

Petal-Top Container

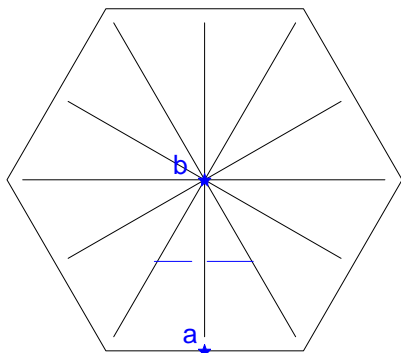
created by ? (traditional?)
 (I think I learned this from Mark Kennedy)

diagrams by Jim Clark

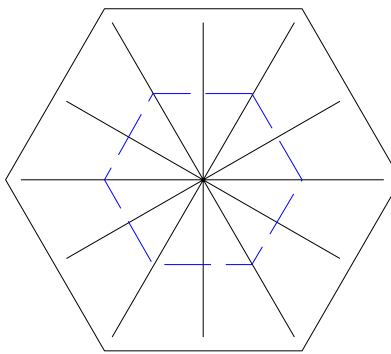
Although diagrammed for a hexagon, this folding method can be applied to any regular polygon, as illustrated on the right. Polygons with more sides make taller containers.



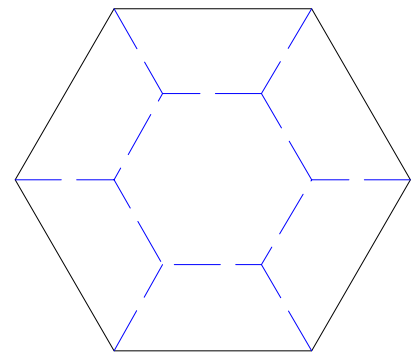
hexagon heptagon octagon
 pentagon square



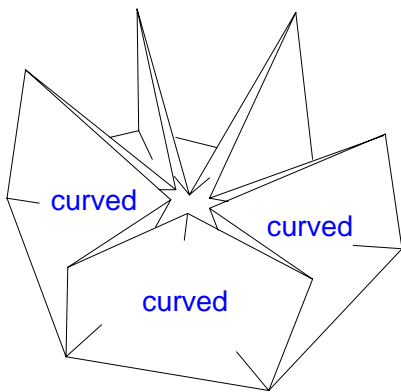
1. Start with any regular polygon, inside color up. Valley-fold center of side (a) to center of polygon (b), creasing only the span shown, then unfold.



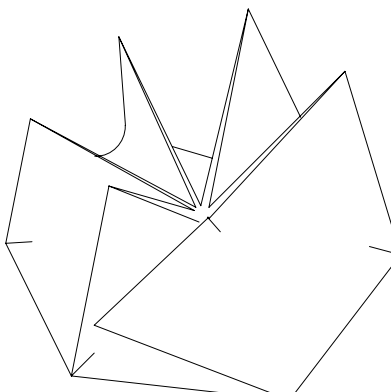
2. Repeat step 1 all around the polygon, making a half-size inner polygon.



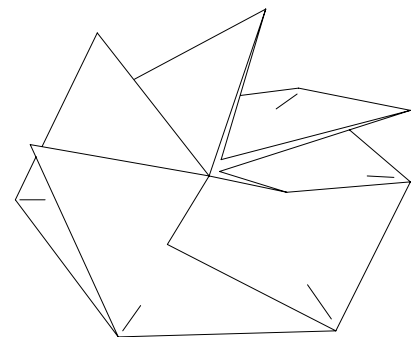
3. Valley-fold the inner polygon creases and the creases between the inner and outer corners.



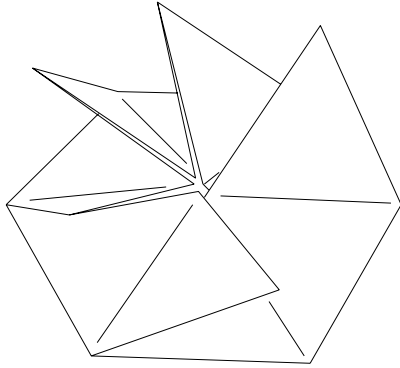
4. Like this, with N corners raised up, and the paper between the corners curved.



5. Tilt one corner to the left like this, and repeat all around. (Edges align for the hexagon, but not for other polygons.)

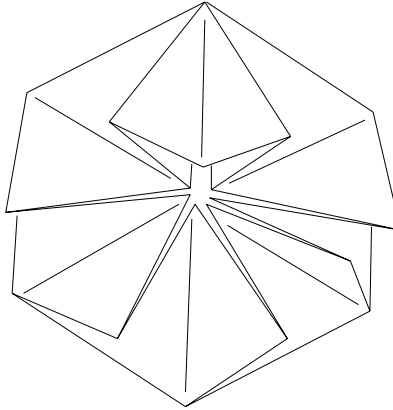


6. All corners tilted left. For some polygons, you need to first partially tilt all corners, then flatten all. Next, lift and tilt all corners to the right, and flatten all.

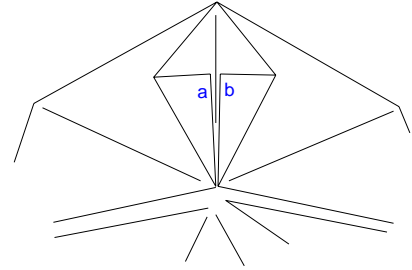


7. All corners tilted right.

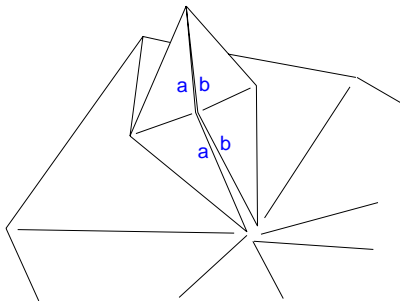
The next steps petal-fold one of these corners.



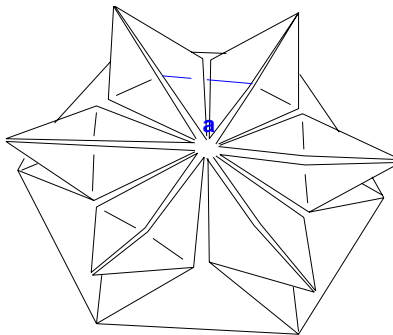
8. Squash-fold one corner, like this, after leaning the others out of the way.



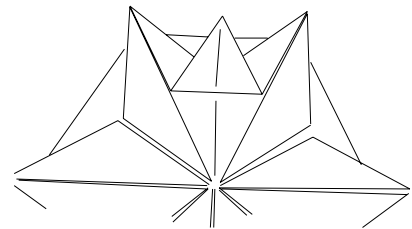
9. (Expert folders can skip this step.) Valley-fold corners **a** and **b** to the center crease, and unfold.



10. Inside reverse-fold the corners to make this petal fold. (With practice, you can skip step 9 and just push edges **aa** and **bb** toward each other and centered.)

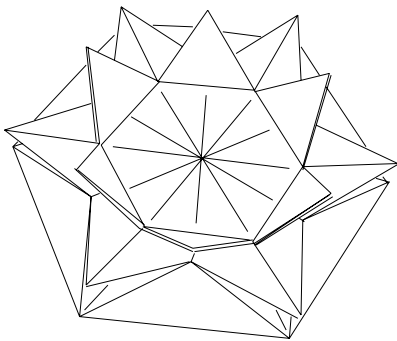


11. Repeat the petal folds (steps 8-10) all around, like this. (For some polygons, the petals will overlap.) Then valley-fold point **a** up and out as far as it can go.



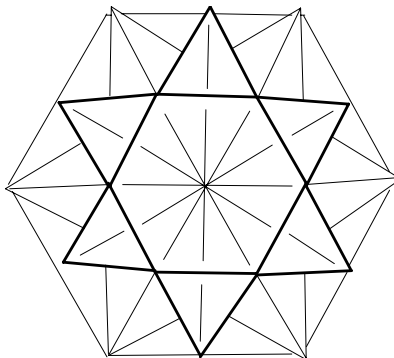
12. Like this. Repeat all around.

(But for some polygons, first check that the petals overlap in a symmetric or regular pattern.)

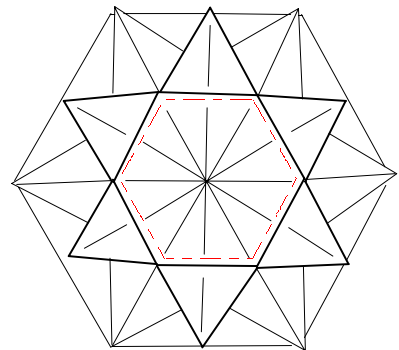


13. (All inner points folded out)

To make all the points lie flat, moisten the paper with a damp cloth. Then sandwich between two paper towels,

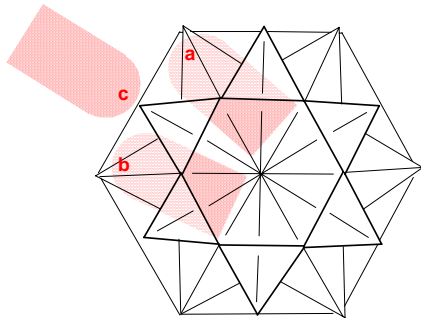


... then between two plates, and set for an hour or two. Then remove and allow drying to complete. It should look like this.

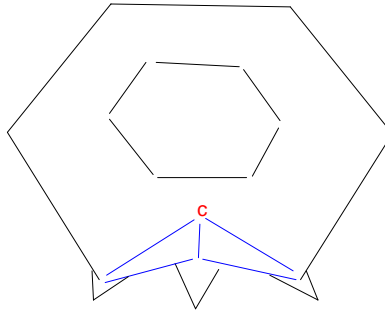


14. Valley-crease the bottom layer as shown by pressing it against each side of the top opening.

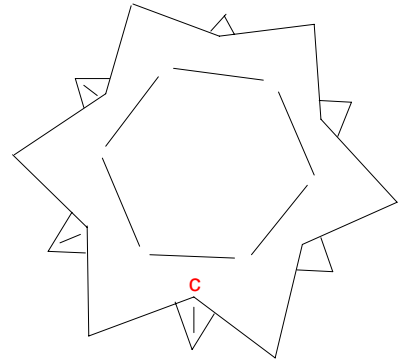
Petal-Top Container



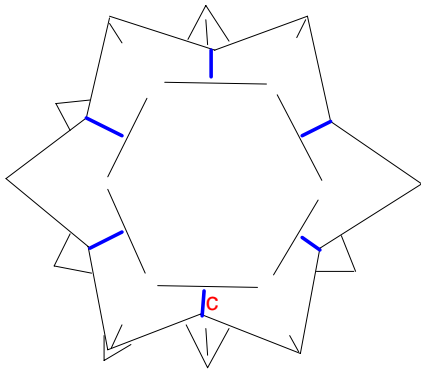
15a. (Top view) Insert two fingers inside corners **a** and **b**, and push in the center of the side **c** with another finger.



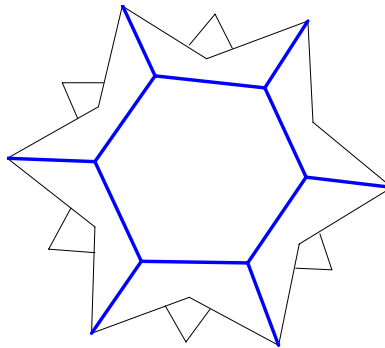
15b. (Bottom view) Makes a 'notch' like this. Keep the folds soft – no hard creases yet.



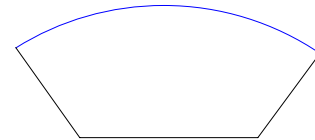
16. (Bottom view) Repeat step 15 all around.



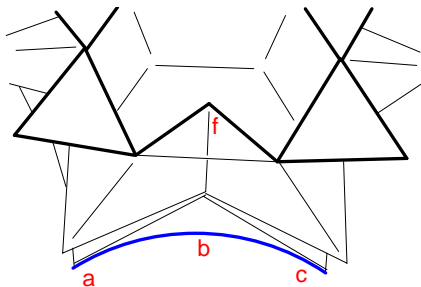
17. Push the notches so that they reach the creases made in step 14 (bottom edges).



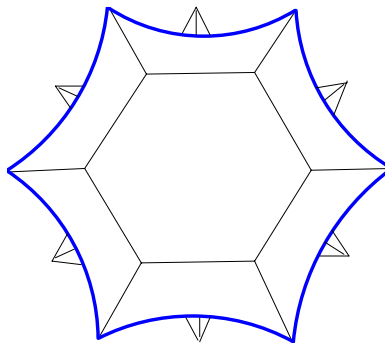
18. Pinch the bottom edges and the side edges that join the top and bottom corners to make harder edges.



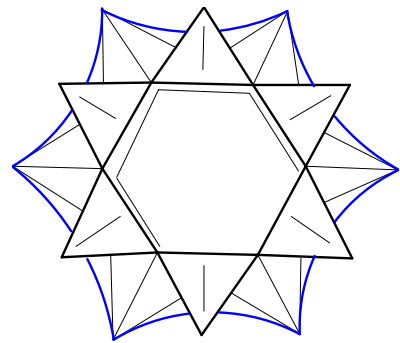
19. Next, we will make each side of the container shaped like this, with a rounded top edge, and curved inward.



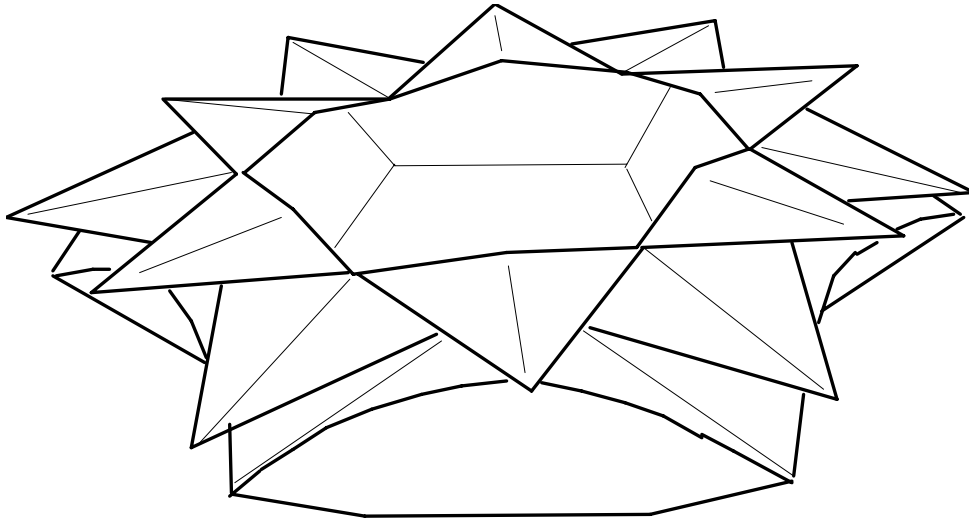
20. (Top view, flap **f** temporarily lifted to show one side) Pinch the top edge **abc** of the side, matching the overlying layers near **a** and **c**, and curving away at **b**.



21. (Bottom view) Repeat all around, like this.



22. (Top view looks like this.)



Finished model. Polygons with more sides will make the container relatively taller, and with a smaller opening.

Variations and ideas:

If you know how to make a regular polygon with N sides, it is easy to modify the method to make a regular polygon with $2N$ sides. For example, you can make regular polygons with 10, 12, 14, or 16 sides by modifying the methods for 5, 6, 7, or 8 sides.

Try folding the corners to the center in step 1, instead of the centers of the sides. Then close the sides and make the petal-folds, etc. as above. This makes a larger opening, and is recommended for polygons with a large number of sides, which tend to have smaller openings.

Try using duo paper (paper with different colors on each side), or glue two papers back-to-back.

With a digital camera, take a picture of a marble surface or other texture, then print on card stock. Make both sides of the paper alike, or use contrasting colors/textures, or leave one side white or other solid color.