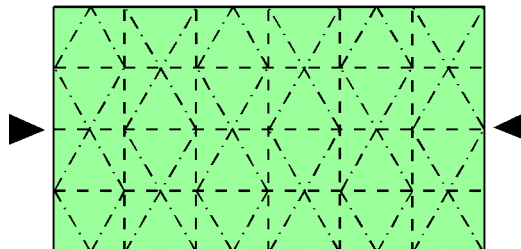
28. Open the paper out completely.

29



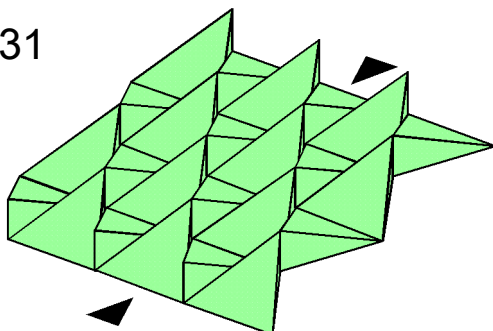
29. Turn all the diagonal creases into mountain folds. The direction of half of them will need to be reversed to achieve this. Try to do this without putting any new creases in the paper. The crisper your paper remains, the easier the next few steps will be.

30



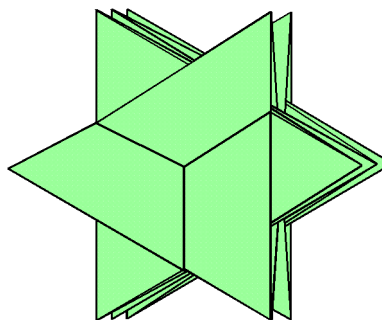
30. You now have a grid of creases running in opposite directions through the paper which will allow you to collapse the paper into the three-dimensional tessellation shown in picture 31. Do this slowly starting at one end. Be careful you don't change the direction of any of the creases at this stage. The collapse will not work if you do.

31



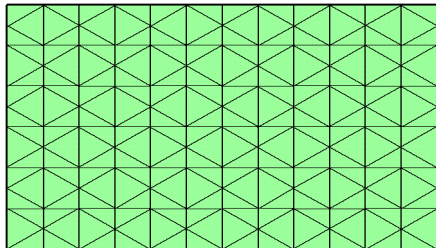
31. Once you have reached this stage it is possible to gently collapse the tessellation sideways into David's Star. Sometimes this collapse just seems to happen by itself. Sometimes the paper needs persuading a little. The more accurately and cleanly you have folded, the less persuasion the paper will need.

32



32. If necessary, re-arrange the flaps at the front and back to create a symmetrical appearance. David's Star is finished.

33



33. For those who like a more difficult challenge a second version of David's Star (with more layers that looks a little like an accordion) can be collapsed from a bronze rectangle folded into the crease pattern shown here.

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