

Tesserassic Palm

Design and diagrams by Gerwin Sturm (2009/05/11)



You can start with any rectangle (also square) as long as the rectangle is not narrower than $1 : \sim 0,58$ (i.e. $1/\sqrt{3}$) if you really have to know).

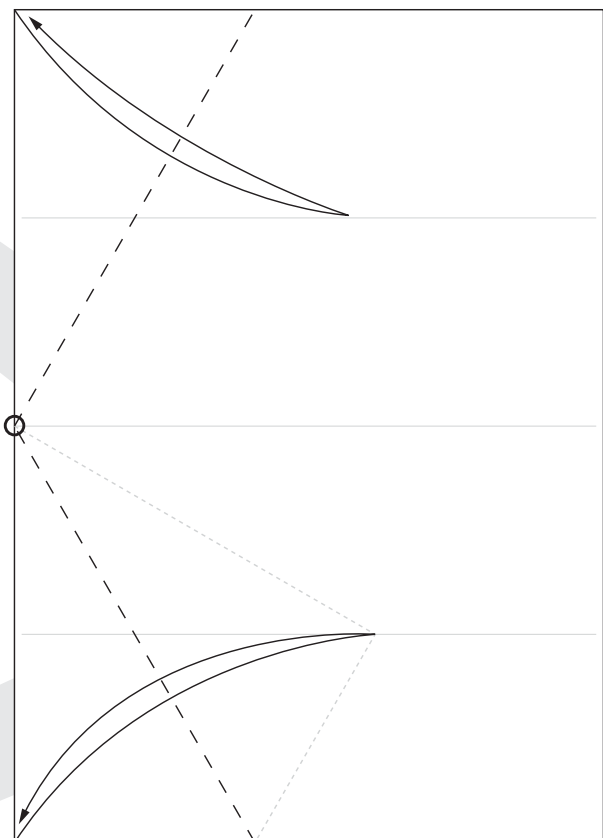
A4 and Letter work well and also are about the right size for this model. The paper used in the instructions is A-sized.

The model basically consists of a lot of triangle twists to give the pattern for the trunk and the leaves of the palm, so if you are not familiar with this kind of technique you might want to practice steps 9-10 on a separate sheet of paper before starting the real model.

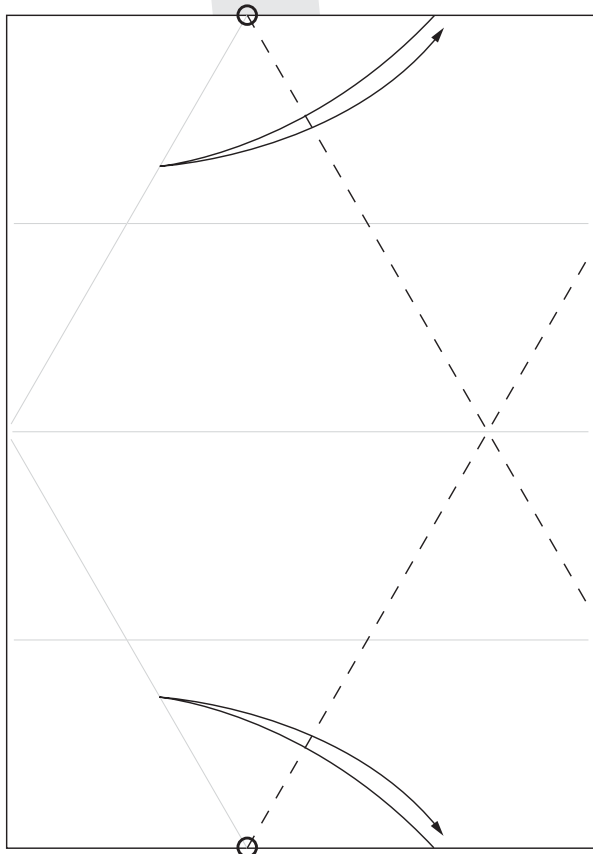
For the precreasing the direction (valley/mountain) of the creases is not important. It is a good idea to make all creases in both directions.



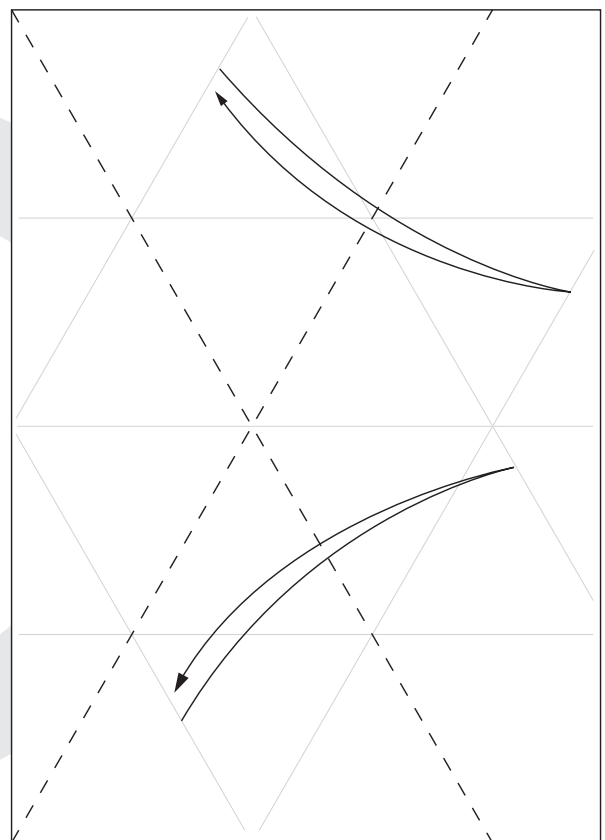
1. Divide the longer side into fourths.



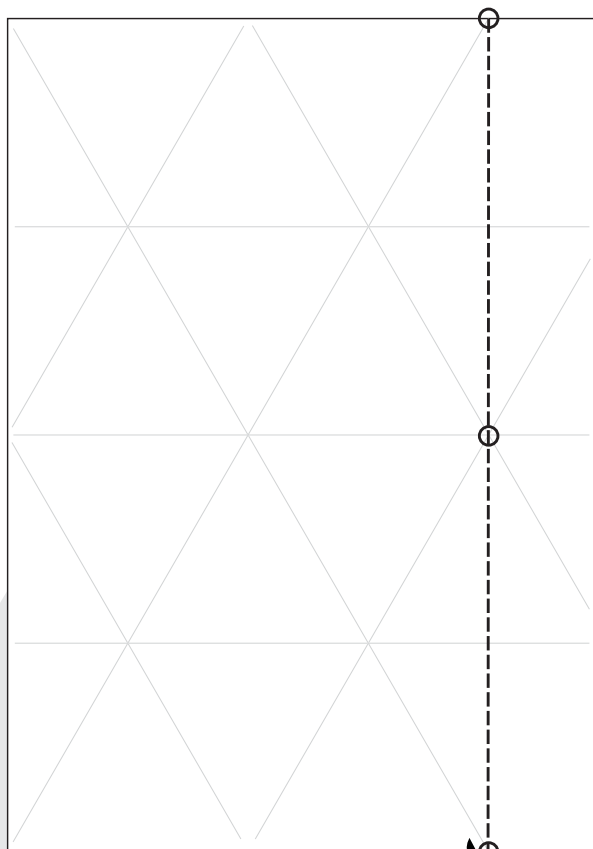
2. Fold the corner to the crease and unfold.
Repeat for the other corner.



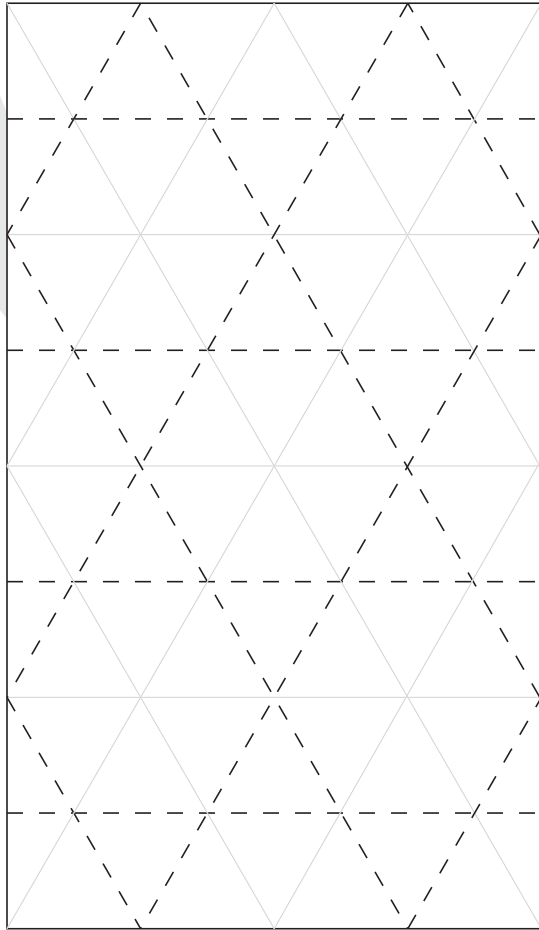
3. Fold the edge to the crease and unfold.
Repeat for the other edge.



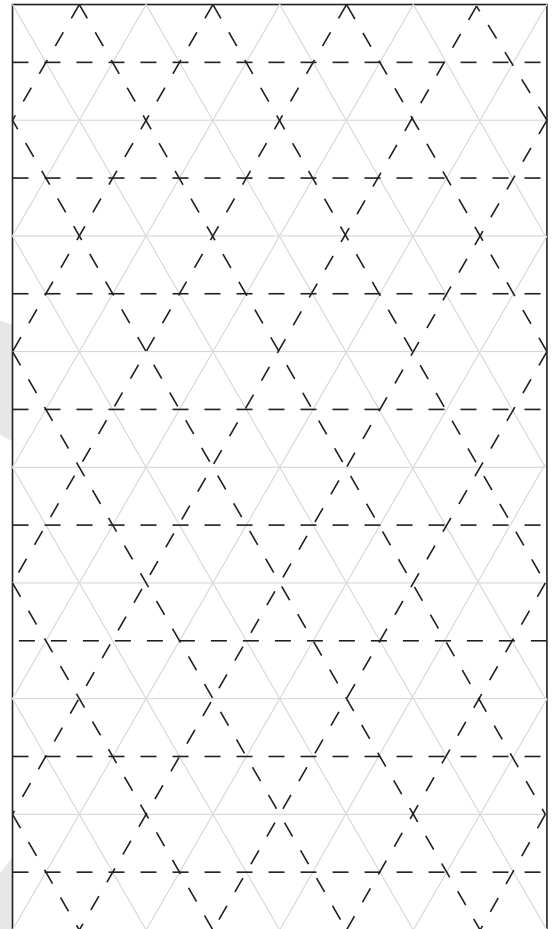
4. Fold crease to crease and unfold.
Repeat on the other side.



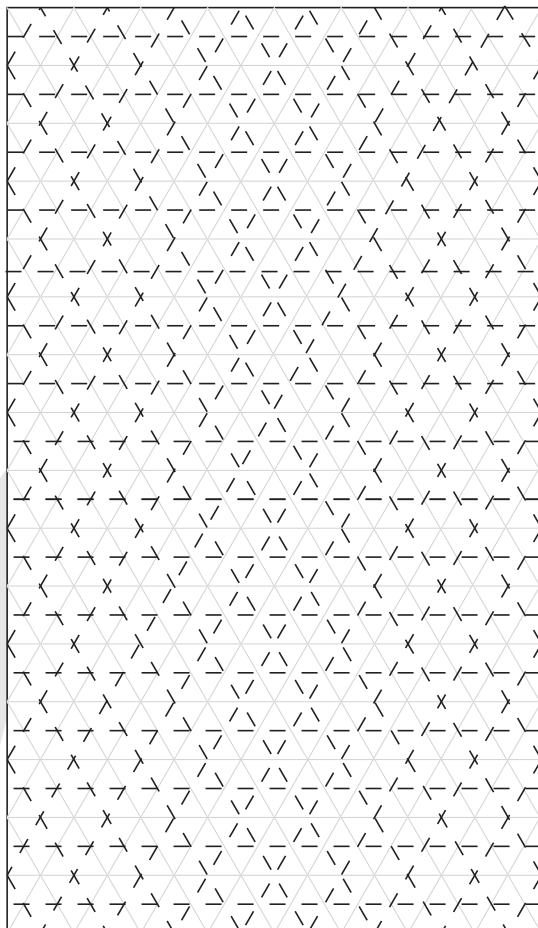
5. Use the shown reference points to cut the
paper to the correct size.



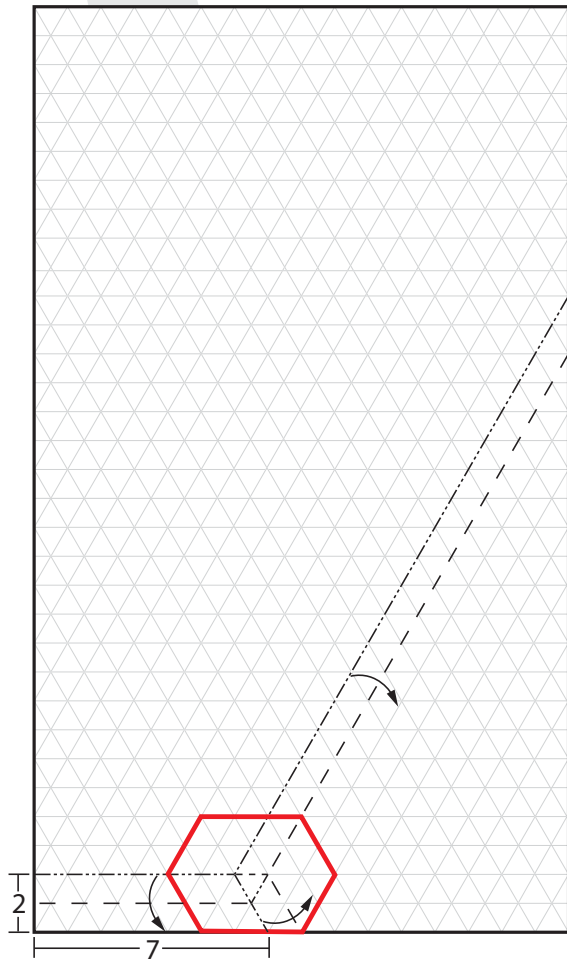
6. Divide the whole grid in half.



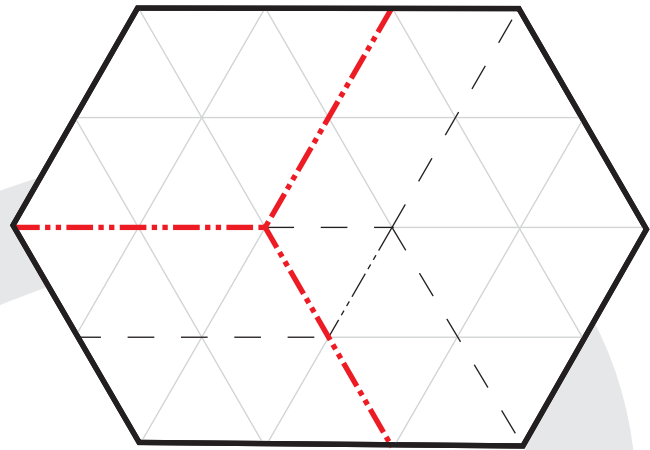
7. And again...



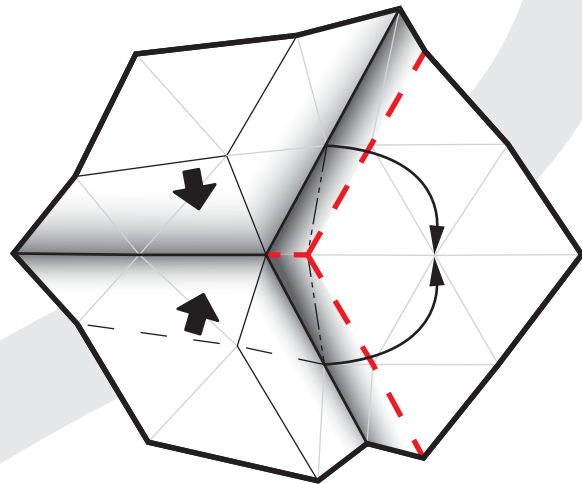
8. And one last time...



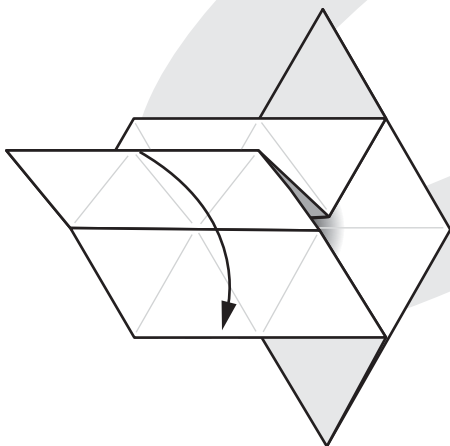
9. Locate the creases and collapse.
See the next steps for details.



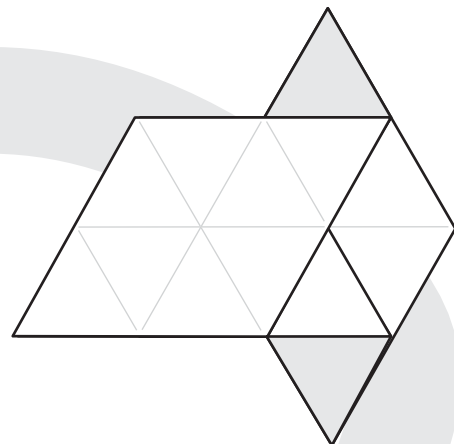
9a. Enforce the shown mountain folds.



9b. Bring the sides together forming a kind of rabbit ear.

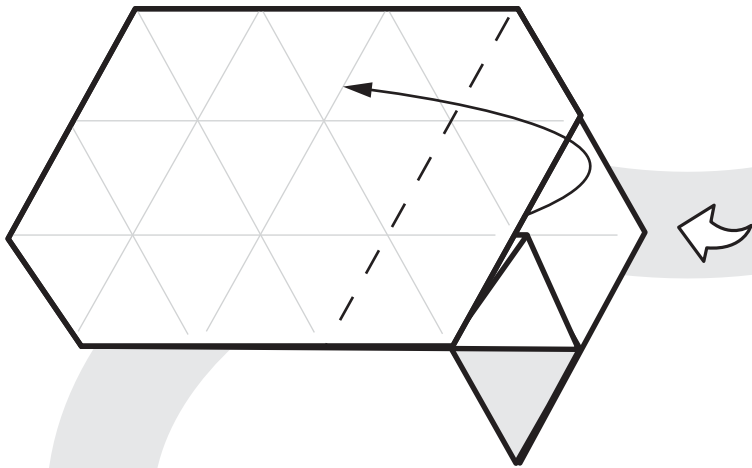


9c. Fold the flap down.

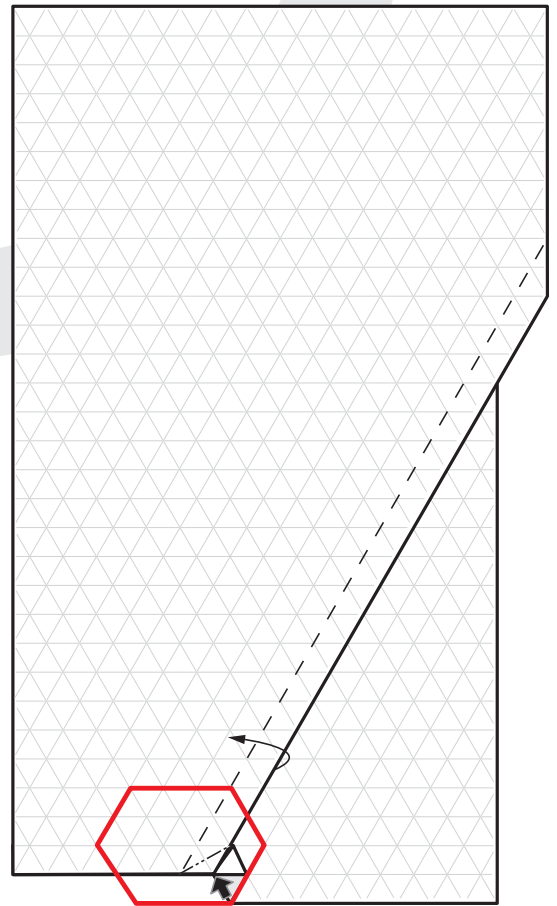


9d. Done.

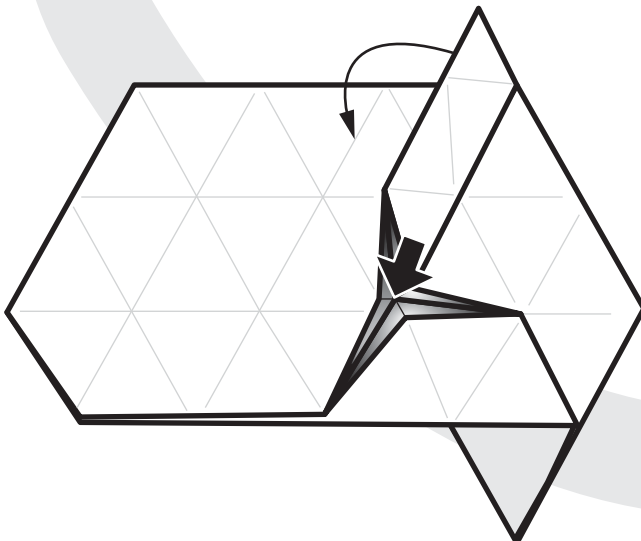




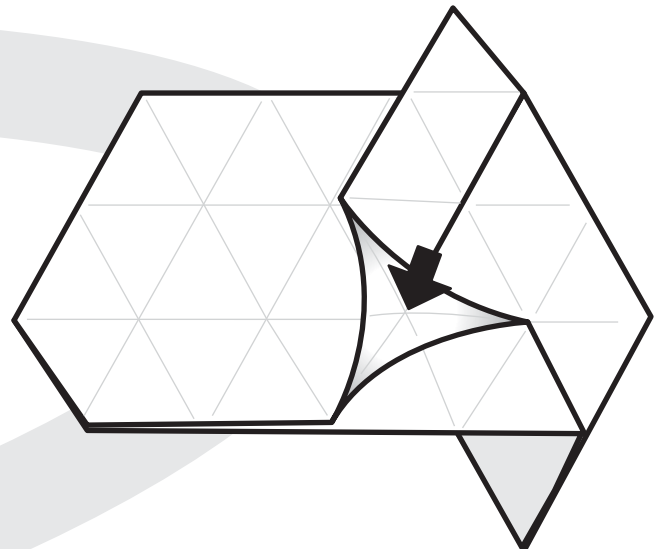
10a. Lift up the flap.



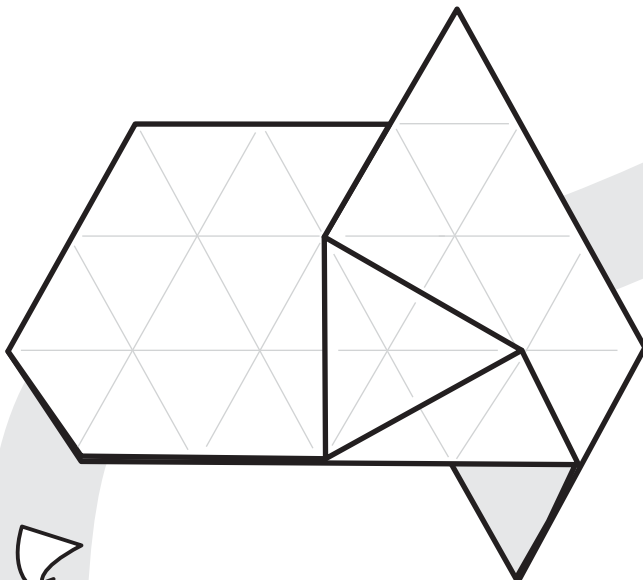
10. Fold the flap over, spread-squashing the corner. See the next steps for details.



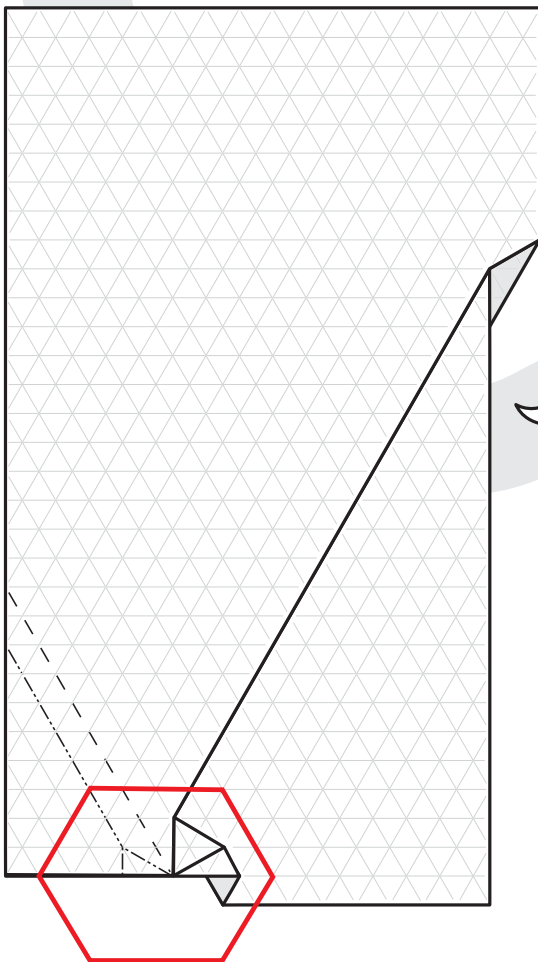
10b. Fold the flap down while pressing the point flat.



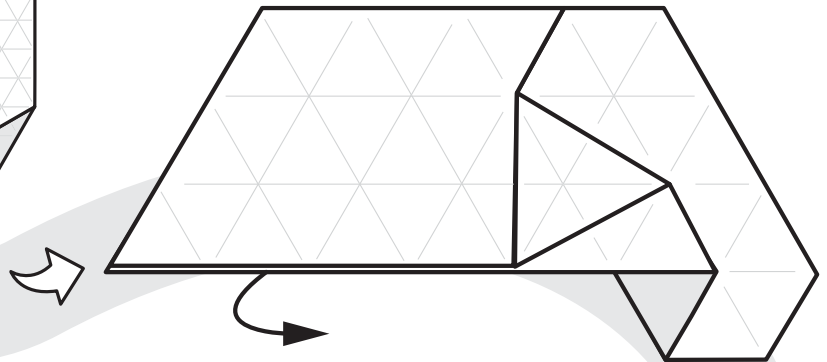
10c. Keep flattening the point.



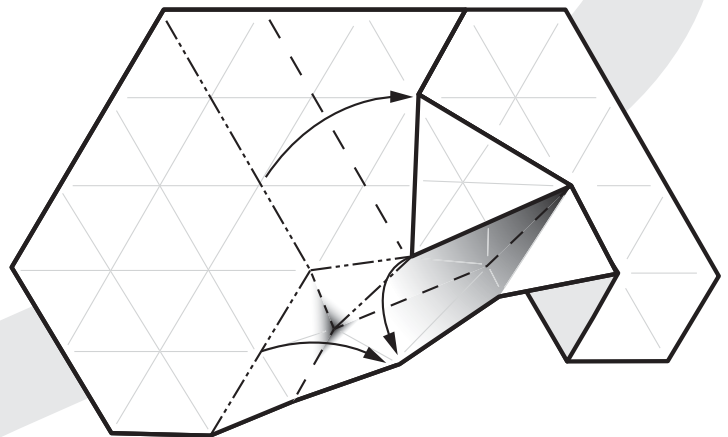
10d. You should get a nice triangle.



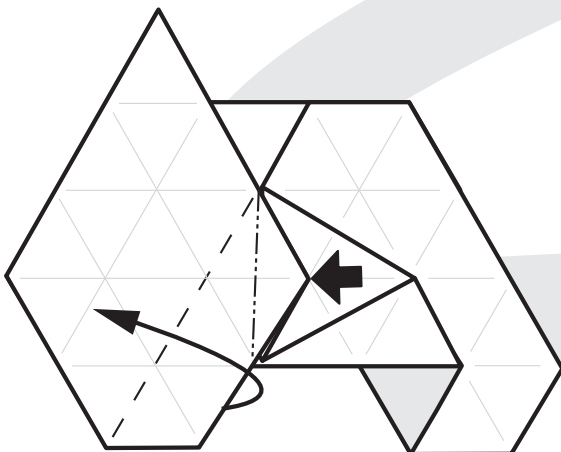
11. Add another triangle in the shown position.
See the next steps for details.



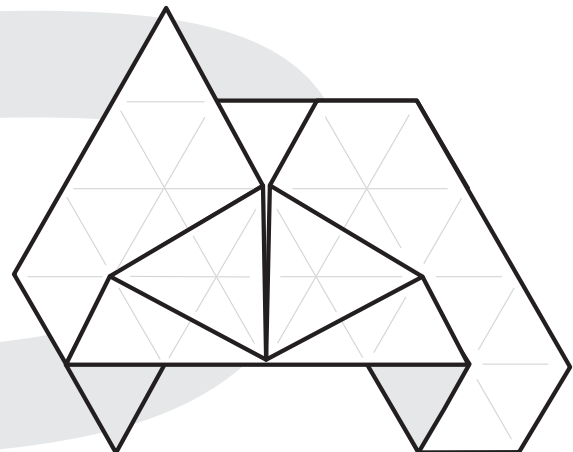
11a. Open out the pleat.



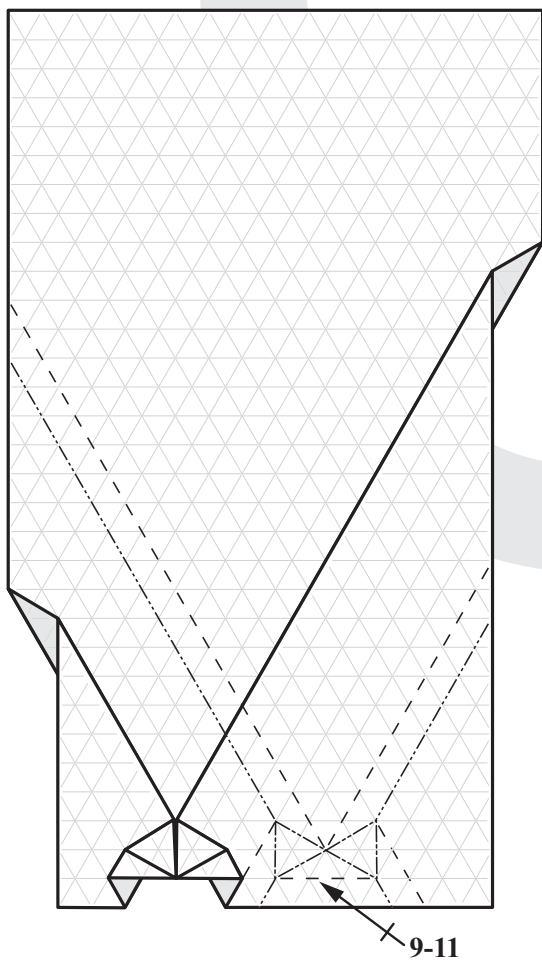
11b. Collapse similar to step 9.



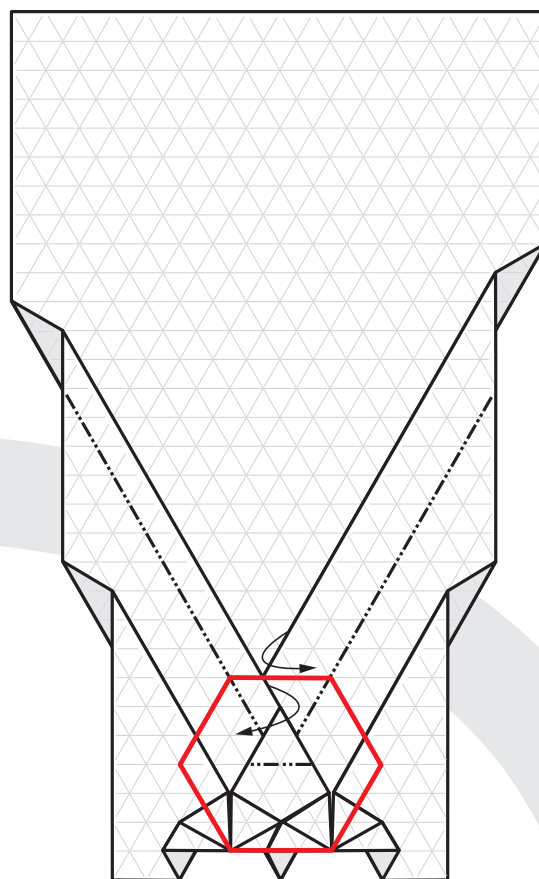
11c. Spread-squash the corner as in step 10.



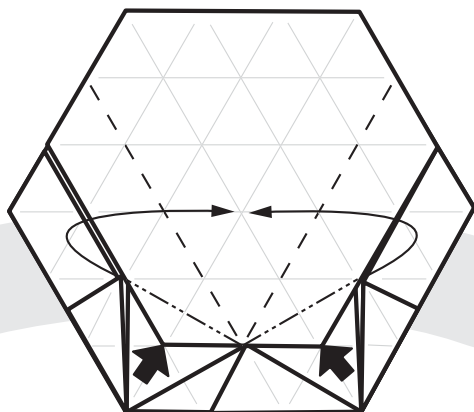
11d. Second triangle is done.



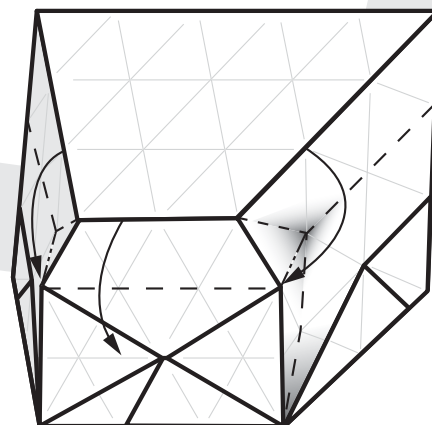
12. Repeat steps 9-11 in mirror image.



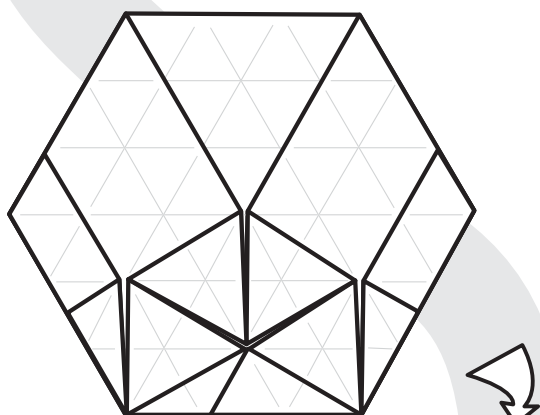
13a. Open out the pleats and enforce the shown mountain folds.



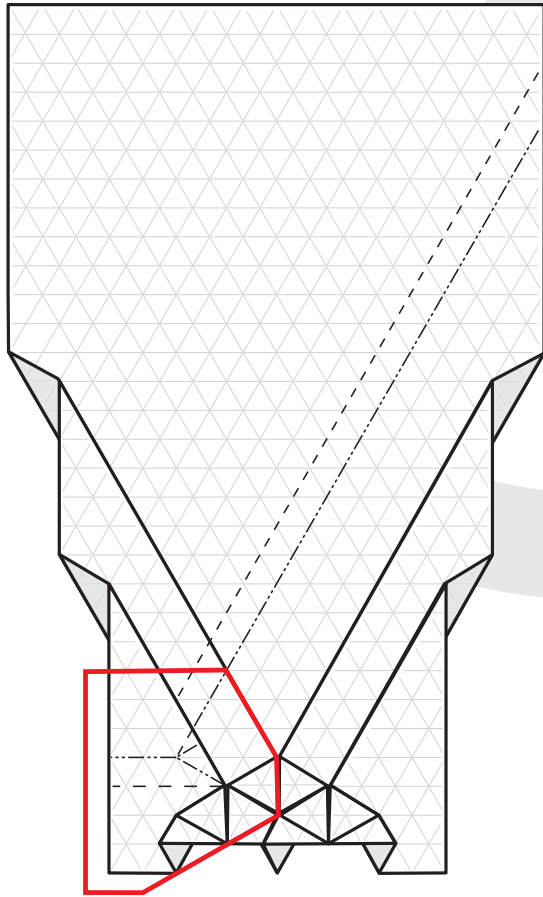
13c. Spread-squash the corners as in step 10.



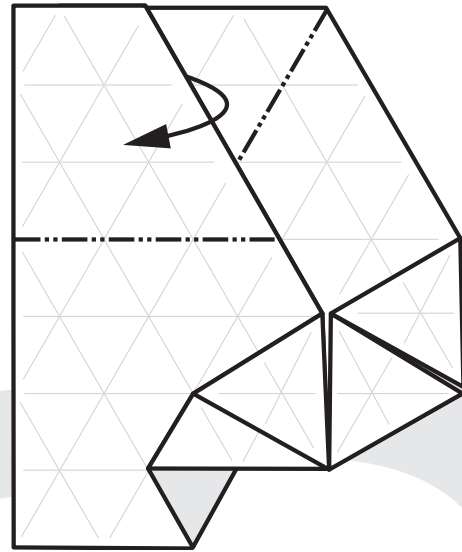
13b. Bring the sides together and collapse flat. This is like two steps 9 done in parallel.



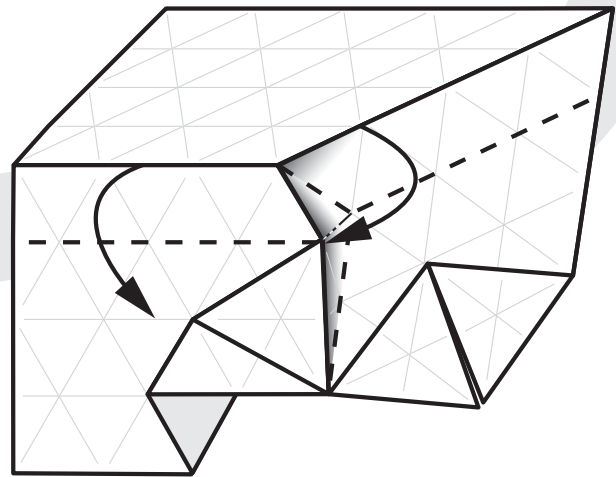
13d. Two more triangles done...



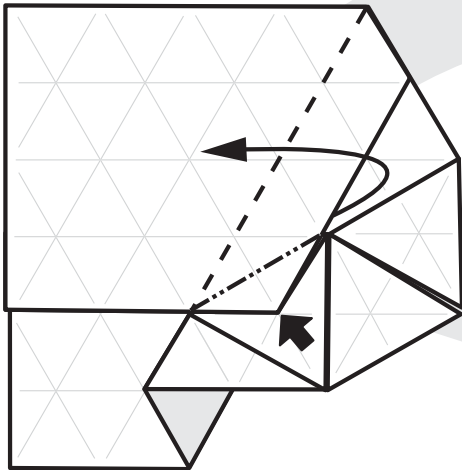
14. Form another triangle in the shown position.
See next steps for details.



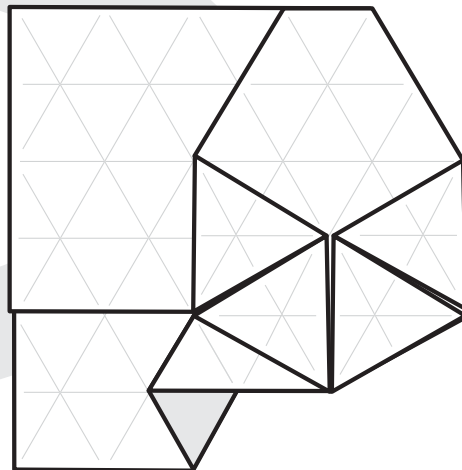
14a. Open out the pleat and enforce the shown mountain folds.



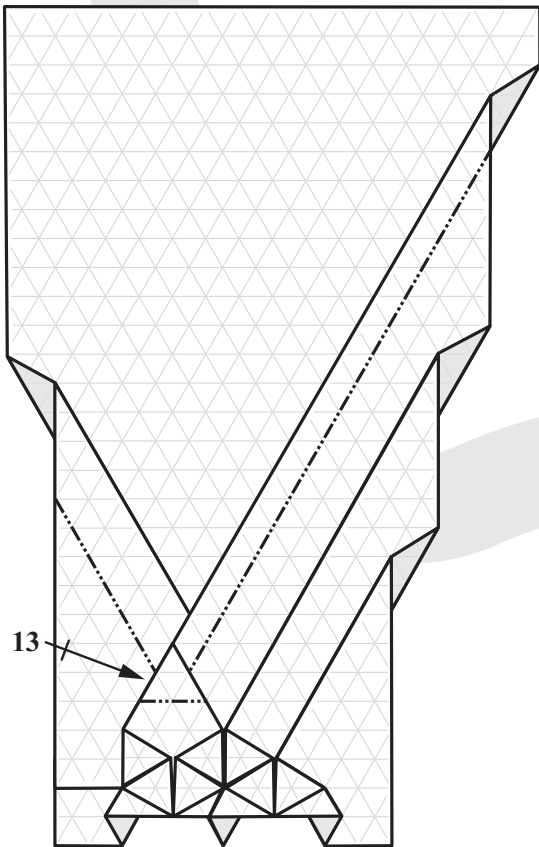
14b. Collapse like in step 9.



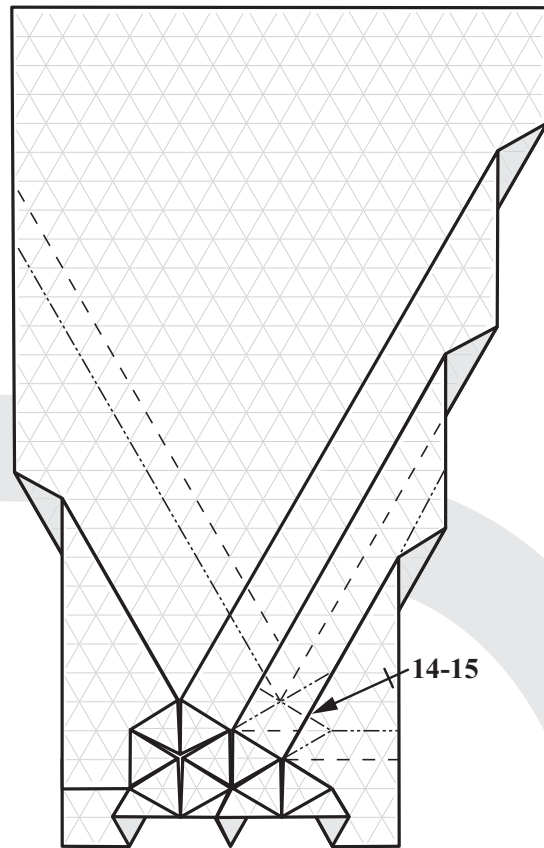
14c. Spread-squash the corner as in step 10.



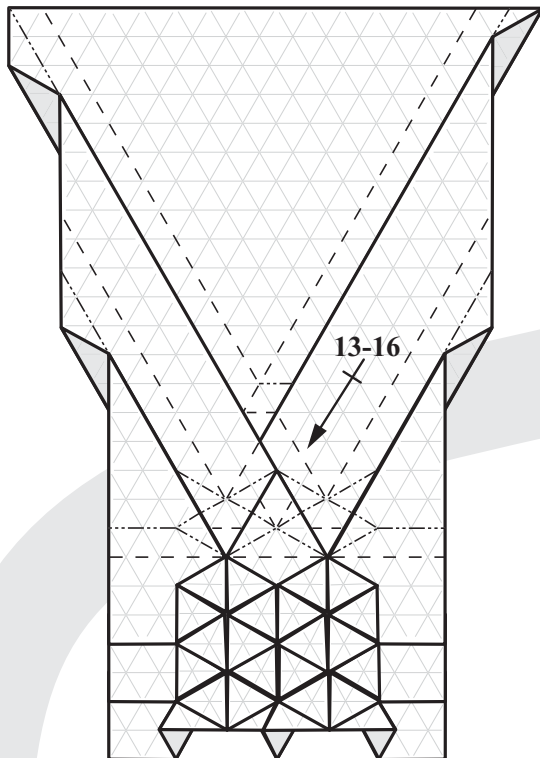
14d. Done.



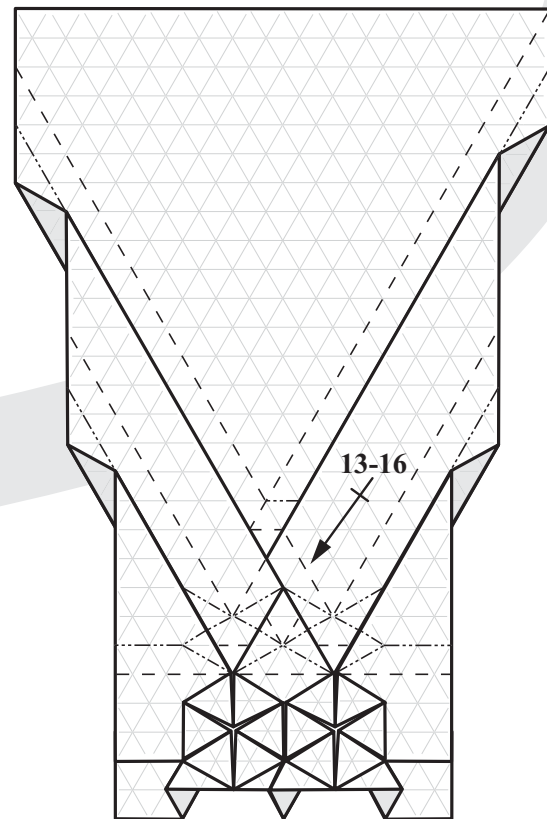
15. Perform step 13 starting with the shown mountain folds.



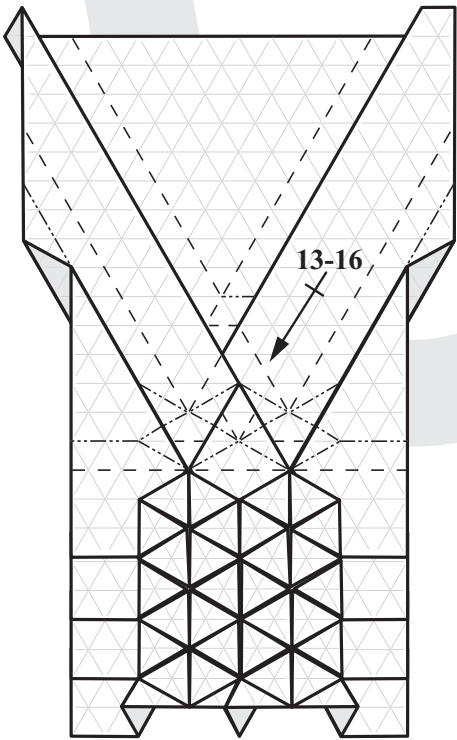
16. Repeat steps 14-15 in mirror image.



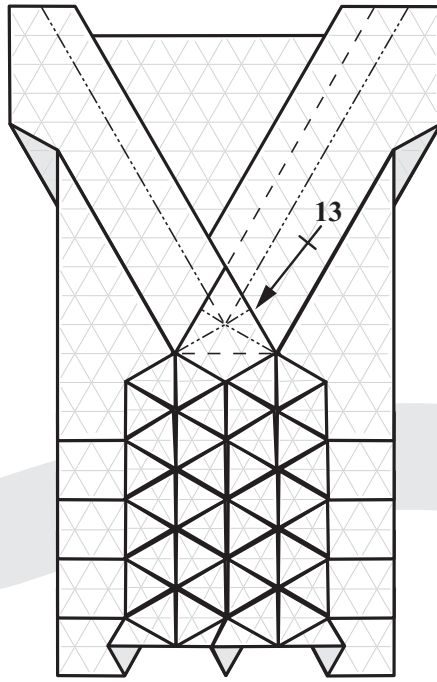
18. Repeat steps 13-16 again.



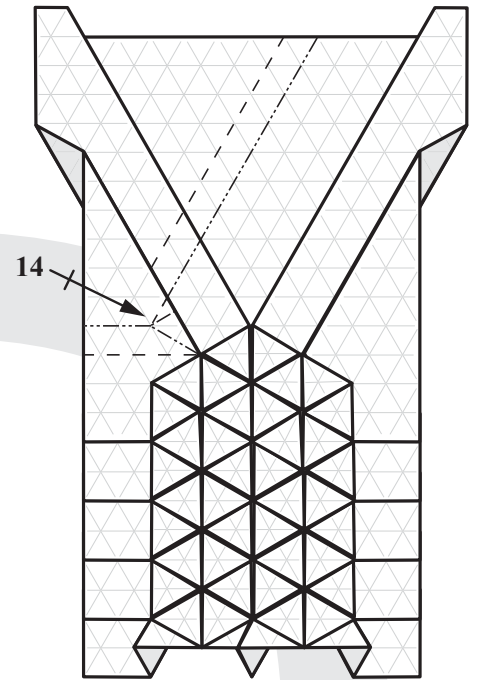
17. Repeat steps 13-16.



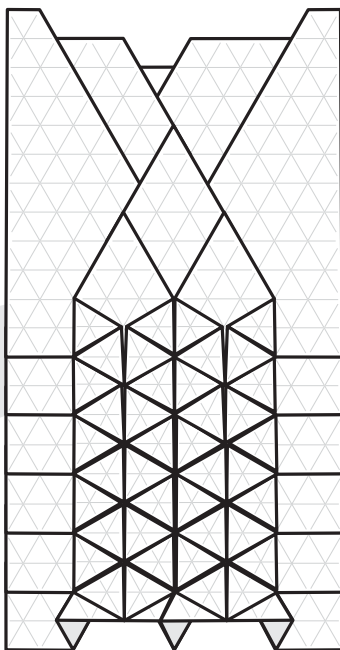
19. Repeat steps 13-16 once again.



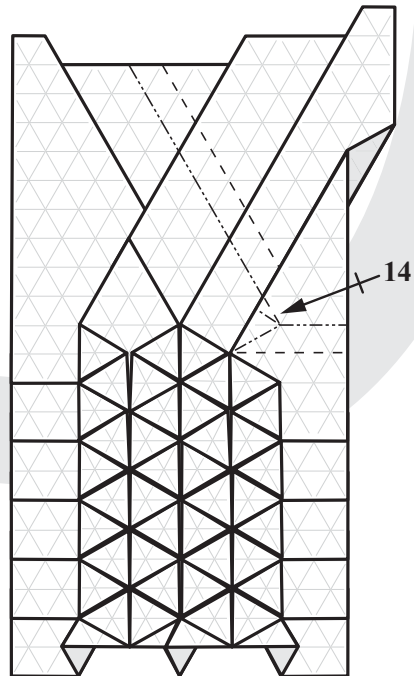
20. Repeat step 13.



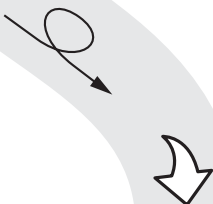
21. Add a triangle like in step 14.

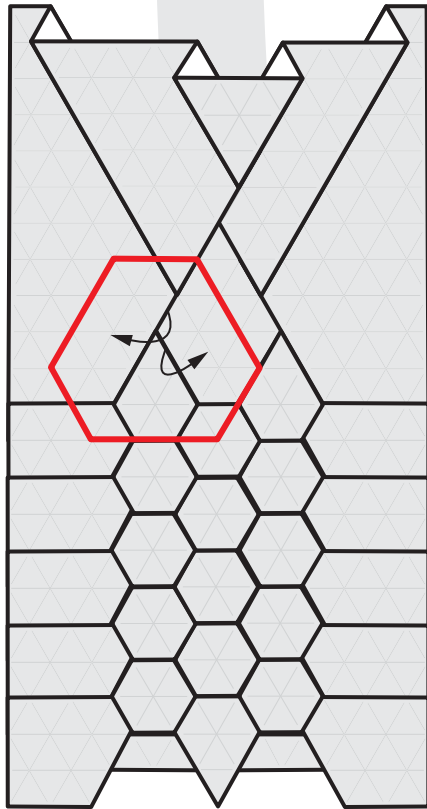


23. The trunk is done.
Turn the model over.

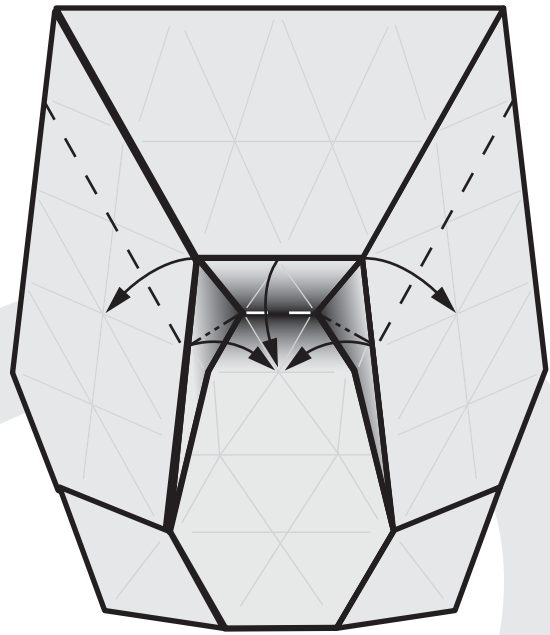


22. Add another triangle like in step 14.

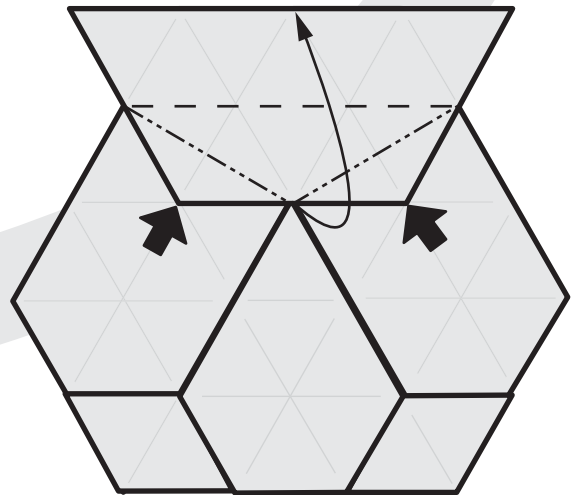




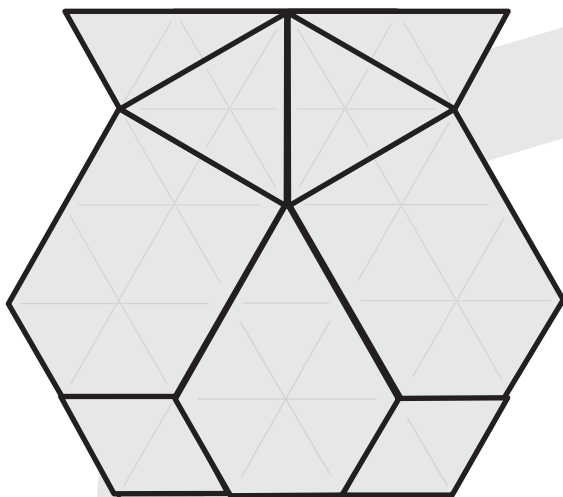
24a. Open out the pleats.



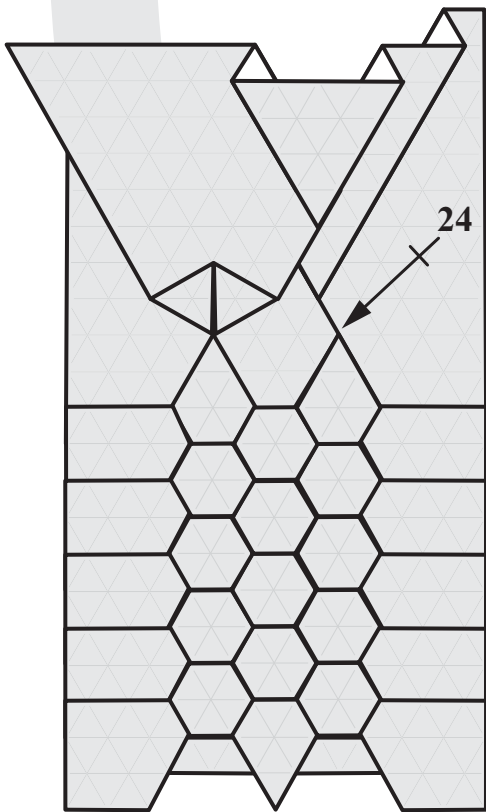
24b. Bring the sides down and collapse flat. This is like two steps 9 done in parallel.



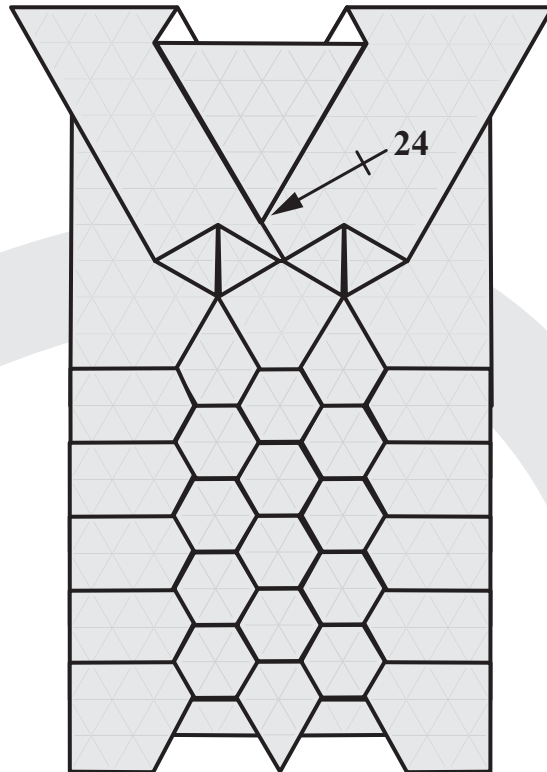
24c. Perform two spread-squashes (as in step 10) in parallel.



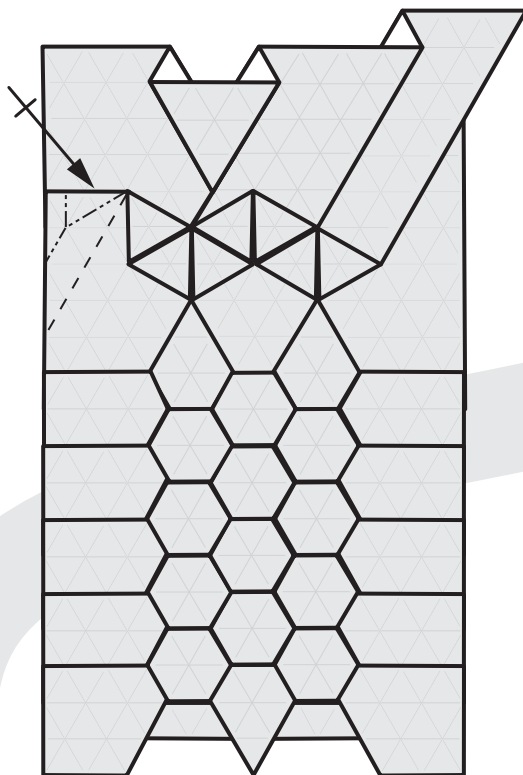
24d. Done.



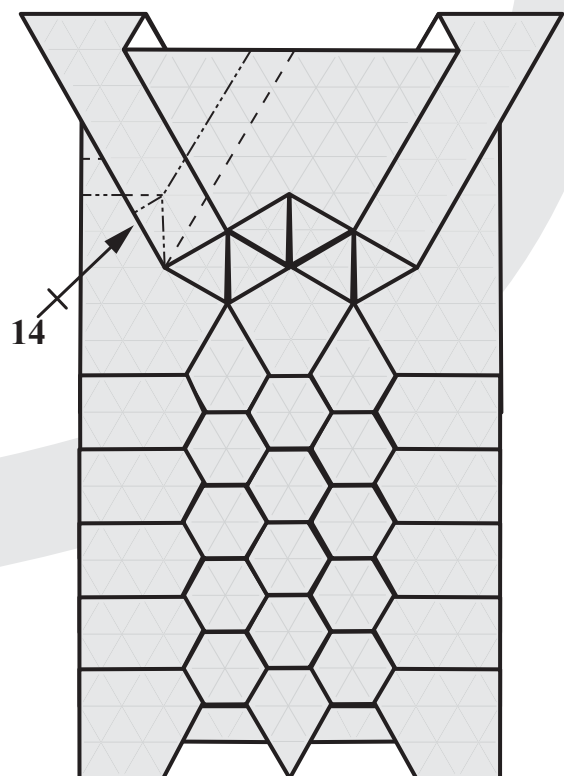
25. Repeat step 24 on the right.



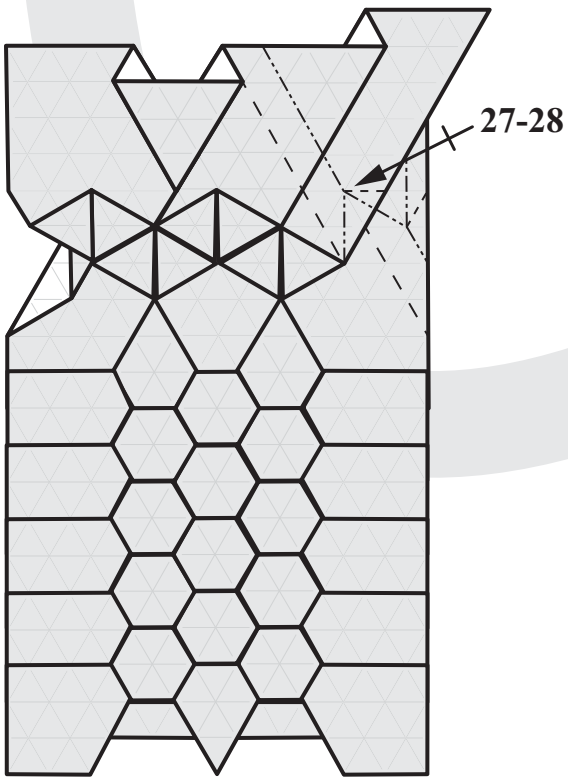
26. Repeat step 24 in the middle.



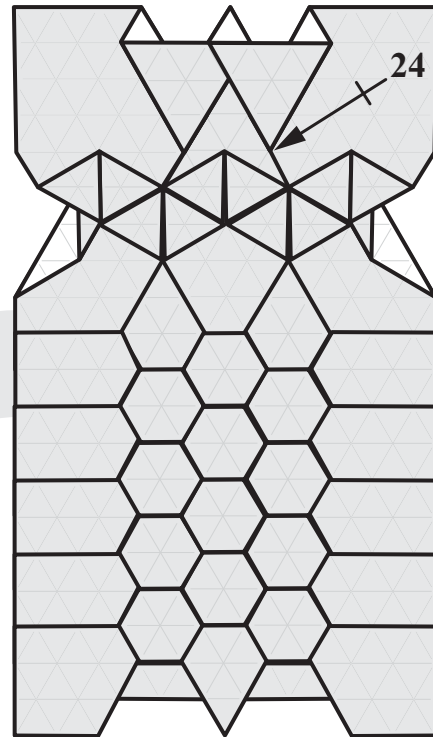
28. Add another triangle near the edge of the paper.



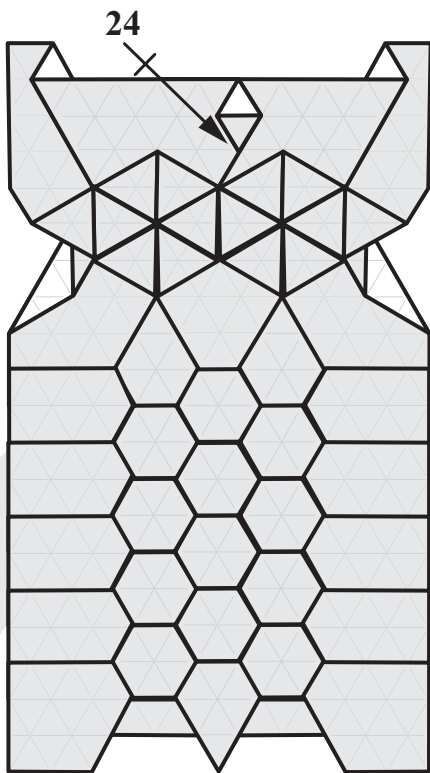
27. Add a triangle where shown, similar to step 14.



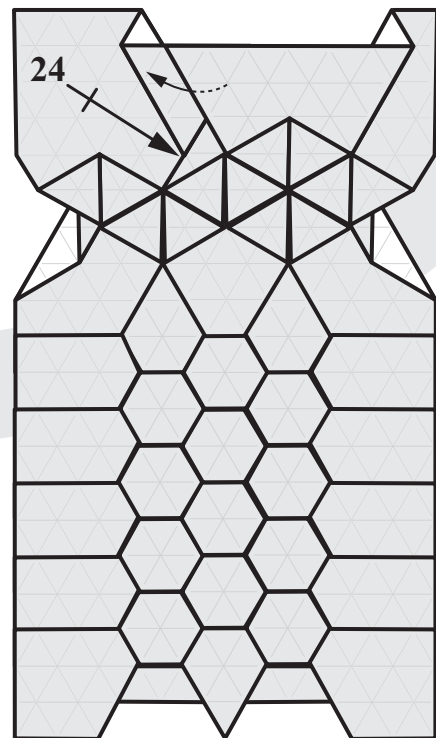
29. Repeat steps 27-28 on the right.



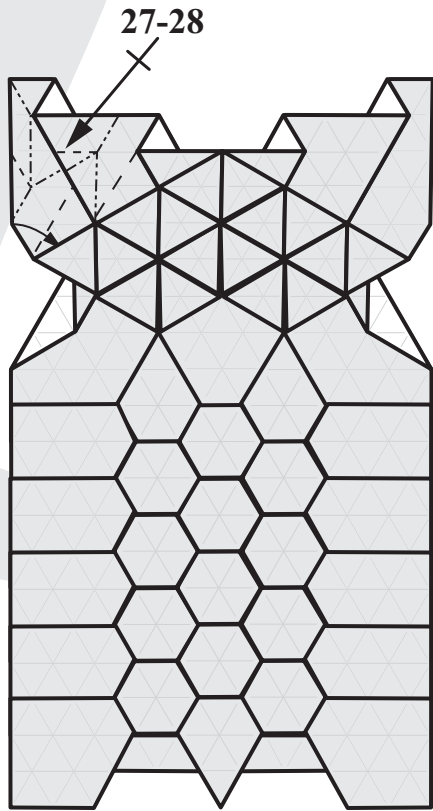
30. Repeat step 24 where indicated.



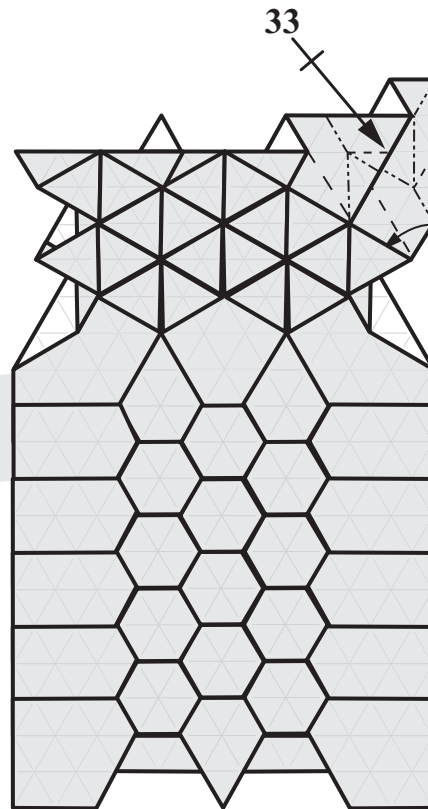
32. Repeat step 24 in the middle.



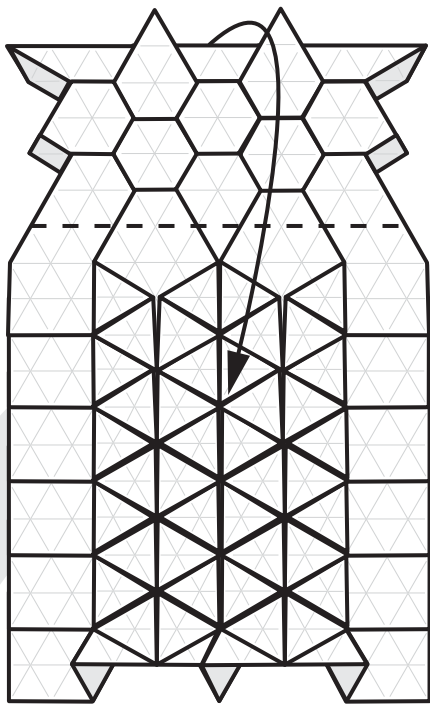
31. Repeat step 24 on the other side. You will have to pull out some paper hidden in the previous step to do so.



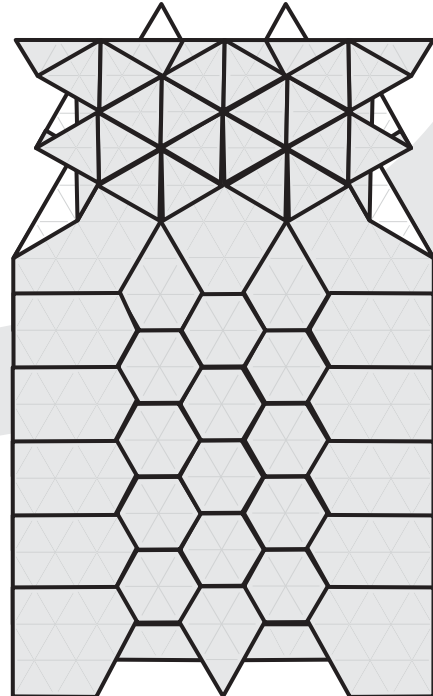
33. Repeat steps 27-28 hiding the excess paper under the triangle below.



34. Repeat step 33 on the right side.

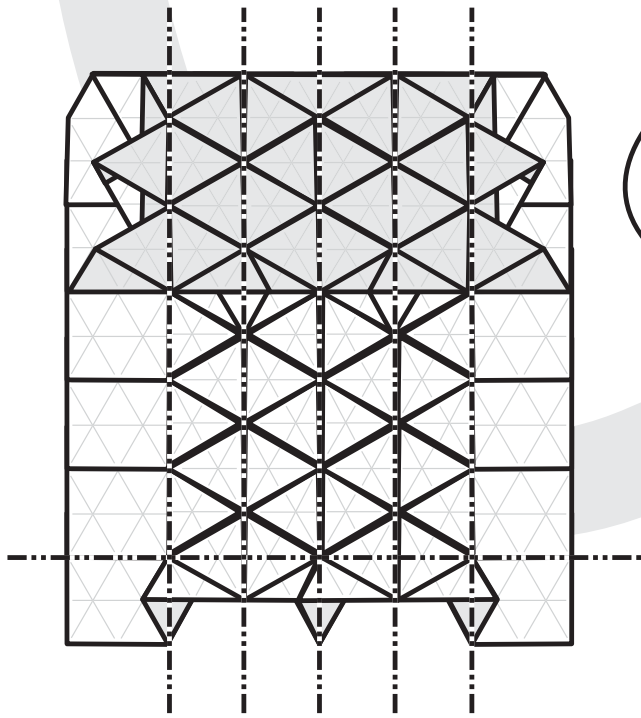


36. Fold the leaves down where shown.

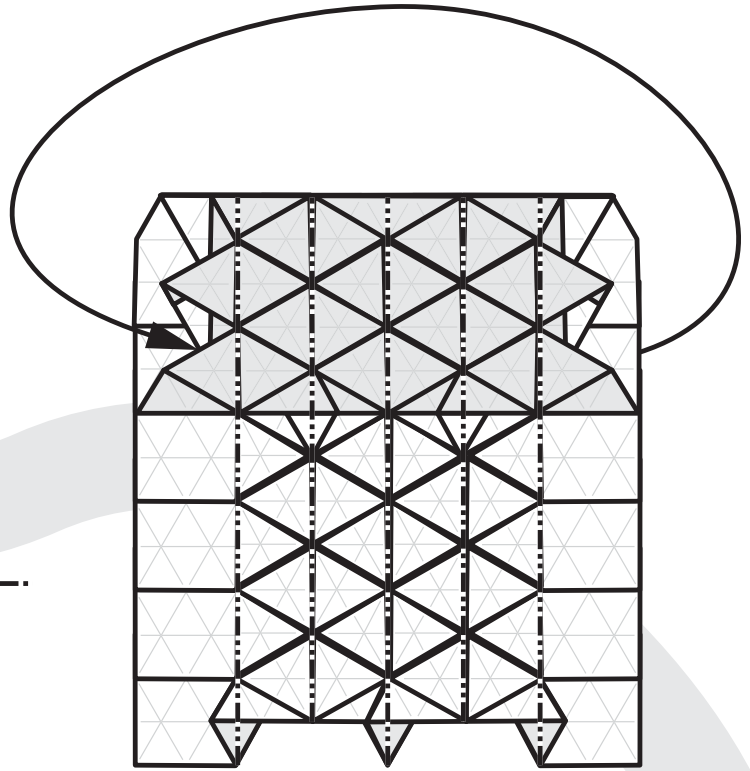


35. The leaves are done.
Turn the model over.

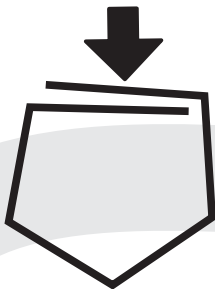




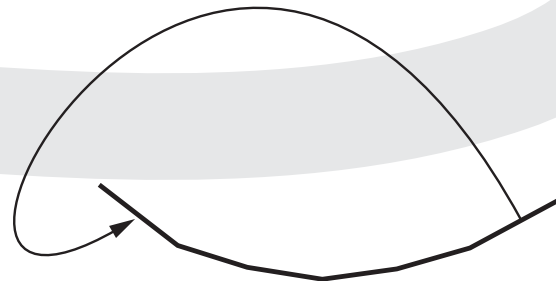
37. Precrease the shown mountain folds through all layers.



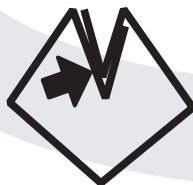
38. Form the model into a tube using the creases you just made. The next steps show this move schematically as if viewed from the top.



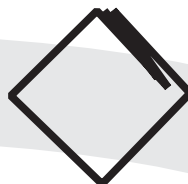
38b. Push in the back, folding both layers in half together.



38a. Form the tube so that the right side comes to lie on the left side.

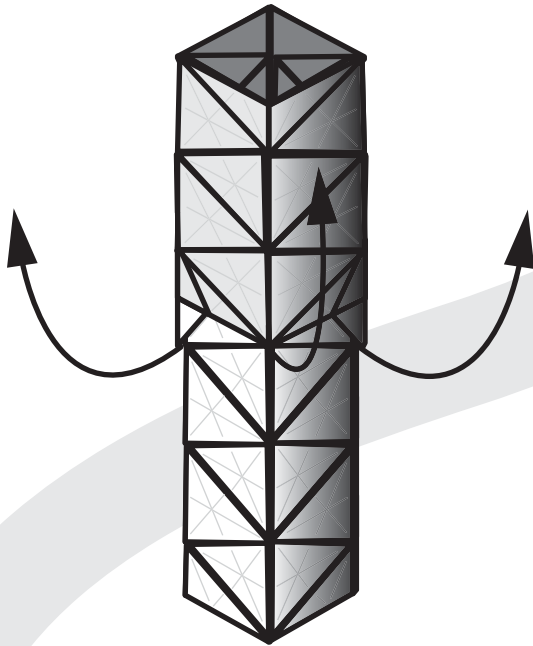


38c. Push the layers together to one side.

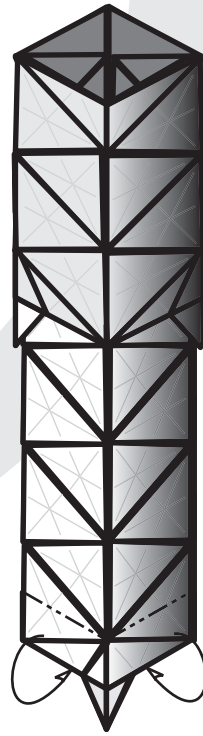


38d. Like this. Back to full view.

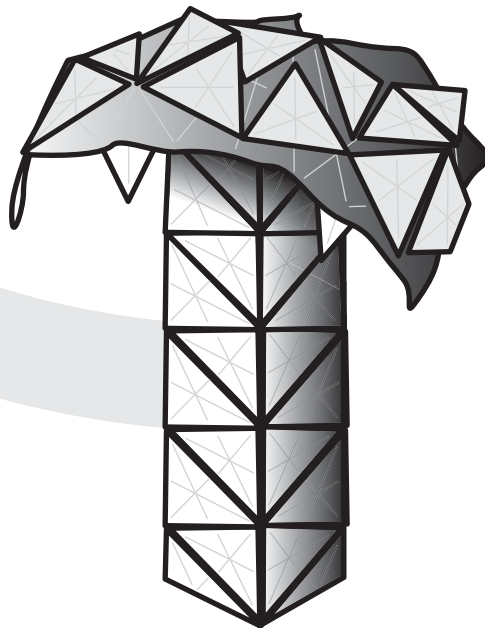




40. Open out and shape the leaves.
The back of the tree will open a bit
on the top when you do so.



39. Fold the edge inwards all around on the
horizontal precrease made in step 37.
This locks the bottom of the tree.



41. The finished Palm.