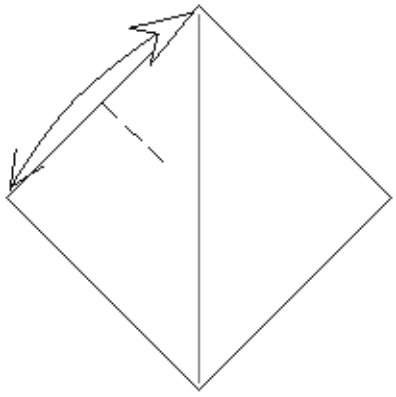
Triceratops

by Jerry Harris

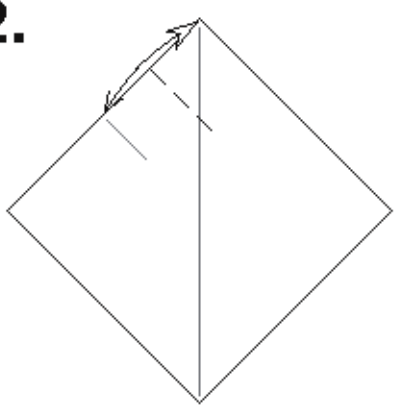
Begin with a square, white side up, with the vertical diagonal precreased. A square of 10" results in a model of approximately 5.8" long and 1.67" tall at the hip.

1.



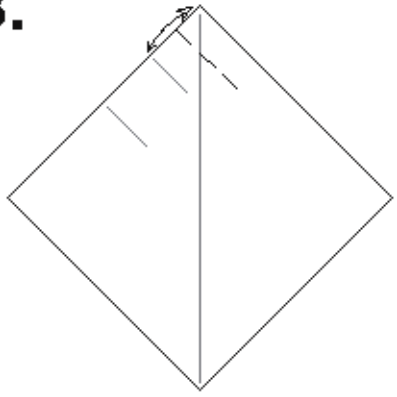
Valley fold the left edge in half, creasing only at the very edge, and unfold.

2.



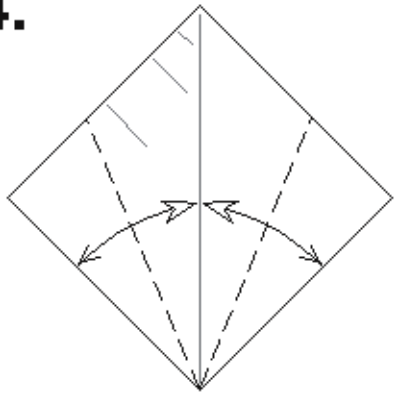
Valley fold 1/4 at the left side, again creasing only at the edge, and unfold.

3.



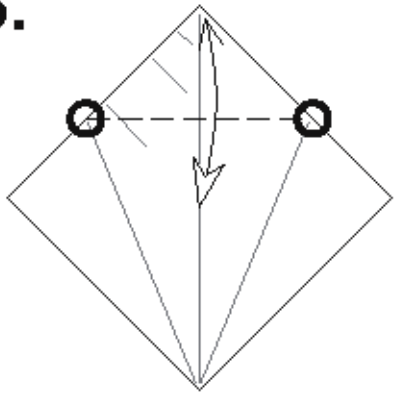
Valley fold 1/8 at the left side, again creasing only at the edge, and unfold. This is the mark that is referred to in Step 7.

4.



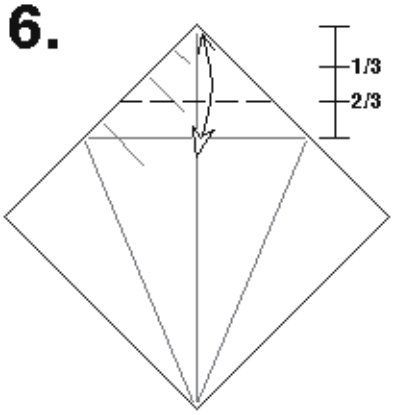
Valley fold lower angle bisectors to the center and unfold.

5.



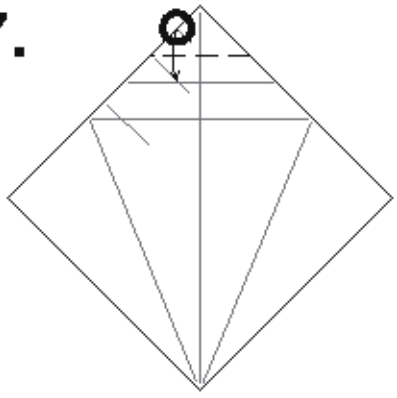
Valley fold, connecting the tops of the angle bisectors, and unfold.

6.



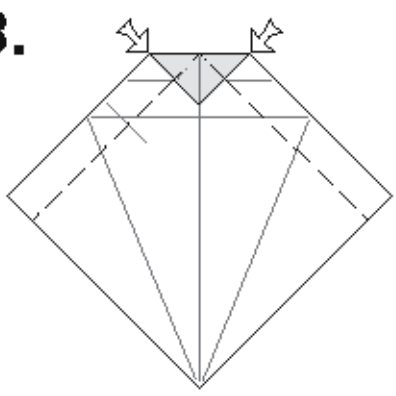
Valley fold through a point 2/3 the way between the top point and the crease connecting the angle bisectors (made in Step 5) and unfold.

7.



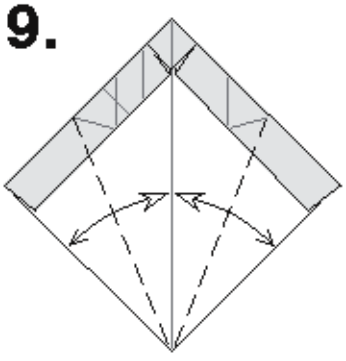
Valley fold the top point down so the 1/8 mark from Step 3 touches the 2/3 line from Step 6.

8.



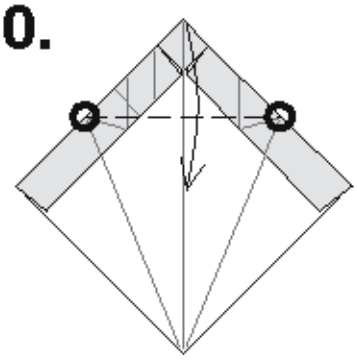
Reverse fold the top corners in to the center creating a small preliminary base at the top.

9.



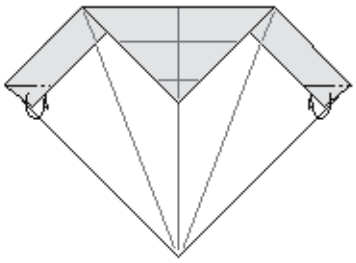
Remake the angle bisectors through the new flaps at the top and unfold.

10.



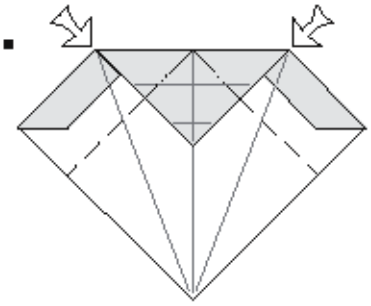
Valley fold the top point down, connecting the tops of the angle bisectors.

11.



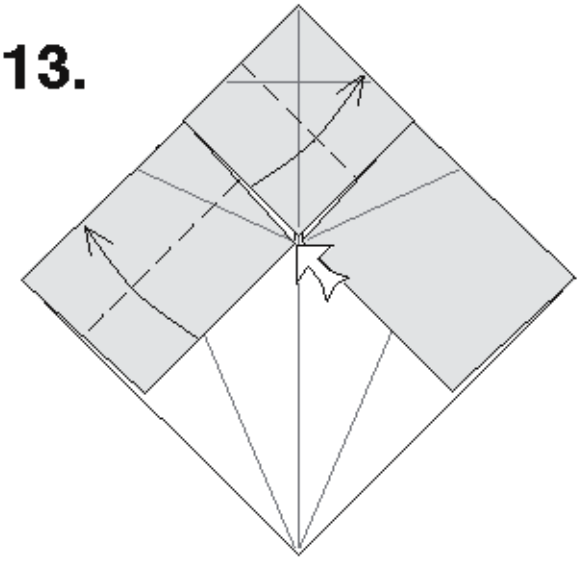
Mountain fold the loose corners at the sides under

12.



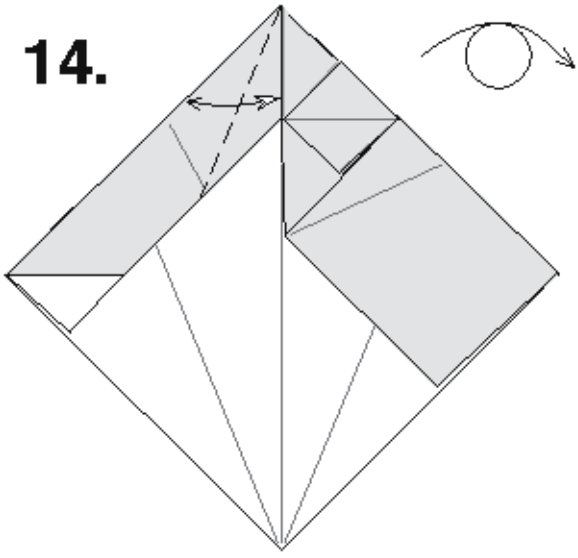
Reverse fold the top corners in to the center creating another preliminary base at the top.

13.



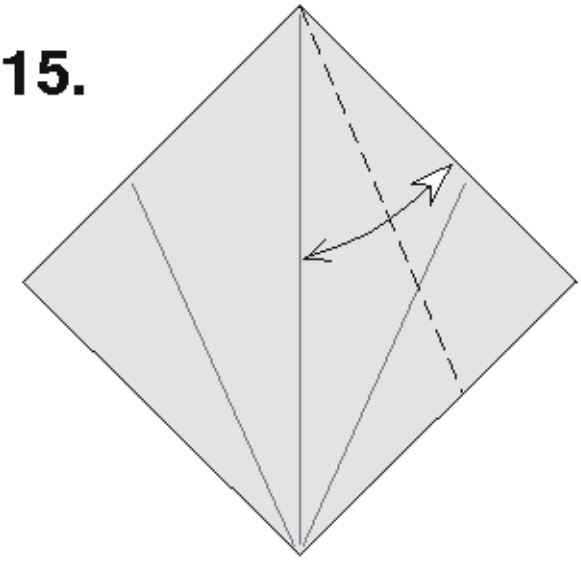
Valley fold the lower left side of the preliminary base at the top in half.As you do this, you will have to squash the flap underneath, folding the inner edge of the colored flap to the outer edge.

14.



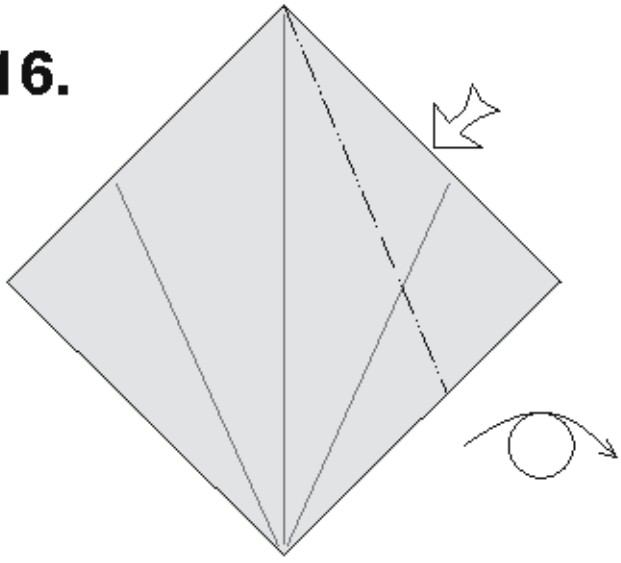
The result. The first small preliminary base should lay perfectly between the edges and the center, forming 1/4 of the larger one (made in Step 12). Valley fold the angle bisector at the top, using only the top flap and unfold (the model will not lay flat as you do this). Turn over from side-to-side.

15.



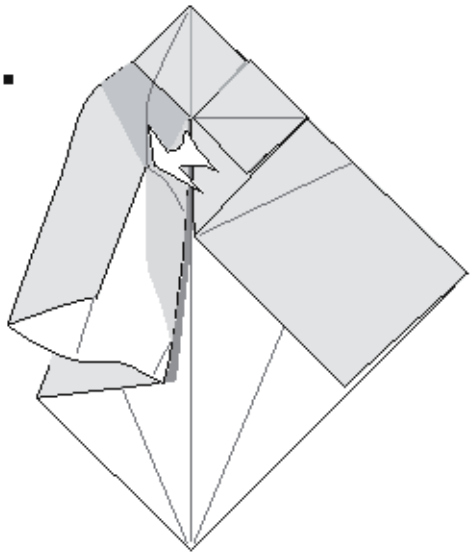
Valley fold the corresponding angle bisector on the back. The paper will not lay flat as you do this, and you'll have to crease the top part and bottom part separately. Unfold.

16.



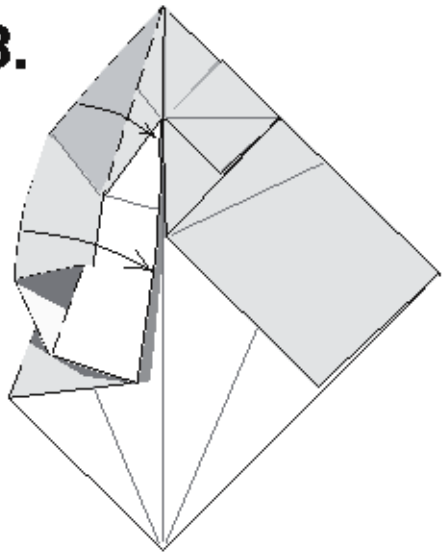
Reverse fold the right side on the fold you just made. Again, the paper will not lay flat. Turn back over from side-to-side.

17.



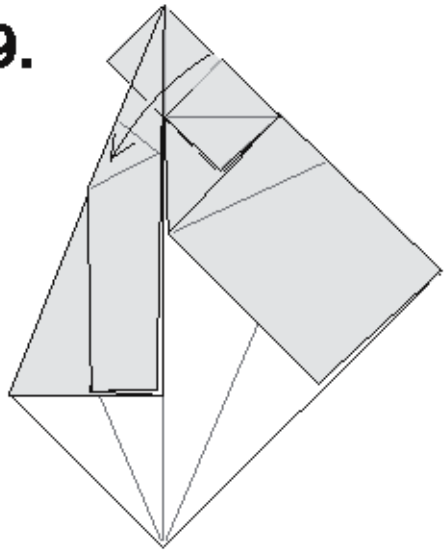
Invert the broad, raised point. The model will still not lay flat, but will be concave instead of convex.

18.



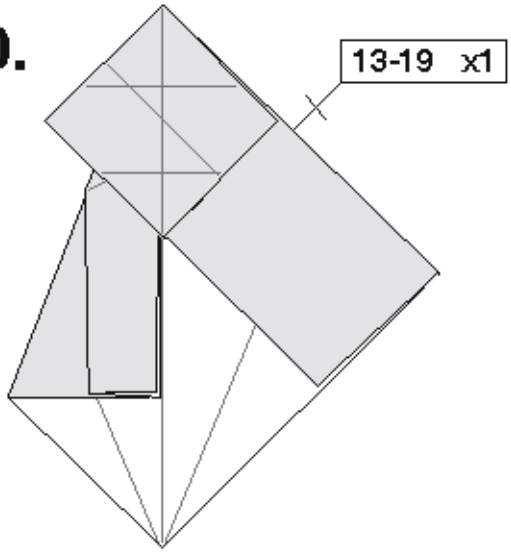
Valley fold the now concave flap down along the crease made in Step 14, and flatten the model.

19.



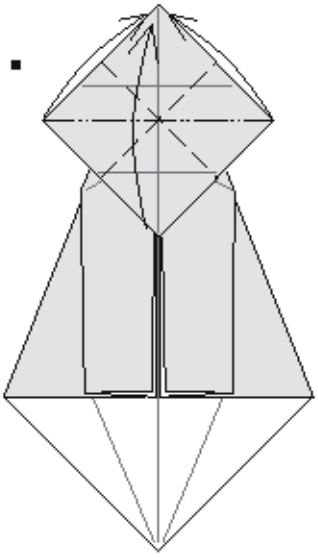
The result. Fold the flap containing the small preliminary base back down to the left.

20.



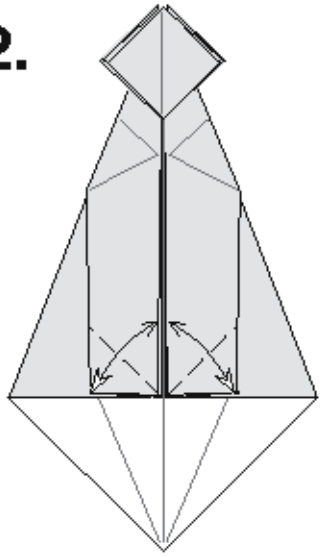
Repeat Steps 13-19 in mirror image on the right side.

21.



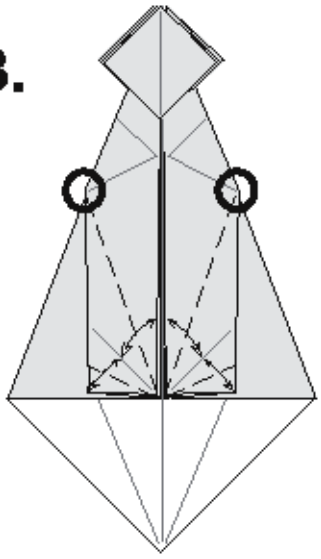
Collapse the square at the top as a preliminary base.

22.



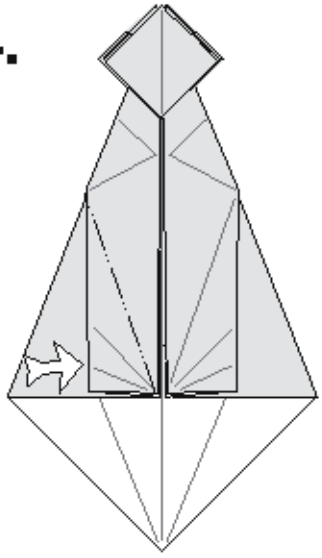
Valley fold the bottoms of the long, rectangular strips to the center line and unfold.

23.



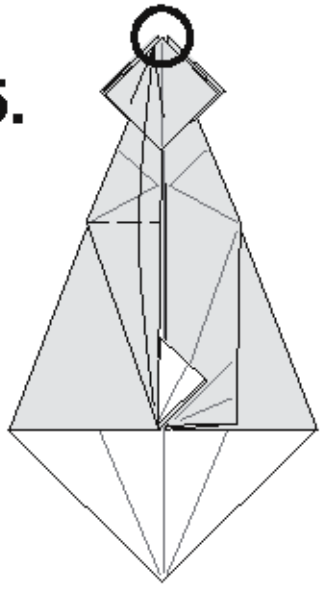
Quadrisect the angle of the lower end of the rectangular flaps. Note that the long, innermost folds connect to the angle on the outside edge of the long flap.

24.



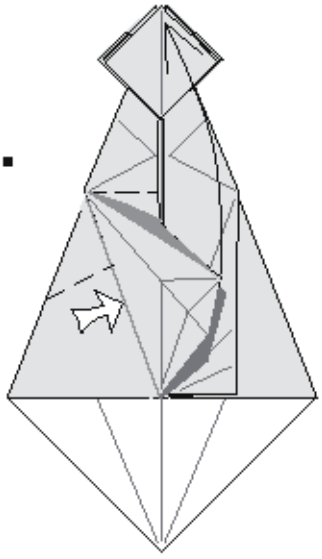
Reverse fold the left flap on the long, innermost quadrisection line.

25.



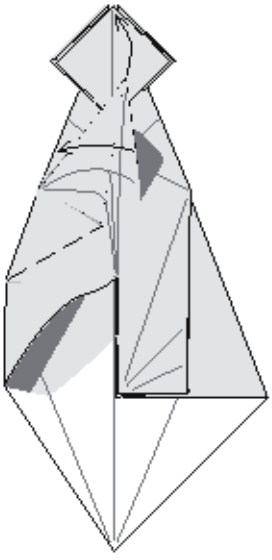
With only the uppermost flap of the reverse fold, begin to fold it up to match the top point of the model. The next few steps show more folds being made while this is being done.

26.



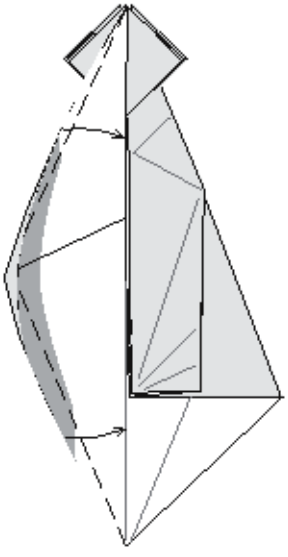
As you continue to fold the point up to the top, you must push in the layer beneath it. The valley fold beneath that is on an existing crease.

27.



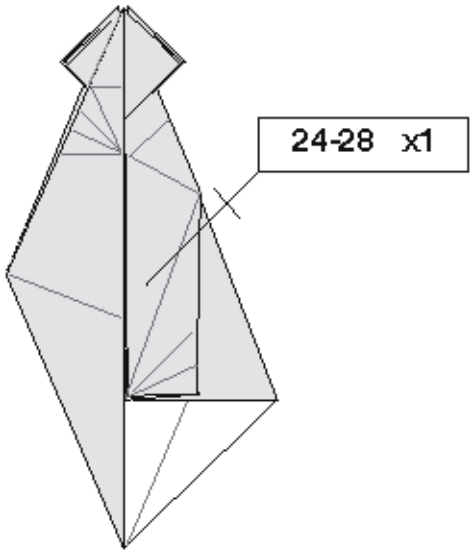
Now the point is closer to the top. Using existing creases, fold the flap down to the left. It still won't lay flat.

28.



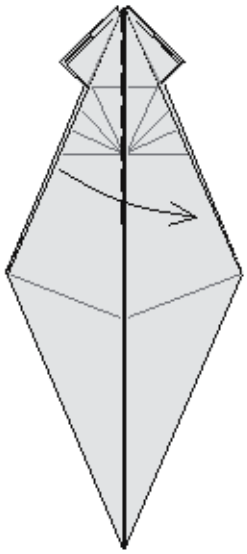
Flatten the model by valley folding the raised flap down to the center line. The bottom half of this fold occurs on an existing crease line.

29.



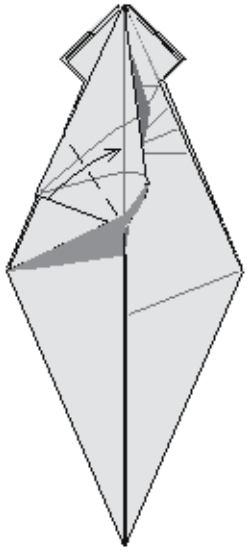
The result. Repeat Steps 24-28 on the right side.

30.



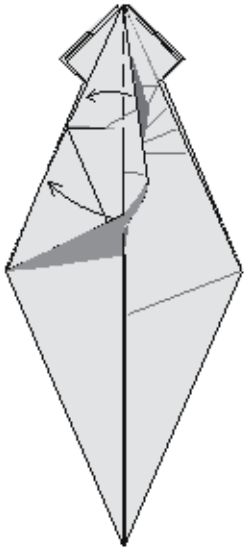
Pull the uppermost, double-thickness top layer to the right to expose the hidden layer beneath. The paper will not lie flat.

31.



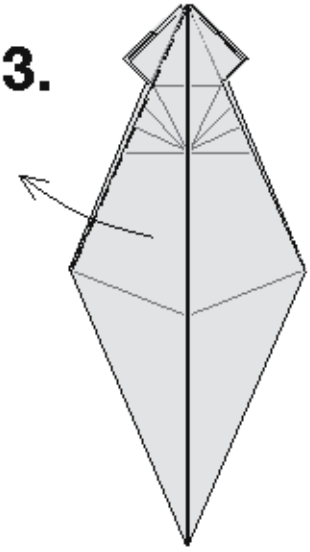
Bisect the thick, hidden flap by valley folding its lower edge to the center line.

32.



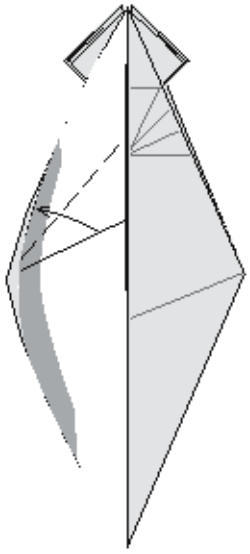
Close the model over the hidden flap again.

33.



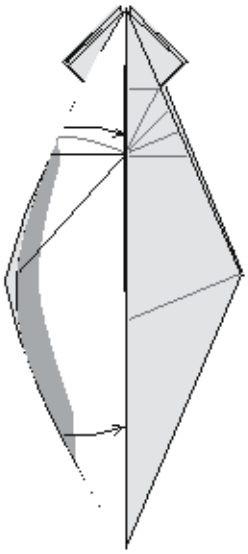
Pull the uppermost, single-layer top flap to the left, exposing another hidden flap (this is the same view as Step 28).

34.



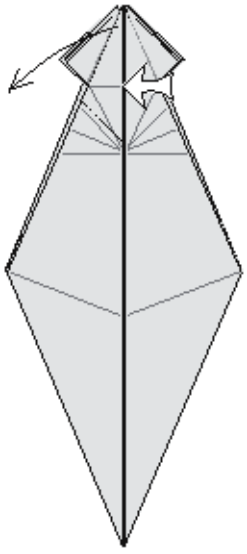
Bisect the hidden flap. This will lock the fold of the hidden flap folded in Step 31.

35.



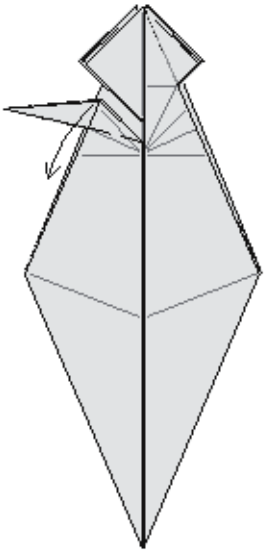
Close the flap again.

36.



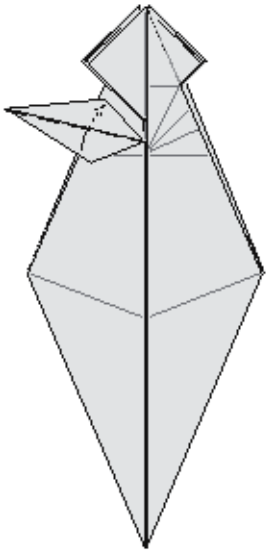
Reverse fold the top left point out to the left. The lower end of the reverse fold line is located at the point at which the layers are locked together

37.



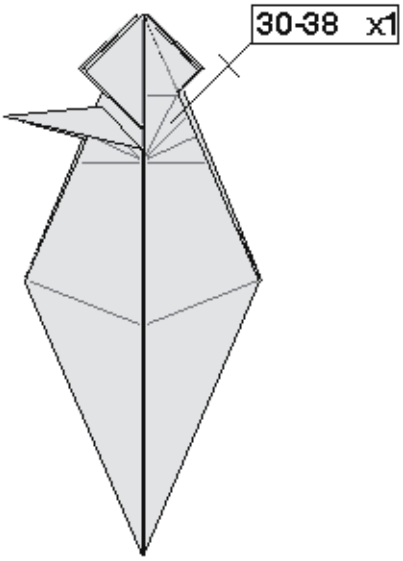
This point will be one of the front legs. Valley fold the top layer of the point down.

38.



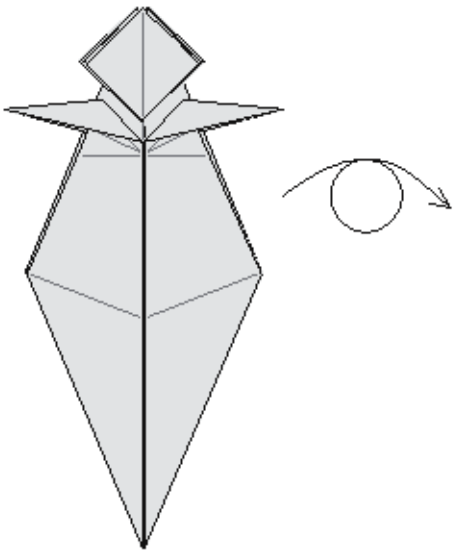
Tuck the lower flap under the layers of the upper flap.

39.



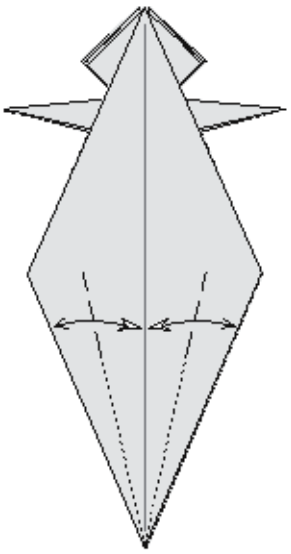
Repeat Steps 30-38 in mirror image on the right side.

40.



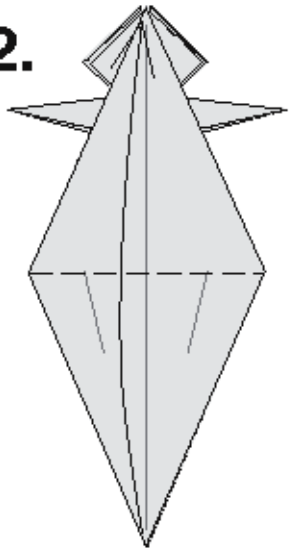
Turn over from side-to-side.

41.



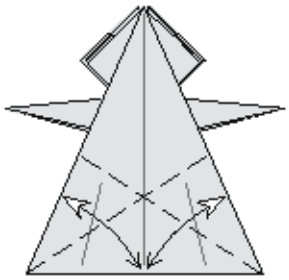
Valley fold the lower edges to the center line, bisecting its lower angle, but only crease near the center of the model.

42.



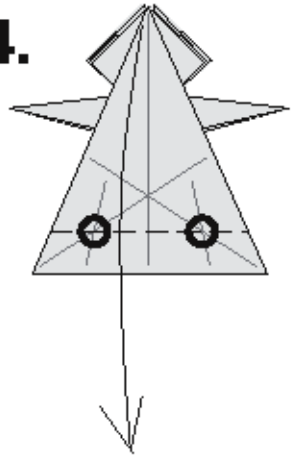
Valley fold the lower point to the top.

43.



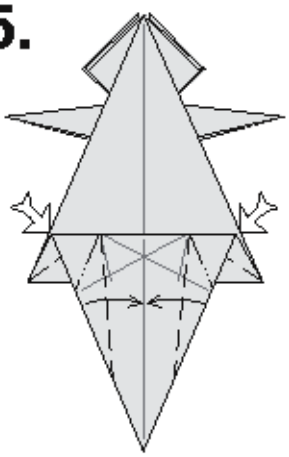
Valley fold the left and right edges of the uppermost point to the horizontal bottom edge and unfold, bisecting the lower corners.

44.



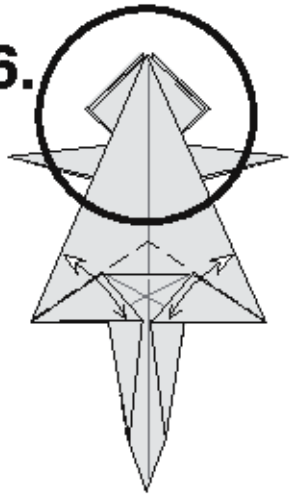
Valley fold the uppermost point down through the intersections of the angle bisectors from Steps 41 and 43.

45.



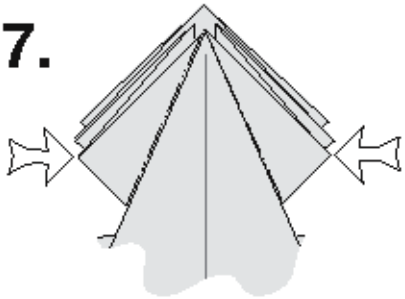
Narrow the tail by folding the sides in towards the center line. Note that the folds do not go all the way to the tip of the point. As you do this, squash fold the gussets at the sides; they should line up with the horizontal edge underneath.

46.



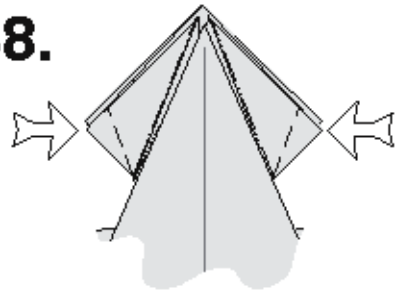
Valley fold the whole thickness of the body along the edge of the flap at the base of the tail and unfold. The next few steps focus in on the head (the top assembly).

47.



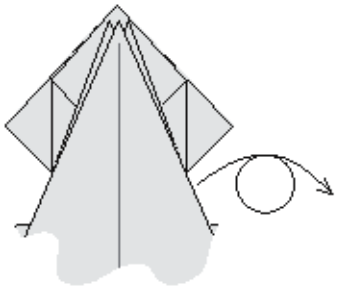
Reverse fold the first pair of flaps inwards (as in a bird base).

48.



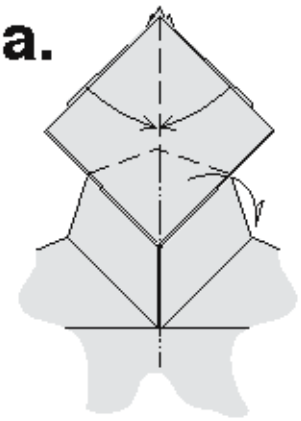
Reverse fold the next pair of flaps. The layer you can see in this figure goes in all the way but the layer beneath it does not, and the resultant edge is vertical.

49.

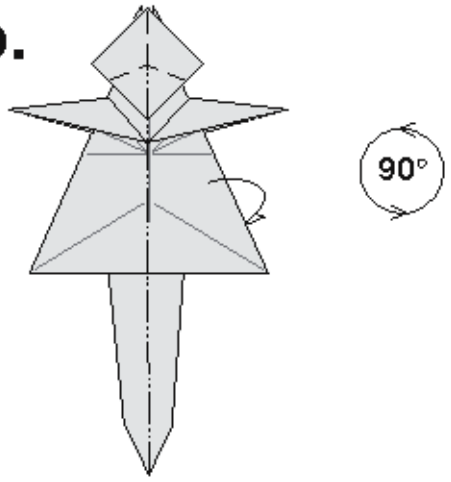


The result. Turn the model over from side-to-side; the next diagram is still a close-up of the head.

50a.

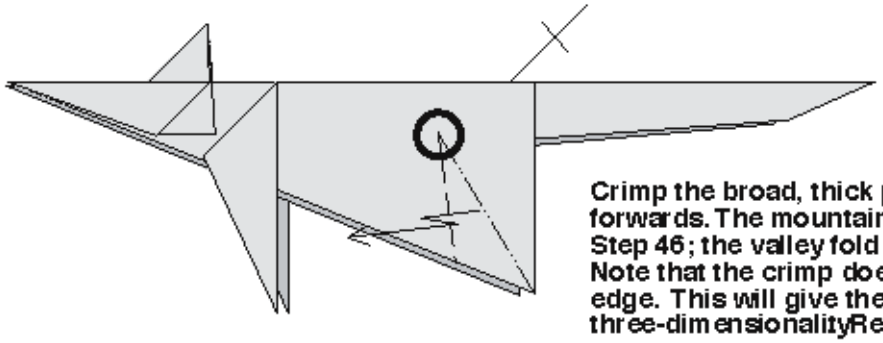


50b.



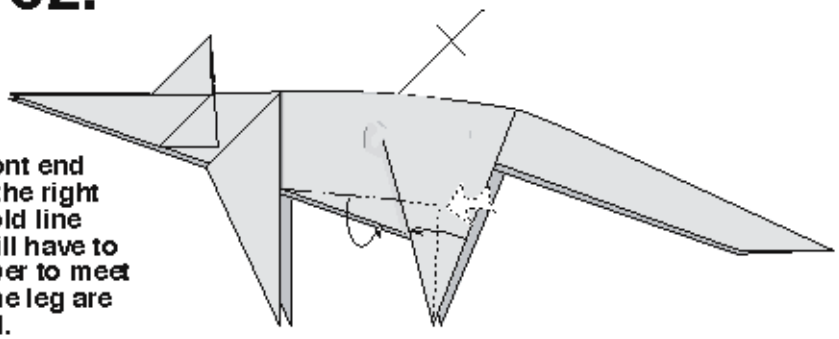
Mountain fold the whole body in half (right side under the left), incorporating the rabbit ear on the head end (close-up). Rotate counterclockwise 90°.

51.



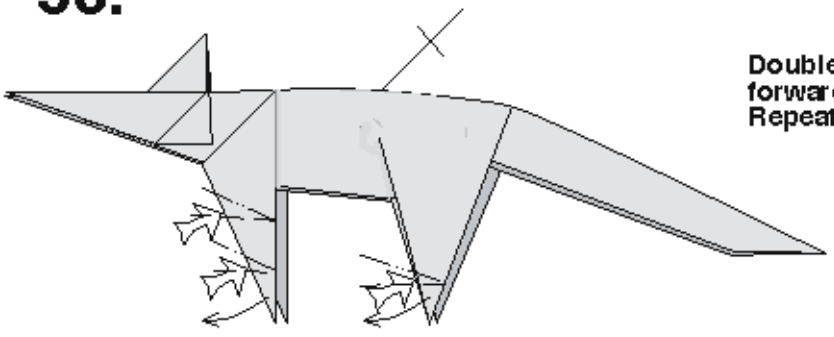
Crimp the broad, thick points towards the tail (the hind legs) forwards. The mountain fold is on the crease you made in Step 46; the valley fold are new and are not quite vertical. Note that the crimp does not progress all the way to the top edge. This will give the model a degree of three-dimensionality. Repeat the crimp behind.

52.



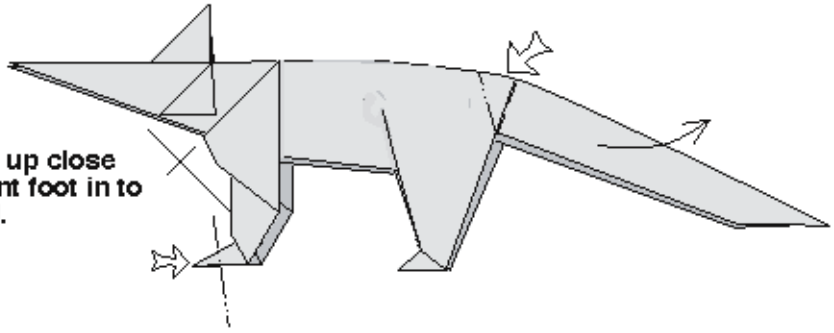
Narrow the belly with a mountain fold. The front end of the fold should meet or go slightly past the right edge of the front leg; the back end of the fold line continues under the hind leg, where you will have to squash a gusset by folding the edge of paper to meet the front edge of the leg (the folds inside the leg are indicated by the x-ray lines. Repeat behind.

53.



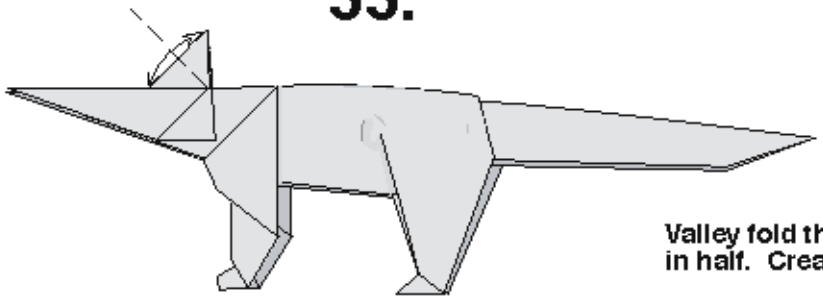
Double reverse fold the front leg twice, curling them forwards. Double reverse fold a foot on the hind leg. Repeat behind.

54.



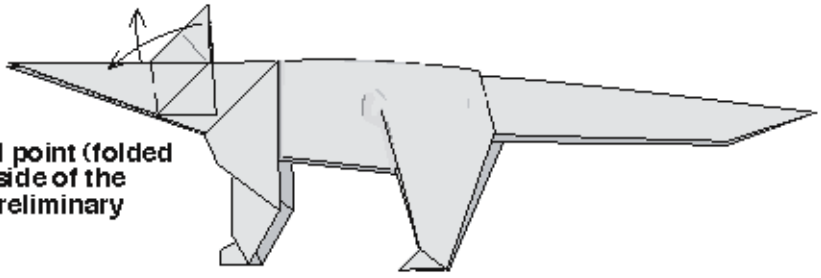
Double reverse fold the tail, bringing it back up close to horizontal. Reverse fold the tip of the front foot in to shorten it. Repeat the front foot fold behind.

55.



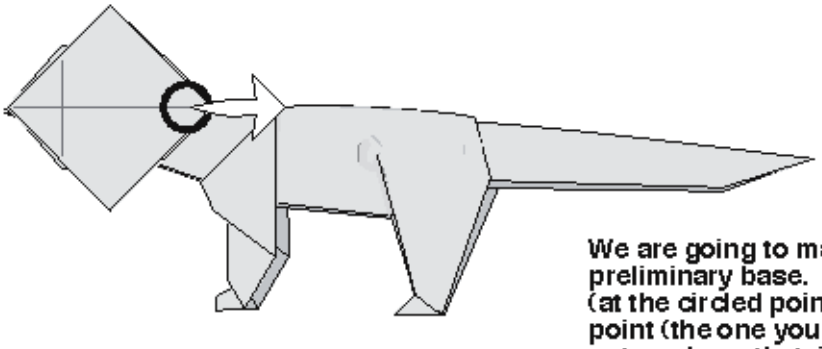
Valley fold the small triangle above the head (the frill) in half. Crease heavily and unfold.

56.



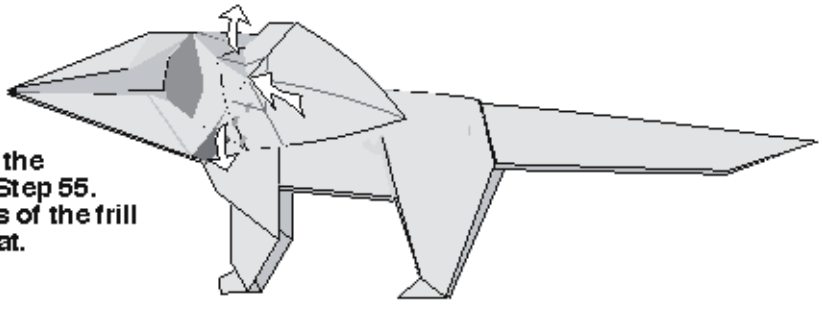
Unfold the rabbit ear which forms the frill point (folded in Step 50a), allowing the flap on the far side of the model to swing upwards. The first small preliminary base (from Step 9) will reappear

57.



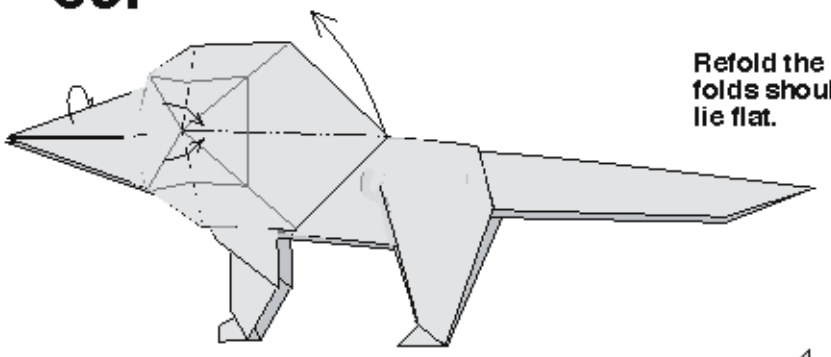
We are going to make the frill larger by unfolding the preliminary base. Grabbing only the uppermost layer (at the circled point), pull it to the right. The thicker point (the one you folded in Step 55) will swing outwards so that, in the diagram, it will be pointing out of the page towards you. The next diagram shows this view

58.



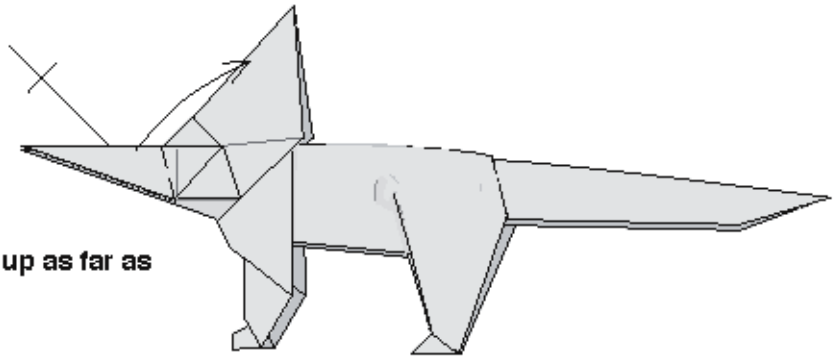
Squash down the raised center point, using the mountain folds formed by the valley fold in Step 55. Some paper will be pulled out from the sides of the frill as you do this. The resultant flap won't lay flat.

59.



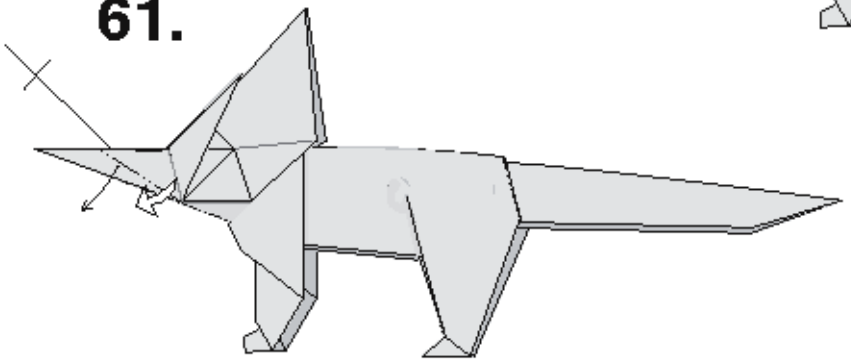
Refold the rabbit ear you unfolded in Step 56 — the folds should reform rather easily. The paper will now lie flat.

60.



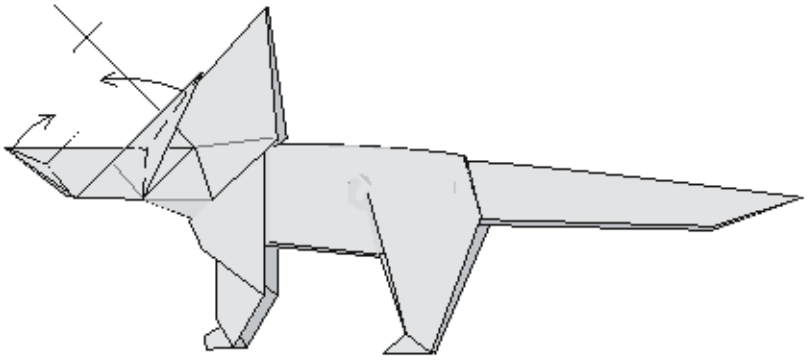
Valley fold the horns up as far as possible.

61.



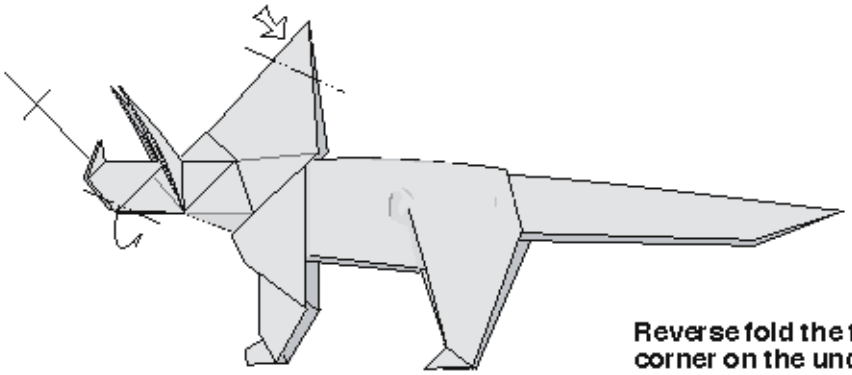
Pull a single layer down from the side of the snout; some paper will be pulled out from under the horn. Repeat behind.

62.



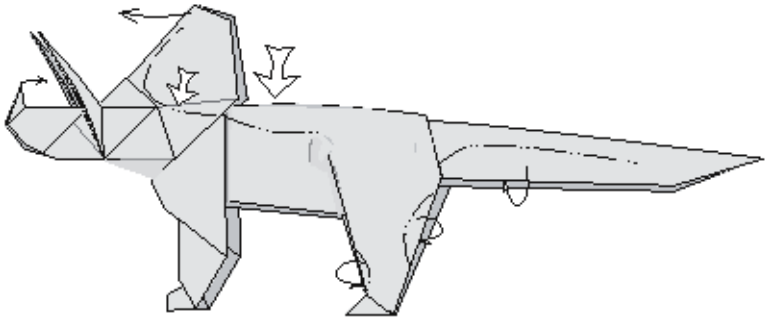
Rabbit ear the horn so it arches forward over the snout; repeat behind. Double rabbit ear the tip of the snout to form a nose horn.

63.

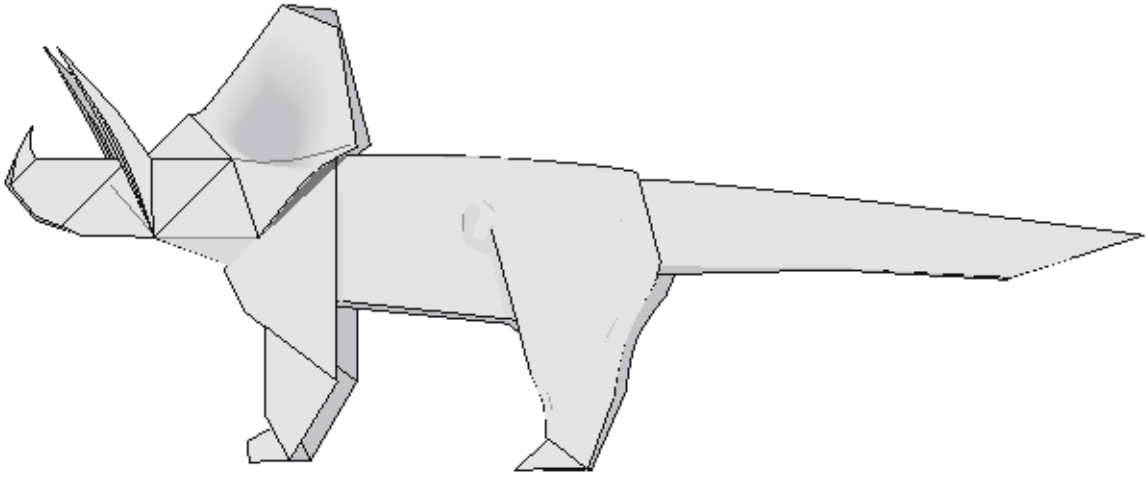


Reverse fold the tip of the frill inside. Mountain the corner on the underside of the snout inside; repeat behind.

64.



Finish rounding out the body by pushing in the back to match the three-dimensionality produced with the crimps in Step 51. Round the tail and hind leg, as well; repeat behind. Make the frill more three-dimensional by creating a large dimple on the left side — this will produce a slight crimping motion to bring the frill forward, but the central mountain fold stays in place. Repeat behind. Curl the nose horn backwards.



FinishedTriceratops