Table of Contents

Symbols… ???

Introduction… ???

One-Fold Heart… ???

Heart Starts… ???

- Heart Start 1: Basic Eighths on All Corners… ???
- Heart Start 2: Basic Eighths on Fewer Corners… ???
- Heart Start 3: Basic Eighth, Efficient Single Corner… ???
- Heart Start 4: Larger Single Corner… ???
- Heart Start 5: Daintier Hearts… ???
- Heart Start 6: Inverted Hearts… ???
- Heart Start 7: Fewer Inverted Hearts… ???
- Heart Start 8: Articulated Hearts… ???
- Heart Start 9: Fewer Articulated Hearts… ???
- Transplanting Onto Rectangles… ???

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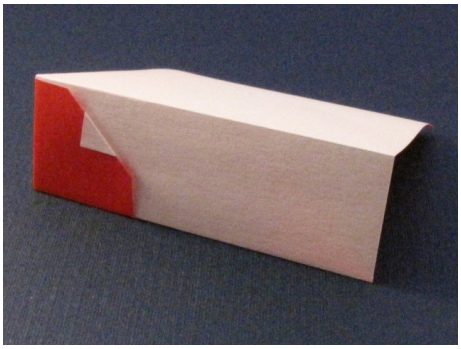
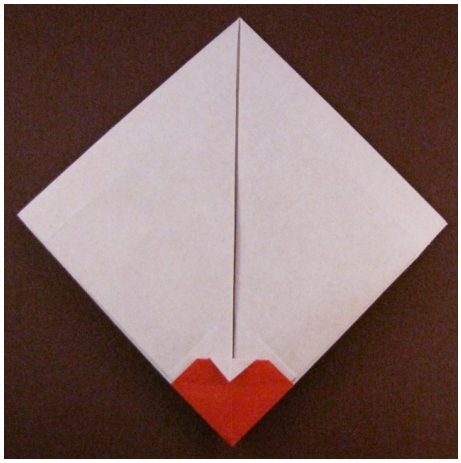
That Heart is a Pocket; Make Use of It… ???



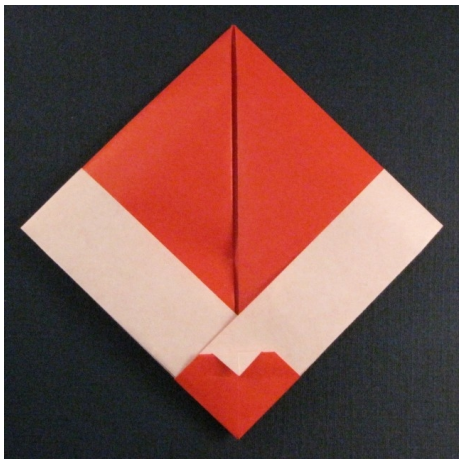
Heart Place Card Holder… ???



One Heart Letter Fold 1… ???

One Heart Letter Fold 2… ???

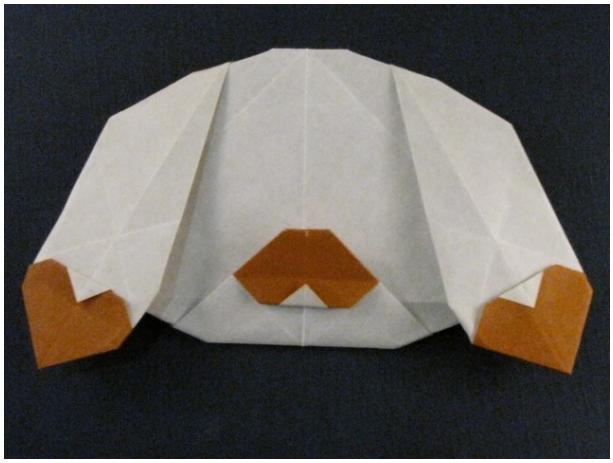
One Heart Letter Fold 3… ???



One Heart Letter Fold 4… ???

Double Heart Letter Fold… ???

Love Bug… ???



Spot… ???

Heart Swan… ???

Heart Swan II… ???

Fortune's Fancy… ???

Lily-Hearted… ???

Heart Star Dish… ???

Shamrock Star Dish… ???

Shamrock N… ???

Masu With Two Hearts… ???

Masu With Four Hearts Inside… ???

Masu With Four Hearts Outside… ???

Hearts All A-Flutter… ???

Wings of Love… ???

Heart Shuriken… ???

Heart Wheel… ???

Lovely Tulip… ???

Crazy Tato… ???

Symbols

Crease line – mark left by a crease that has been unfolded.

Folded or raw edge.

Paper seen from the edge.

Valley fold. Fold the paper toward you along this line.

Mountain fold. Fold the paper away from you along this line.

X-ray line. A fold on an inner layer or layers of paper but not on the top layer. Also a hidden edge.

Fold arrow. Part of the paper moves in this direction to complete the fold.

Fold and unfold arrow. Make this crease, but return the paper to the way it was before the crease.

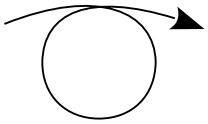
Unfold arrow. Part of the paper moves in this direction to undo one or more folds.

Fold and tuck into the pocket.

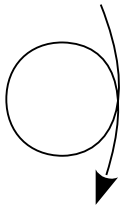
Push here.

Open here.

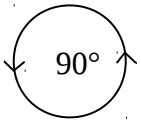
Inflate here. Do this gently with fingers if the opening is large enough. Otherwise blow into the model. Do not spit. A long, thin, blunt tool may help.



Turn the model over from side to side.

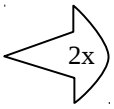


Turn the model over from top to bottom.



Rotate the model. The arrows indicate the direction. An optional angle measurement indicates how far to rotate. If there's no angle indicated, just look at the next diagram!

New view from this side of the model.



The diagrams get larger. Your paper does not. The precise enlargement factor is optional.

Landmark for this fold. The small mark allows the intersection, corner, edge, etc. to show through. These show up in pairs – fold here to there.

Detail work which is shown magnified.

Repeat this fold on another layer behind this one. The number of lines across the arrow indicate the number of repetitions.

Introduction

Heart Transplant Origami is a rudimentary form of grafting which usually first creates a square with hearts on some or all of the corners, then folds a model in a mostly normal way. Thus, Heart Transplant Origami is useful without ever thinking about grafting. If you do want to think about grafting, it is a good way to stick your toe in the water to try it out with nothing to fear. The idea is simple. The one-fold heart for grafting is simple. The details are simple, but numerous. The possibilities are endless.

This book presents some of the more pleasing possibilities and handy commonalities to get you started. If all you want to do is fold those models, start folding! If you already have a model or six you think could really benefit from adding hearts, look at the *One-Fold* Heart and the Heart Starts and perhaps even try a model or two from the diagrams to get the feel of it all and what the little tweaks are, then tackle those models. Also read the next paragraph! Not all models are equally good candidates for Heart Transplants. Start with better candidates first and work your way up!

Good candidates for heart transplant origami are simple to moderately complicated models which show off at least one corner of the paper and do not use color-change. The corner "requirement" can be circumvented by blintzes and more complicated maneuvers but they add even more layers of paper than the graft does. Thin paper can help there and to generally stretch the complication constraint. Color-change may or may not interfere, depending on placement. Sometimes it is easy to engineer out, as with the traditional Cicada (see *Love Bug*). Sometimes careful choice of Heart Start does the trick, as with the traditional tato from a fish base (see *Crazy Tato*). Where it interferes more seriously, judicious use of harmony paper can help, because such paper has a gradient of colors so parts of the colorful side contrast with other other parts of the same side. Carefully laminating paper piecemeal so the colorful side has particular colors in particular places can have the same effect and offer more freedom at the cost of more work.

Even just a heart on a corner makes an interesting square, because that heart not only decorates, it forms a pocket, opening up lots of possibilities for letter folds, frames and such.

The possibilities truly are endless. This book diagrams a fair sampling and gives "recipes" for a few more – photos of the result plus the heart start and model used, which is enough information to recreate them.

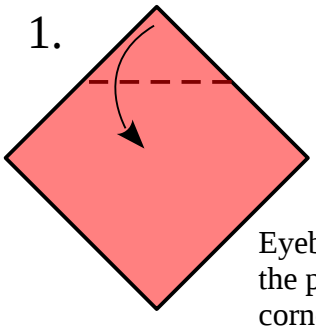
One-Fold Heart

Stumbled into by Wensdy Whitehead (and who-knows-how-many other folders)

and a more sophisticated variant both suitable for easy grafting

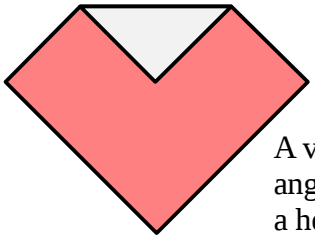
Recommended Paper: small square kami, duo, candy wrapper or other two-sided paper.

1.

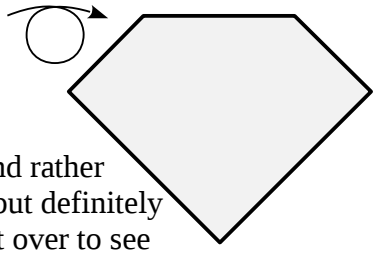


Eyeball the center of the paper, then fold one corner to that center.

2.

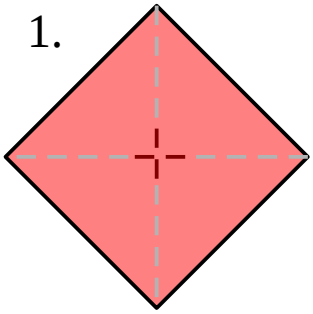


A very basic and rather angular heart, but definitely a heart. Turn it over to see a Diamond Gem instead.



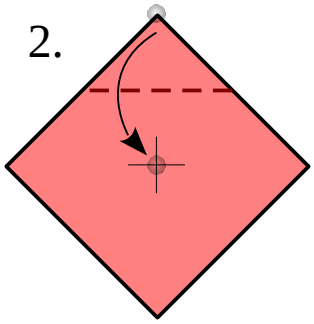
A Slightly More Sophisticated Variation

1.

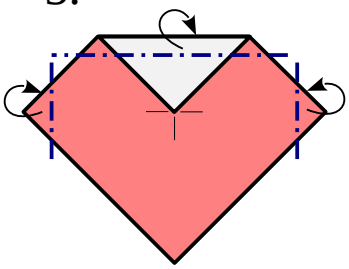


Pinch the center – or eyeball it if you prefer; this tweak is independent of the shaping.

2.

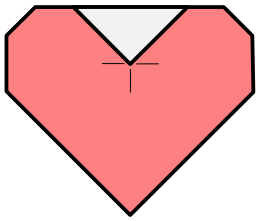


3.



Three (3) mountain folds to round the top and side corners of the heart.

4.

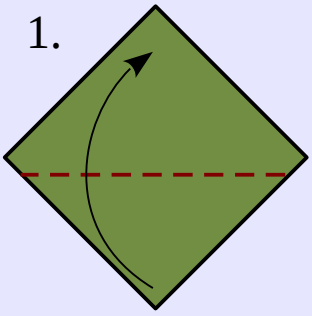


Done!

This heart is very suitable for simple grafting at various sizes onto one or more corners of paper, then proceeding to fold a known model from the decorated square. The model should of course show off at least one corner; decorating hidden paper would be a waste. The corners get thicker rapidly, so choose with care. Kite folds can happen within the heart. In that case, it will be possible to round the sides of the heart.

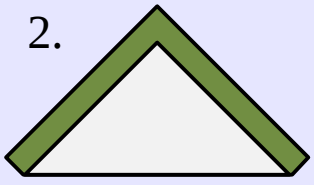
One-Fold Chevron Variation

1.



Same idea as the heart, but overshoot the center to the extreme, just eyeballing the diagonal to keep the lines of the chevron an even width.

2.



Make one (1) chevron for a Private, two (2) for a Private First Class and three (3) for a Sergeant. Done!

Heart Starts

By Wensdy Whitehead

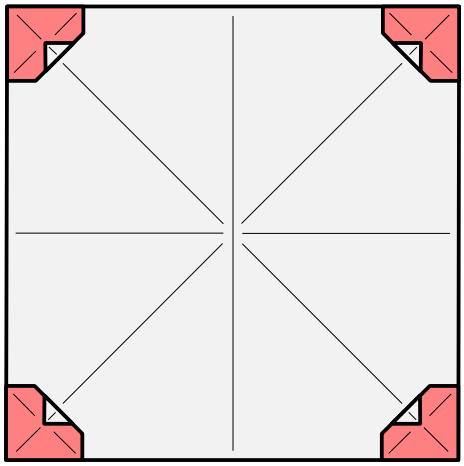
Hearts can be transplanted onto up to four corners of a square… to end up with another square, which can then become the starting square for many models. Hearts can even be transplanted (or *grafted*) onto rectangles. Grafting hearts onto rectangles does *not* preserve their proportions; it changes them, so to end up with a specific, non-square rectangle, you'll need a little of that old algebra and geometry – or a *lot* of trial and error. The section *Transplanting onto General Rectangles* goes into detail.

The hearts go onto the corners, so it is best and easiest to transplant them onto models that show their corners rather than tuck them into pockets or otherwise hide them away. Some creativity can be used with blintzing and other additional folds to circumvent this sometimes, but try some easy targets first!

Size of the hearts is variable, but using powers of two is handy. This section presents some common heart placements and sizes. Some models are best with one size and distribution of hearts while others may host various configurations to spectacular effect.

Inverted Hearts and Articulated Hearts allow rounding of their hearts as part of the completion of the new square. With more basic hearts, many models narrow the layers of paper inside the hearts, eventually permitting refinement of the hearts by rounding their side corners. To make these tiny creases most easily and uniformly, grasp the corner between a fingernail and it fingers. start the fold by bending the paper around the fingernail, release the paper and properly flatten the fold.

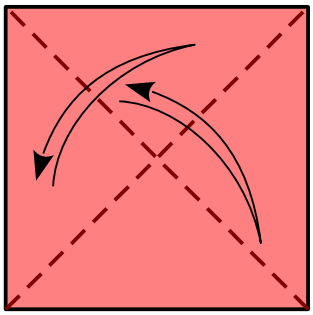
Heart Start 1:
Basic 1/8, All Corners



Recommended Paper: kami or other thin, two-sided paper 6” (15cm) square or larger.

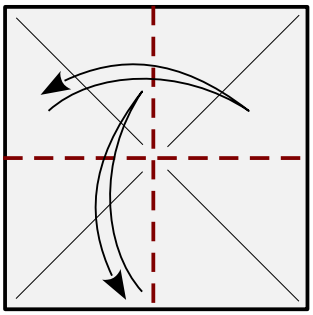
This first example puts hearts on all four corners, using squares one-eighth (1/8) the size of the starting square and therefore one-sixth (1/6) the size of the final square. This particular start is good for modifying the traditional Star Dish, Cootie Catcher/Fortune Teller/Color Changer/Salt Cellar and Lily/Iris models. It also starts the Heart Shuriken modification of a simple, two-piece, eight-pointed star.

1.



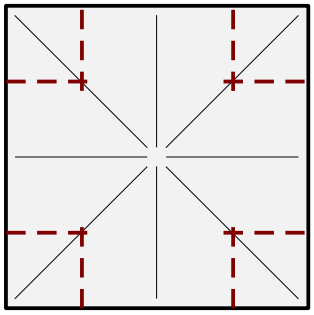
Fold and unfold.

2.



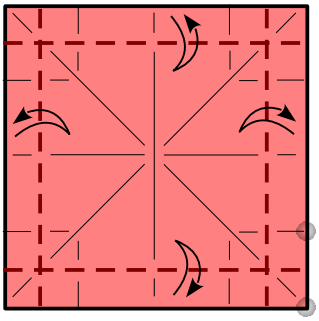
Fold and unfold.

3.



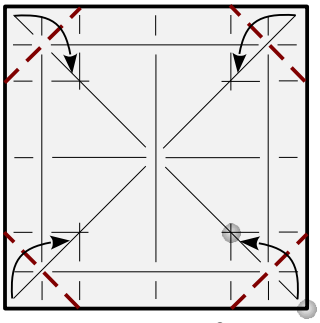
Pinch the quarters. For easy landmarks, make them cross the diagonal creases.

4.



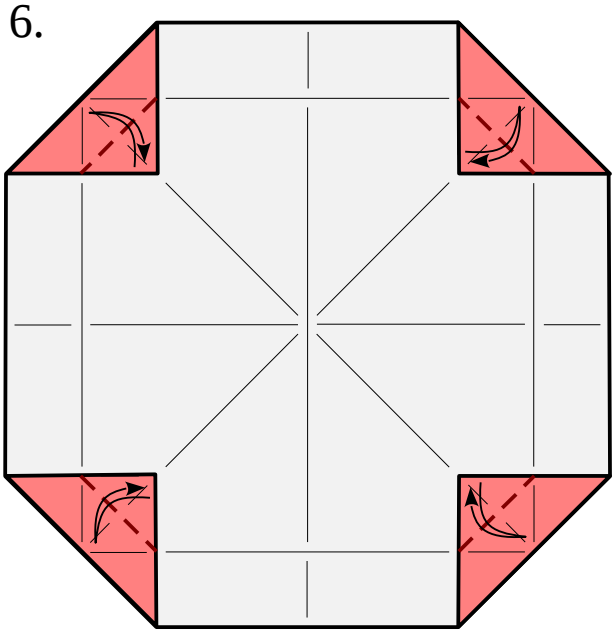
Fold and unfold the eighths.

5.



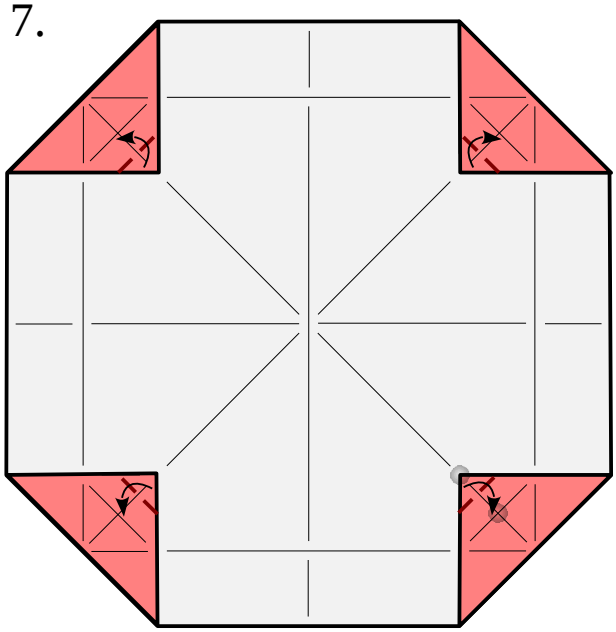
Four (4) valley folds.

6.

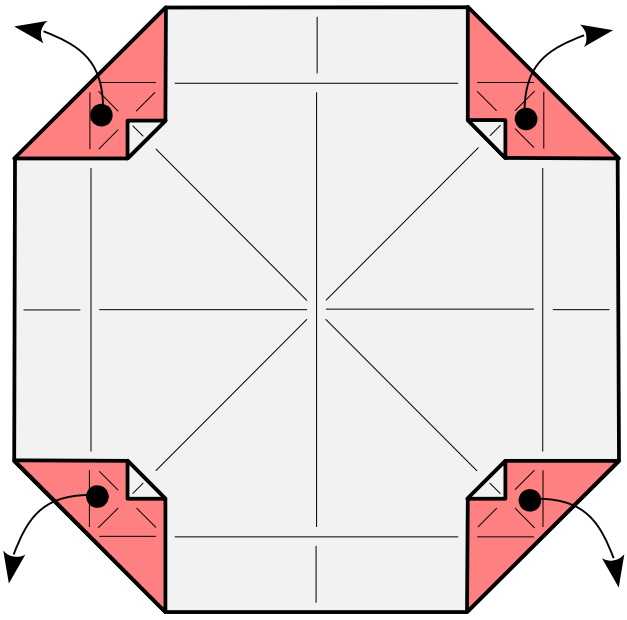


The next few steps can be accomplished by a good eye estimating the center and deft fingers, but adding this fold makes the hearts more consistent. A pinch across each diagonal will suffice, but the fold is small anyhow.

7.

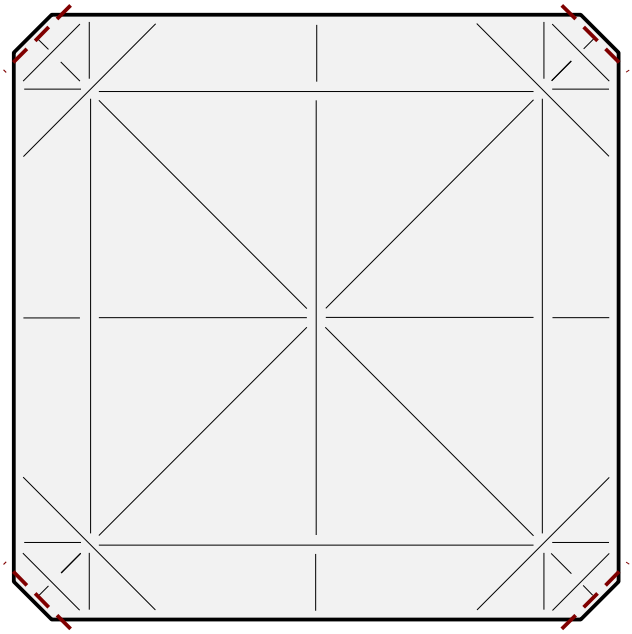


8.



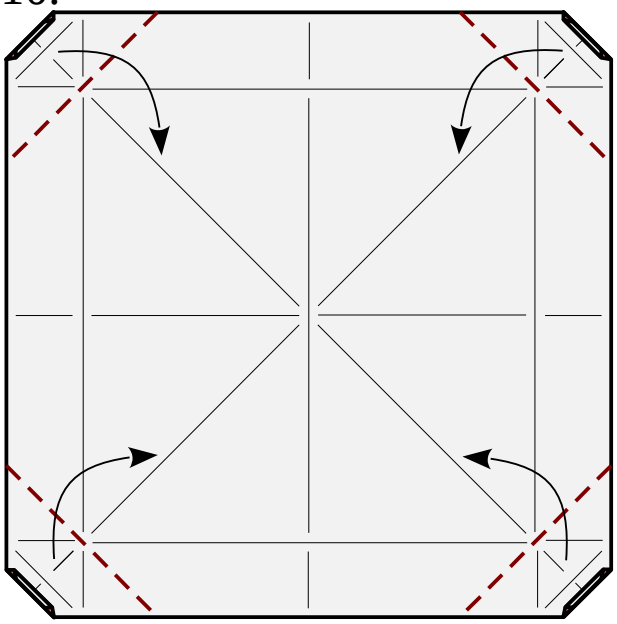
Unfold the larger dog-eared corners.

9.



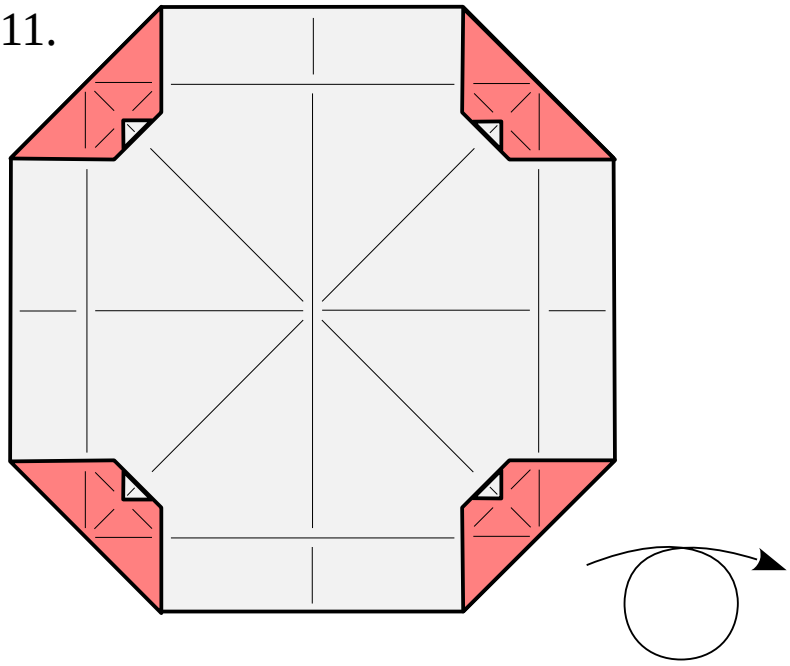
Make tiny hems to round the tops of the hearts.

10.

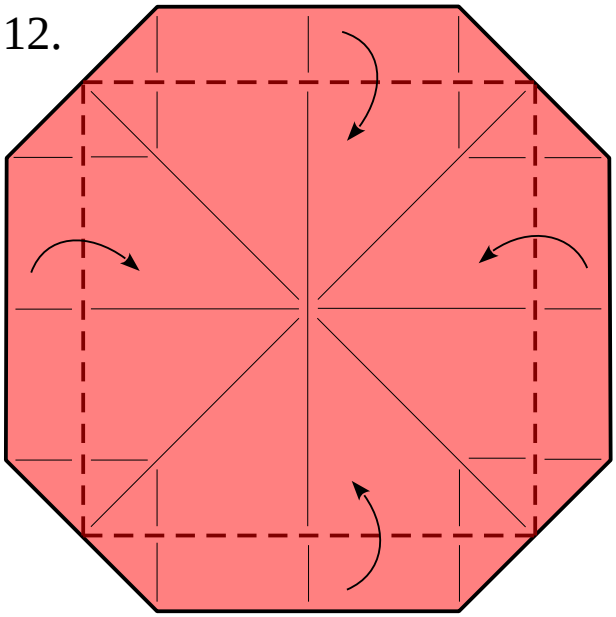


Refold step 5 which was unfolded in step 8.

11.

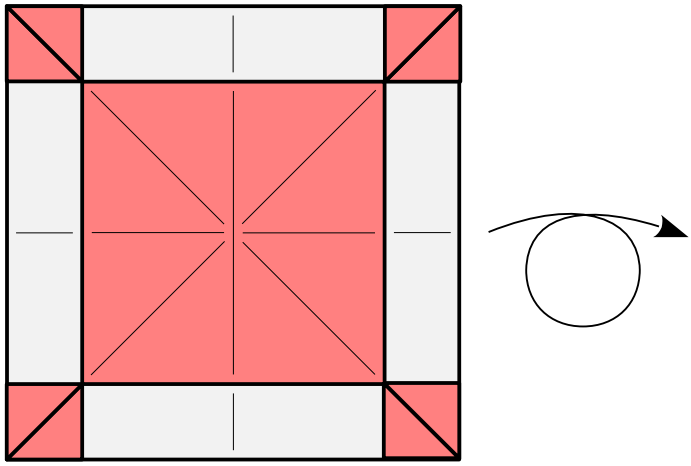


12.

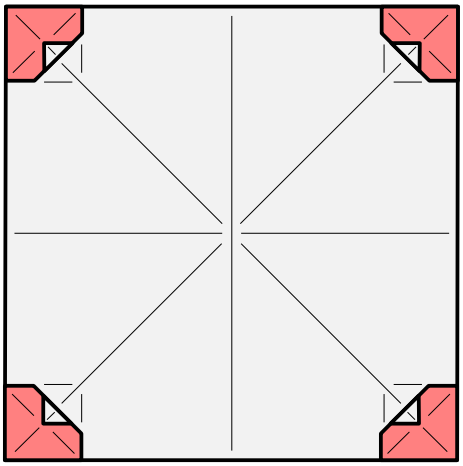


Refold the eighths. No new creases.

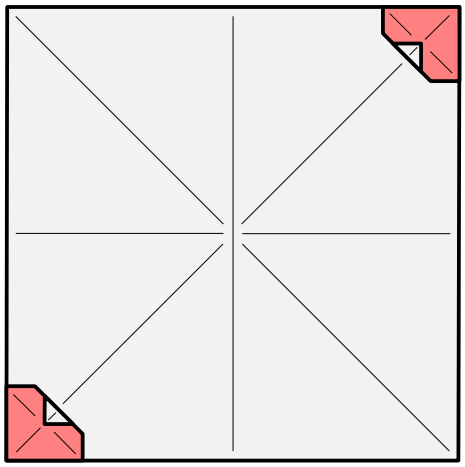
13.



14.



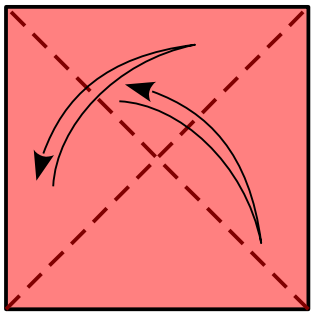
Heart Start 2:
Basic 1/8, Fewer Corners



Recommended Paper: kami or other thin, two-sided paper 6” (15cm) square or larger.

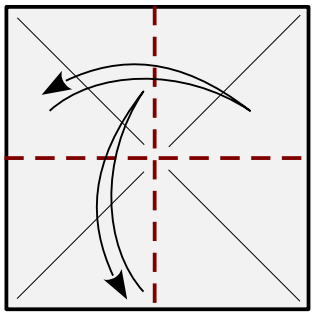
This example puts hearts on just two opposite corners, using squares one-eighth the size of the starting square and therefore one-sixth the size of the final square. This is the same size heart as in the first Heart Start and the first four steps are the same. Step 5 is the significant difference; the remaining differences flow automatically from there. This particular start is good for modifying the traditional Crane and Flapping Bird models. Two or three corners may be chosen at will; they need not be opposite. For just one corner, see the Heart Starts specifically for a single corner, however for the traditional Cicada, use this version with just one heart in order to eliminate unwanted color change.

1.



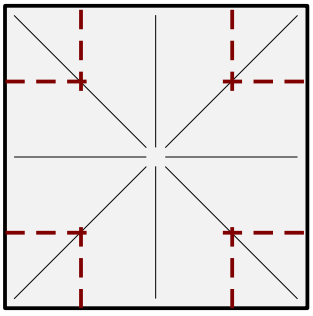
Fold and unfold.

2.



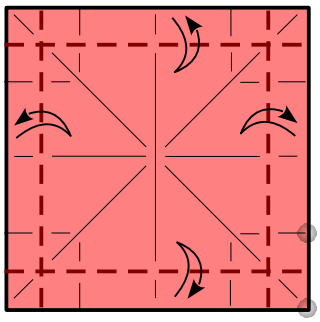
Fold and unfold.

3.



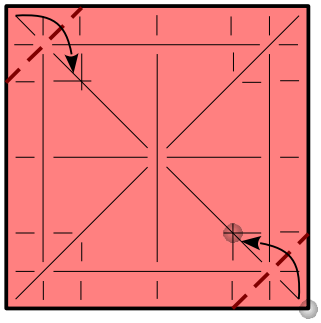
Pinch the quarters. For easy landmarks, make them cross the diagonal creases.

4.



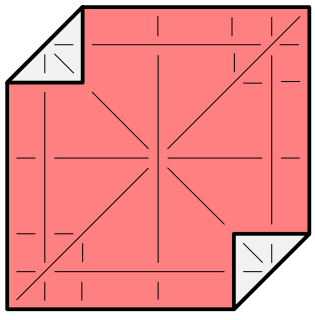
Fold and unfold the eighths.

5.

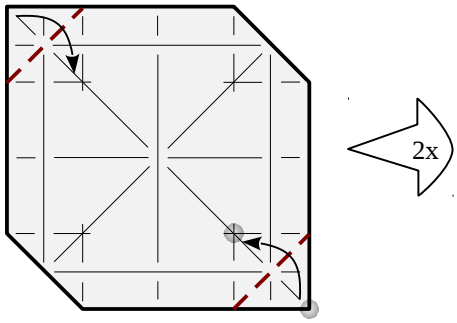


Valley fold the corners that should not have hearts.

6.

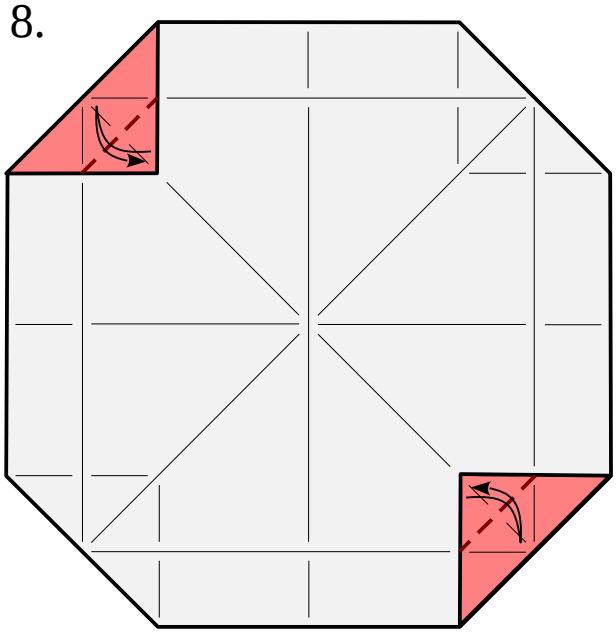


7.



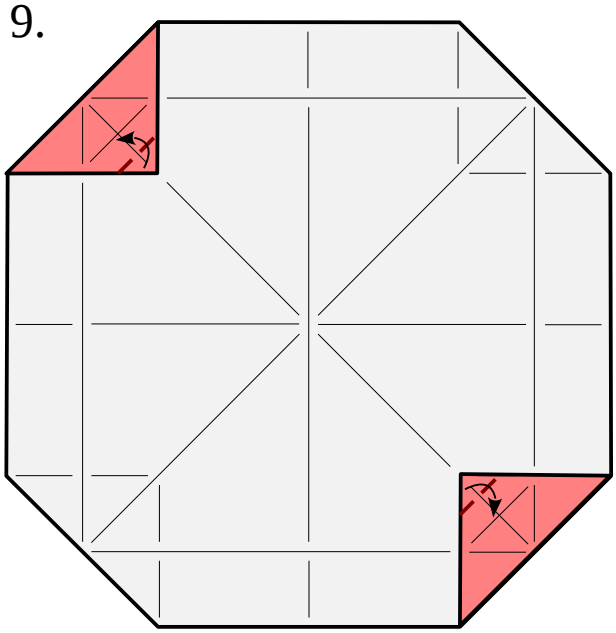
Valley fold the corners that should have hearts.

8.

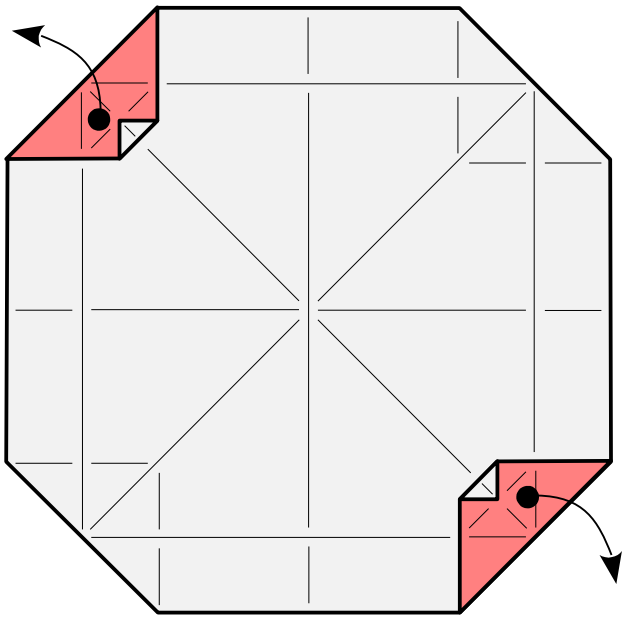


The next few steps can be accomplished by a good eye estimating the center and deft fingers, but adding this fold is easier. A pinch across each diagonal will suffice, but the fold is small anyhow.

9.

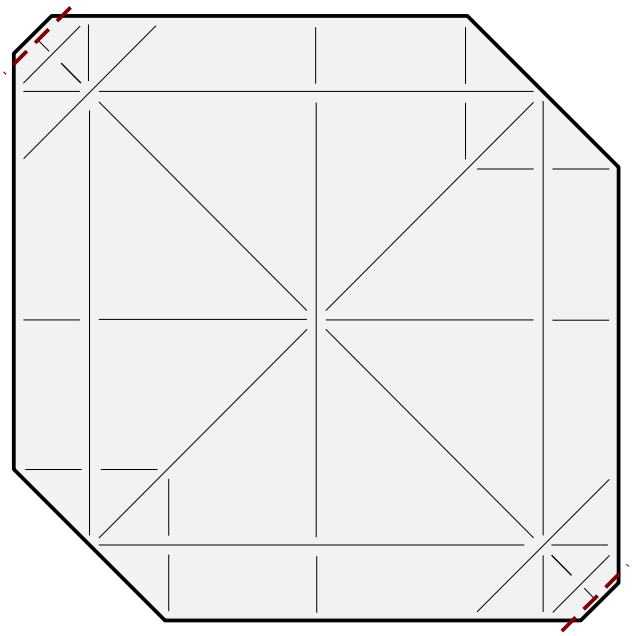


10.



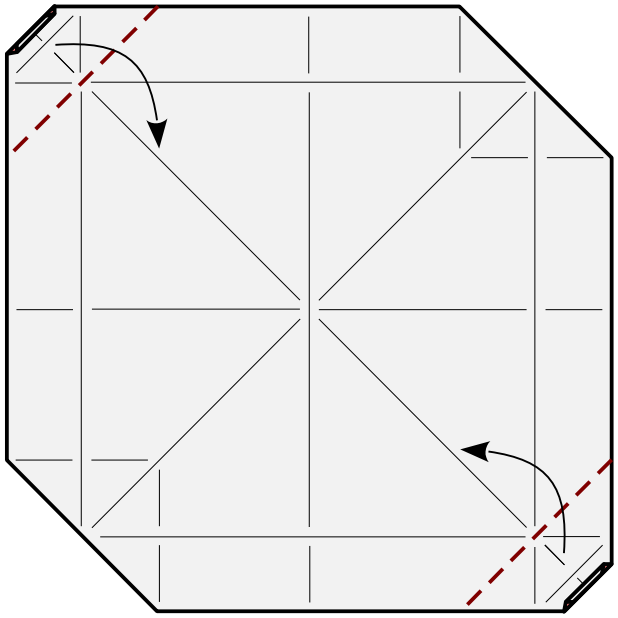
Unfold the larger dog-eared corners.

11.



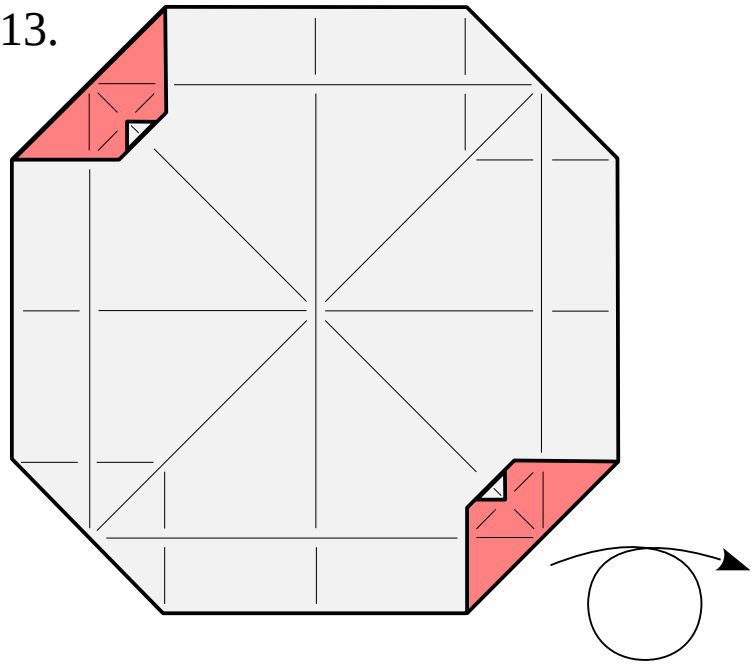
Make tiny hems to round the tops of the hearts.

12.

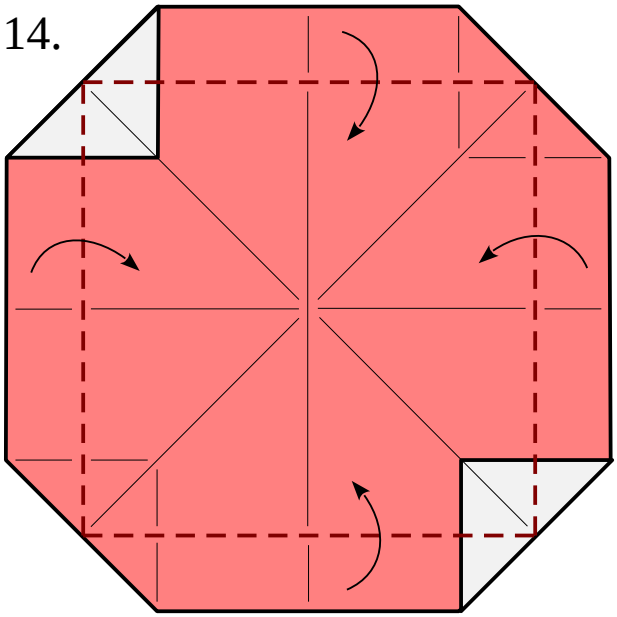


Refold step 5 which was unfolded in step 8.

13.

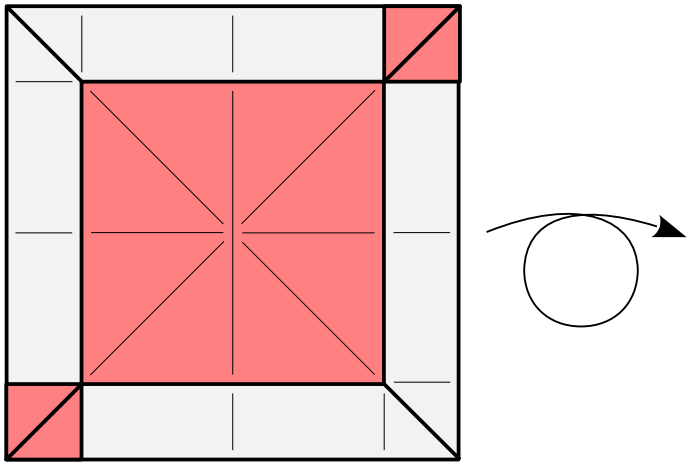


14.

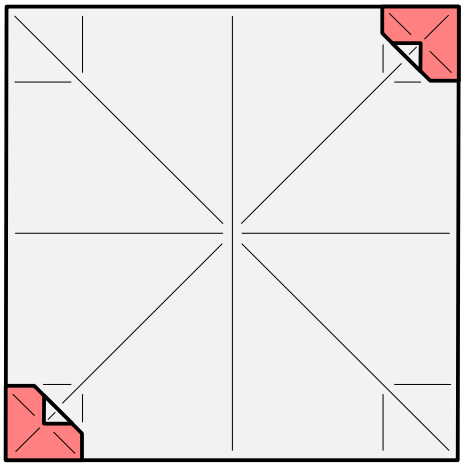


Refold the eighths. No new creases.

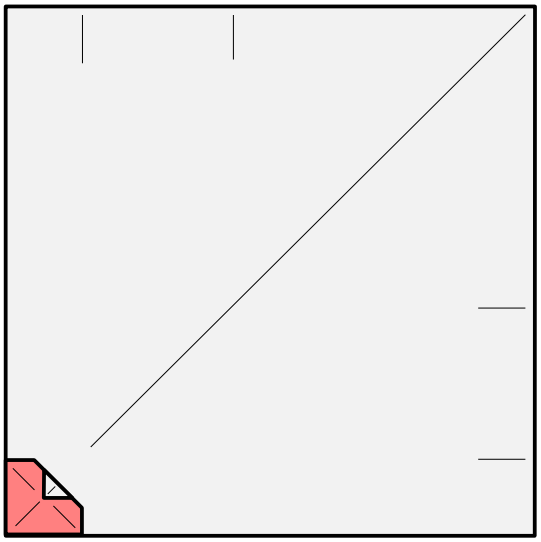
15.



16.



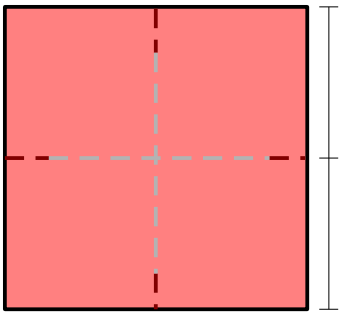
Heart Start 3:
Basic 1/8, Efficient Single



Recommended Paper: kami or other thin, two-sided paper 6” (15cm) square or larger.

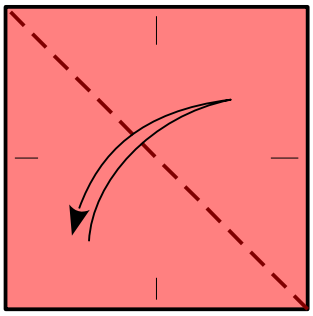
This example puts a heart on just one corner, using a square one-eighth the size of the starting square and therefore one-seventh the size of the final square. This is the same size heart as in the first Heart Start, but paper used for other hearts is saved, so the size of the final square is larger. This particular start is good for modifying the traditional Swan or the ubiquitous Yoshizawa Fox.

1.



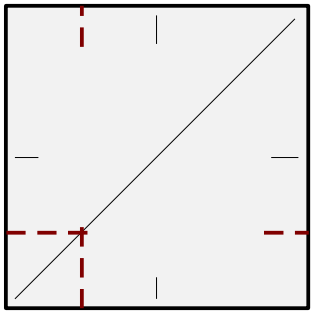
Pinch the book folds.

2.



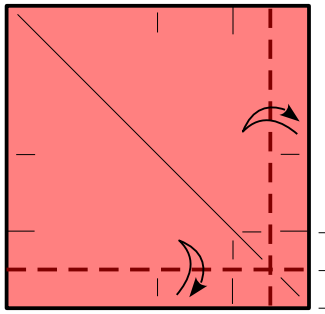
Fold and unfold.

3.



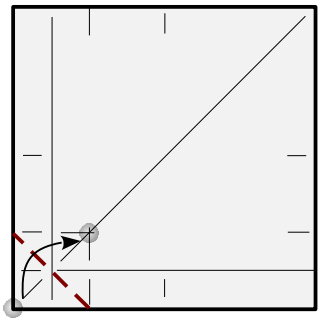
Pinch the quarters.

4.

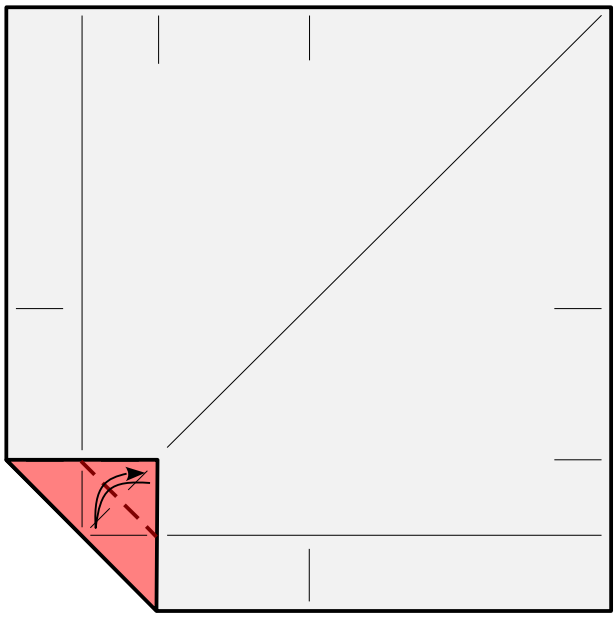


Fold and unfold the eighths.

5.

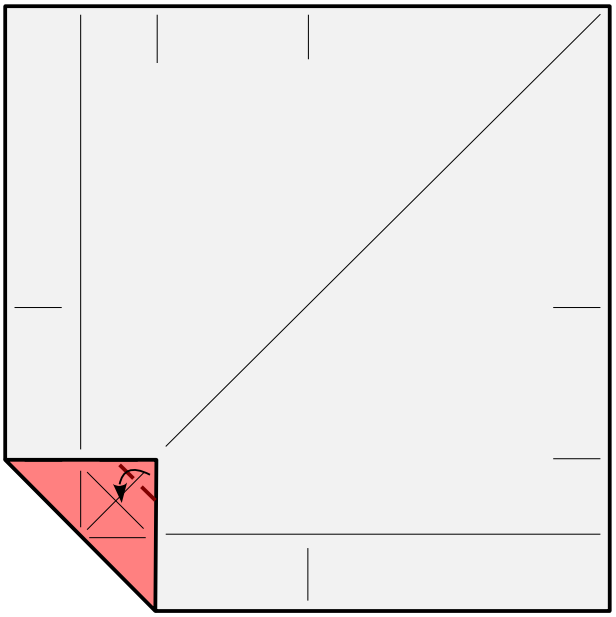


6.

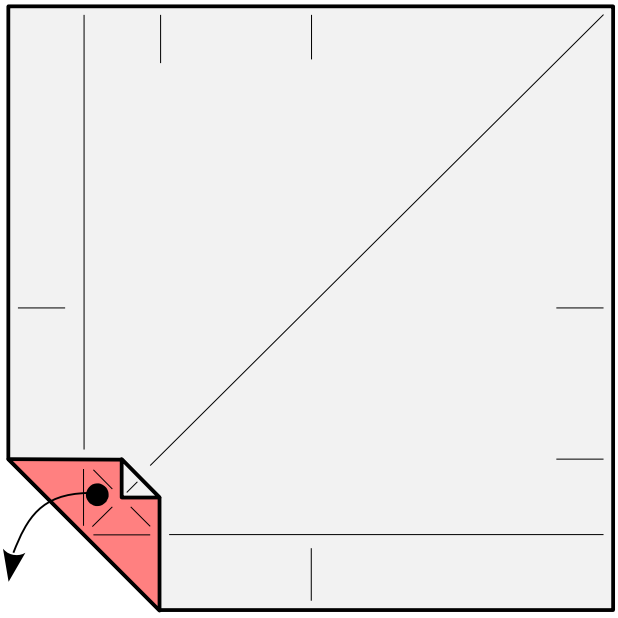


The next few steps can be accomplished by a good eye estimating the center and deft fingers, but adding this fold is easier. A pinch across the diagonal will suffice, but the fold is small anyhow.

7.

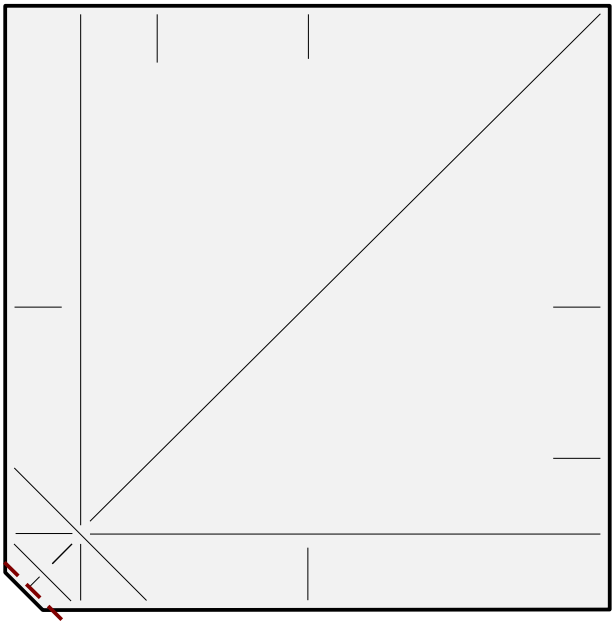


8.



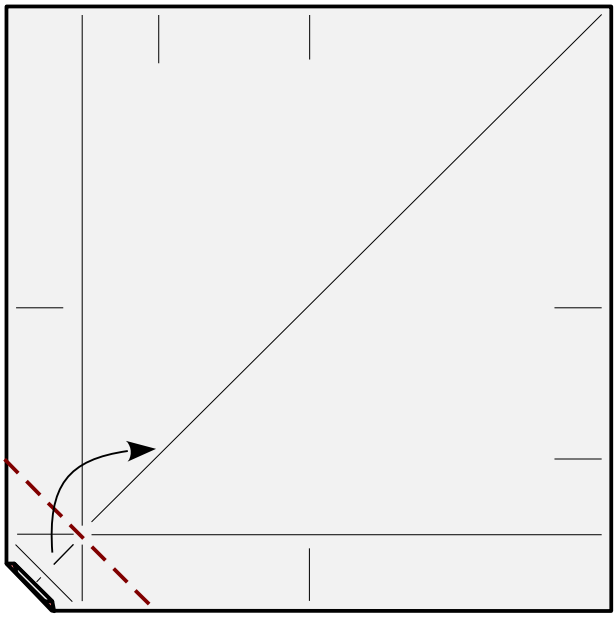
Unfold the large dog-eared corner.

9.



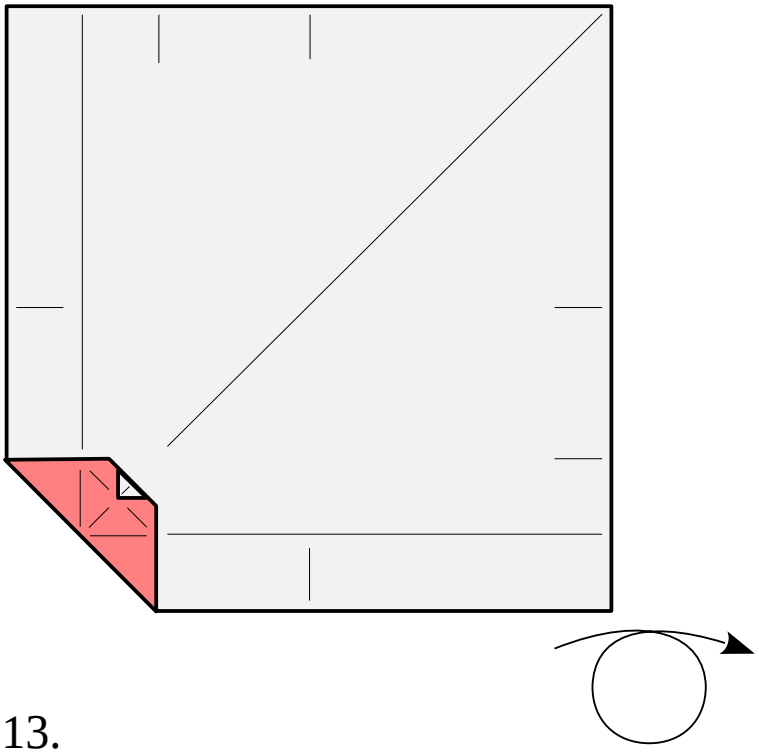
Make a tiny hem to round the top of the heart.

10.

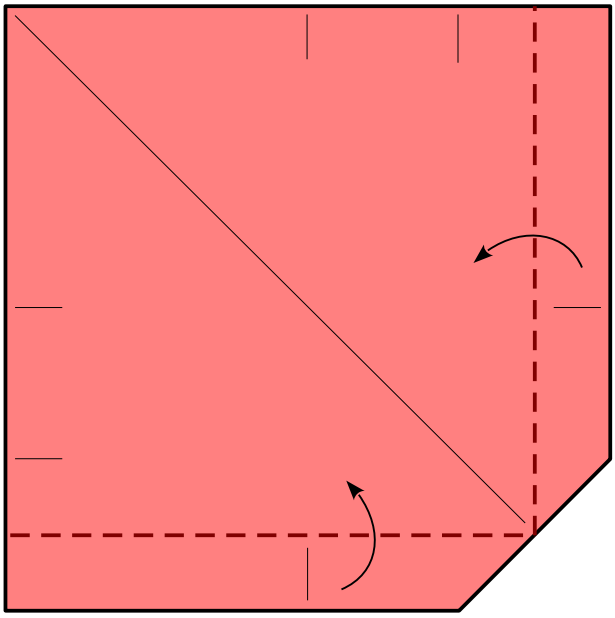


Refold step 5 which was unfolded in step 8.

11.

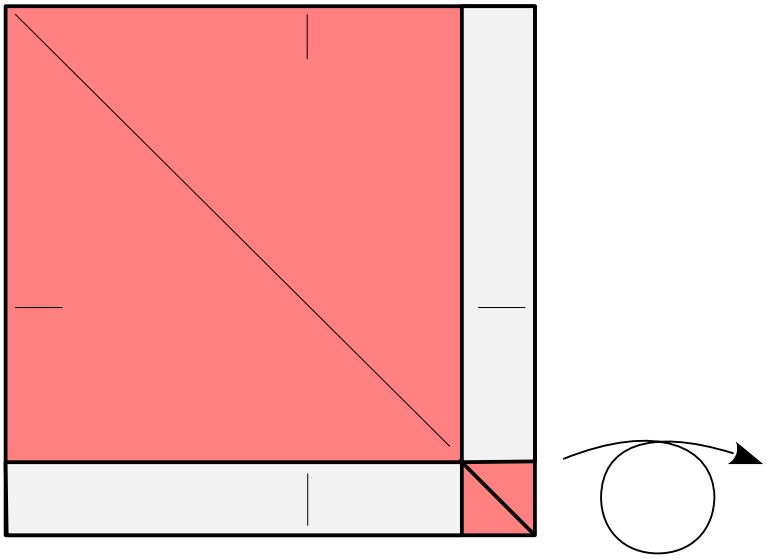


12.

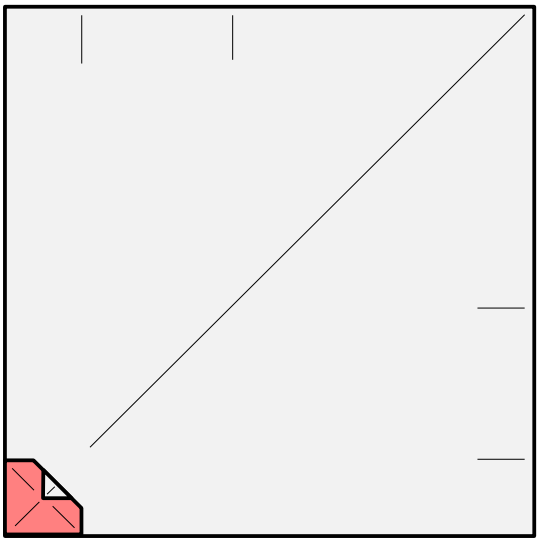


Refold the eighths. No new creases.

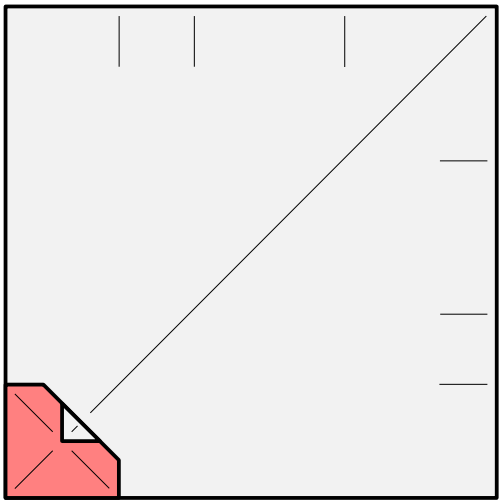
13.



14.



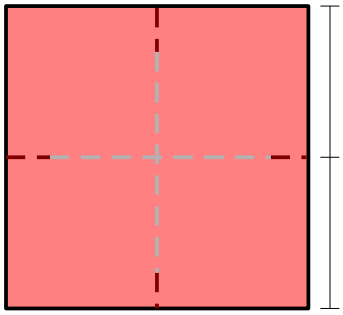
Heart Start 4:
Larger Single Corner



Recommended Paper: kami or other thin, two-sided paper 6” (15cm) square or larger.

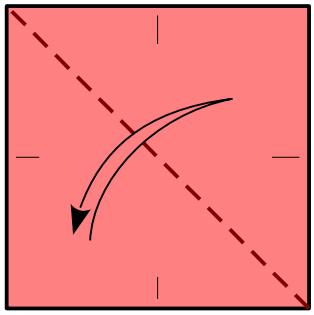
This example again puts just one heart on a single corner, but increases the size of the heart to use a square three-sixteenths the size of the starting square and therefore three-thirteens the size of the new square. This size is better than Heart Start 3 for modifying the traditional Swan, because it can make the wings entirely white without the little color-change triangle. So long as landmarks can be made, the size of the transplanted hearts can be larger or smaller. Even a RAT fold works so long as the hems can be evenly replicated on the other side(s) as needed, though for more than one heart this takes great precision. Four hearts of this particular size each use a square three-tenths of the size of the new square. This is greater than one-quarter, so cupboard folds would run through the hearts. This reduces their usefulness. For hearts one-fourth the size of the new square use sixths on the starting square.

1.



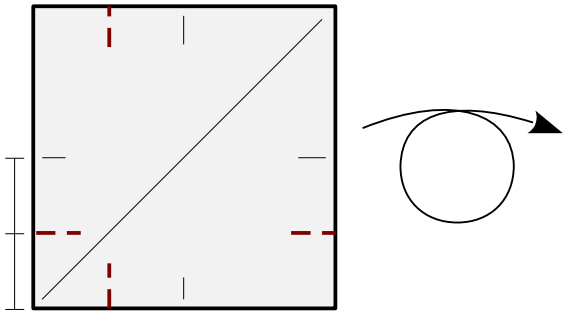
Pinch the book folds.

2.



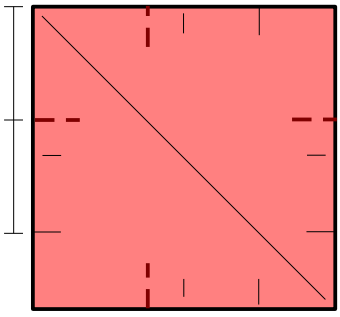
Fold and unfold.

3.



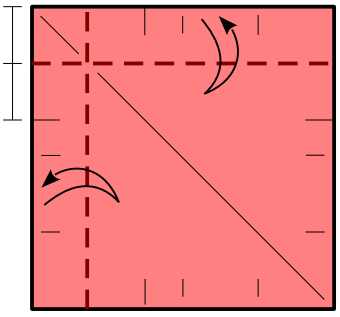
Pinch the quarters.

4.



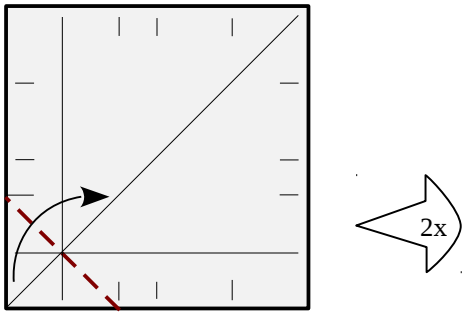
Pinch the 3/8 marks.

5.

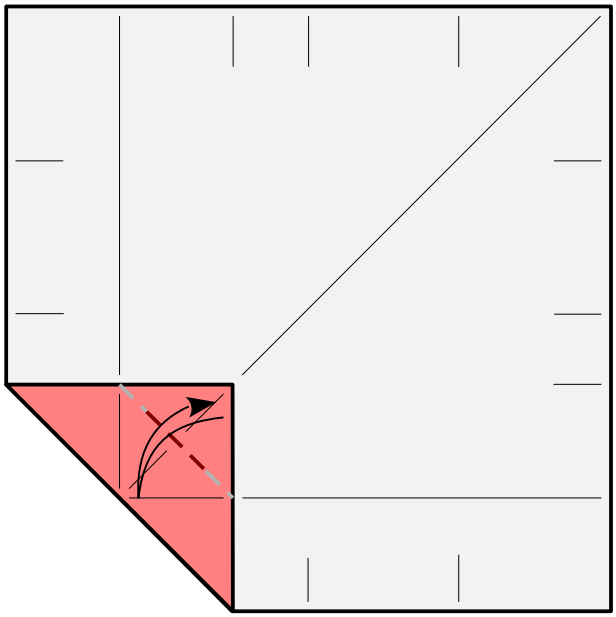


Fold and unfold the 3/16 lines.

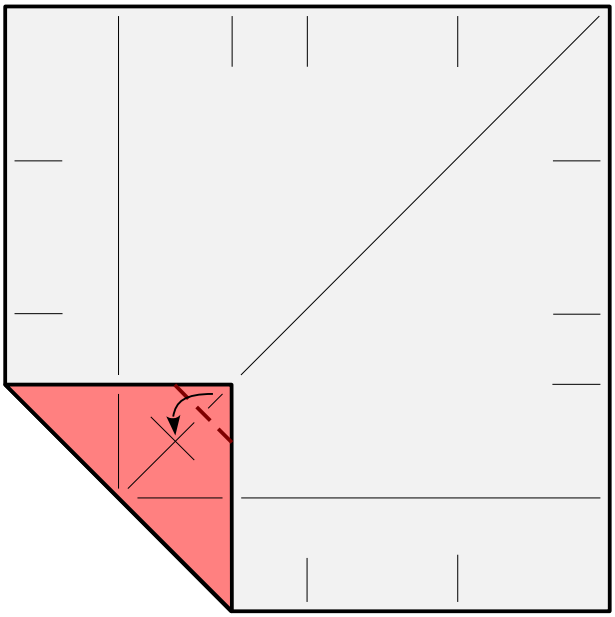
6.



7.

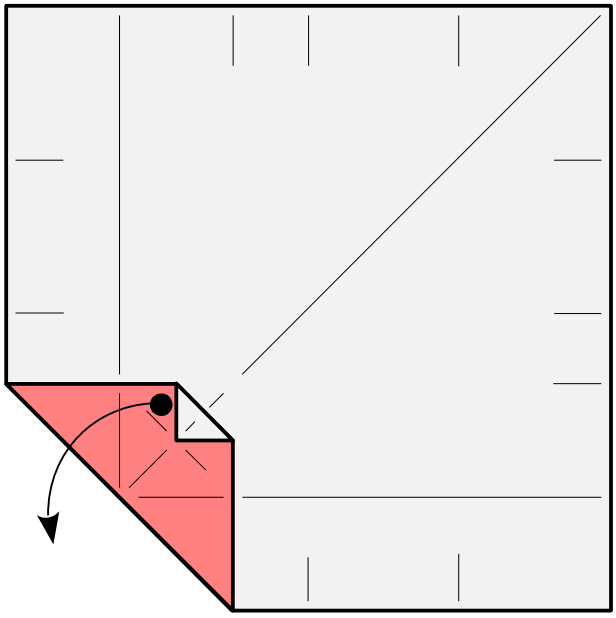


8.



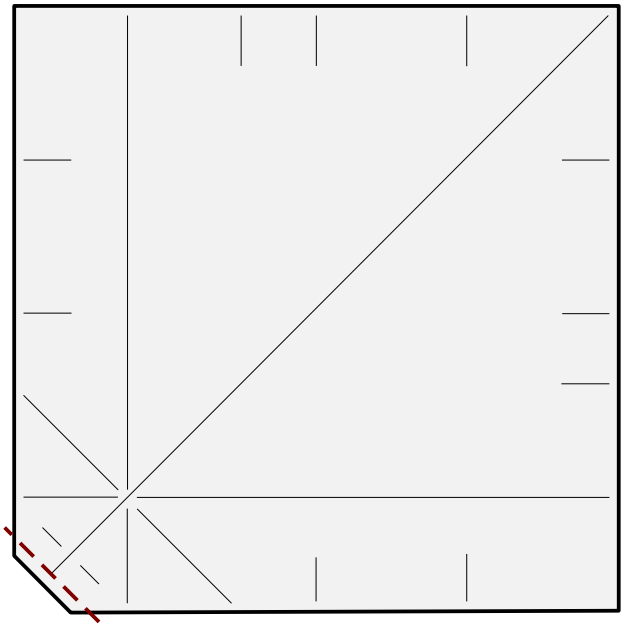
The next few steps can be accomplished by a good eye estimating the center and deft fingers, but adding this fold is easier. A pinch across the diagonal will suffice.

9.



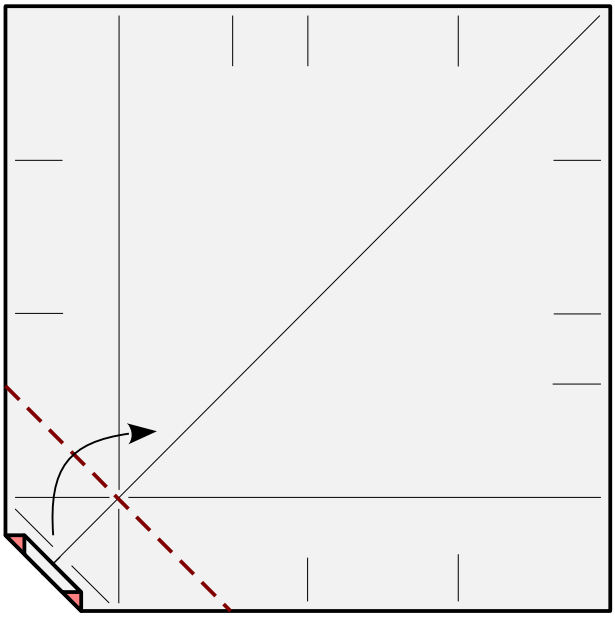
Unfold the large dog-eared corner.

10.



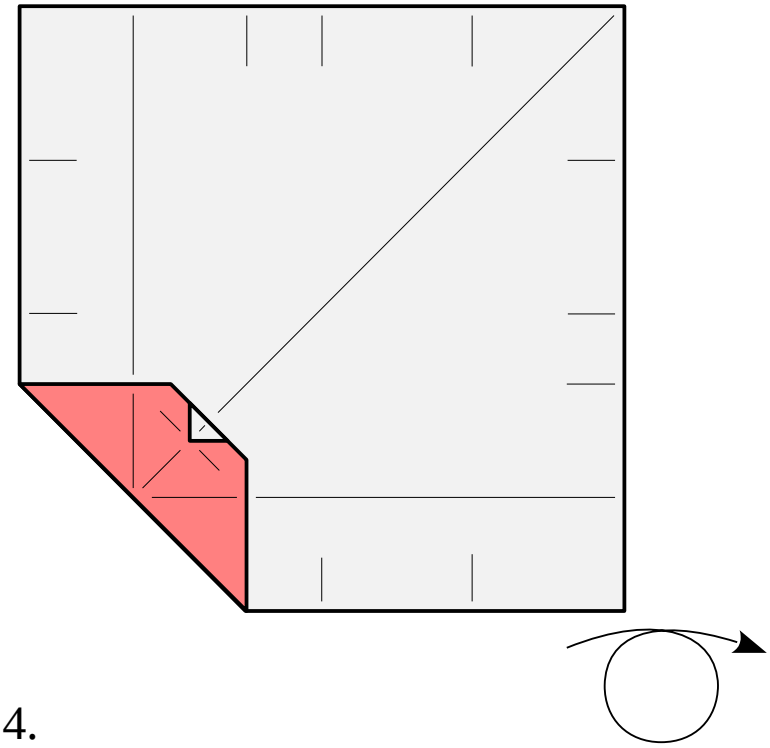
Make a tiny hem to round the top of the heart.

11.

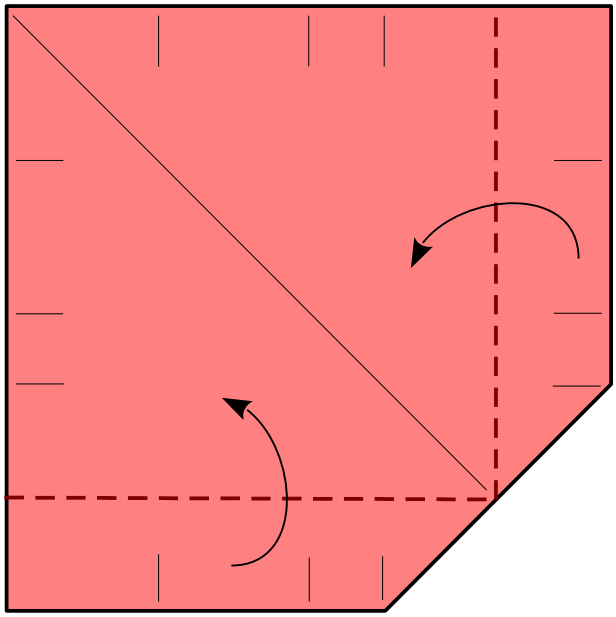


Refold step 6 which was unfolded in step 9.

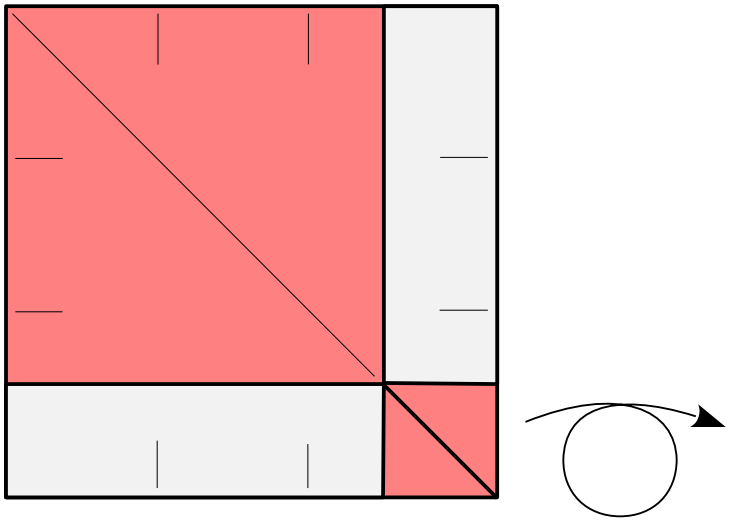
12.



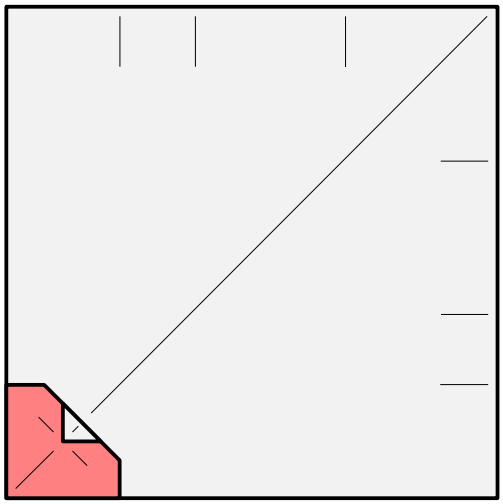
13.



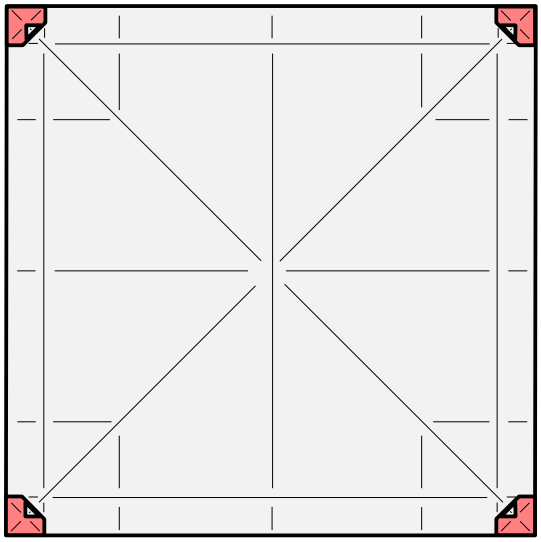
14.



15.



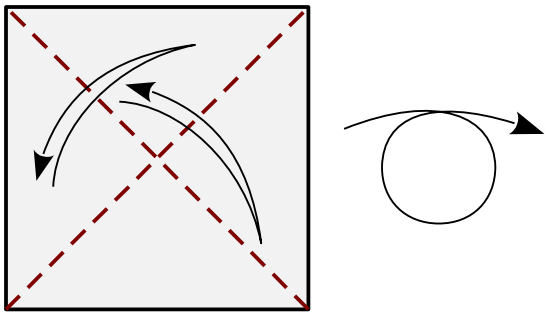
Heart Start 5: Daintier Hearts: 1/16



Recommended Paper: kami or other thin, two-sided paper 6” (15cm) square or larger.

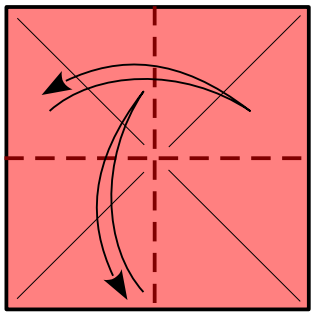
Smaller hearts are also handy. This example forms multiple hearts from squares one-sixteenth the width of the original square and therefore one-fourteenth the size of the new square. Using subsets of corners is similar to the method described in detail previously for larger hearts and therefore left as a trivial exercise for the folder.

1.



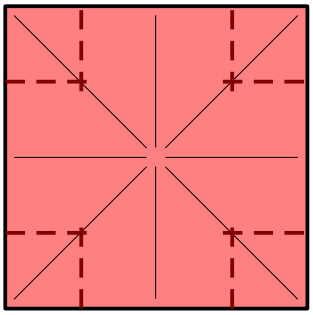
Fold and unfold.

2.



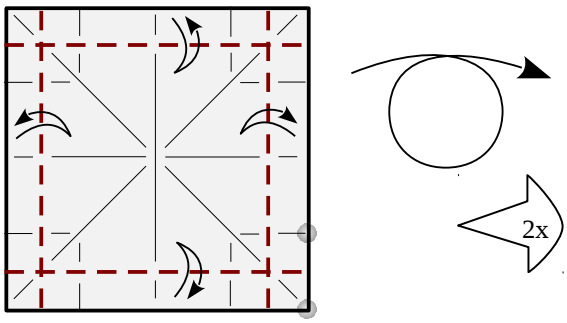
Fold and unfold.

3.



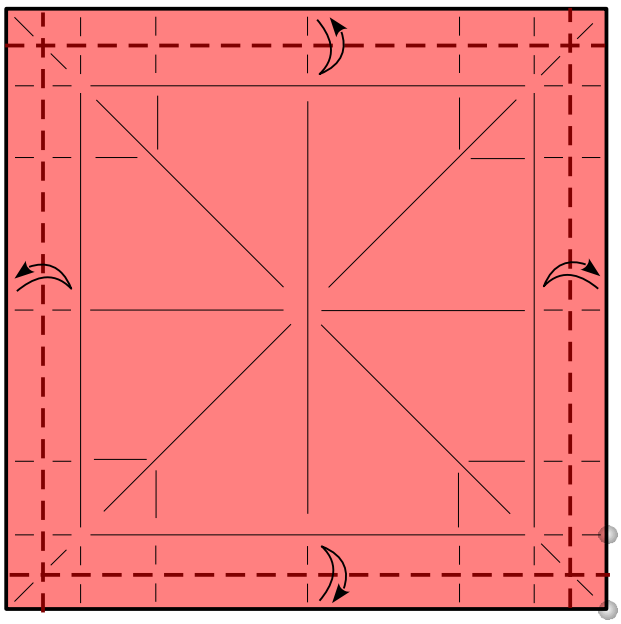
Pinch the quarters. For easy landmarks, make them cross the diagonal creases.

4.



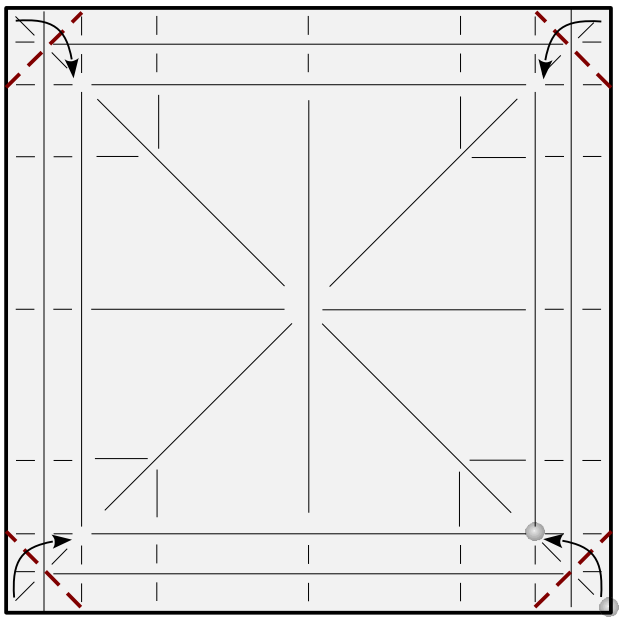
Fold and unfold the eighths.

5.



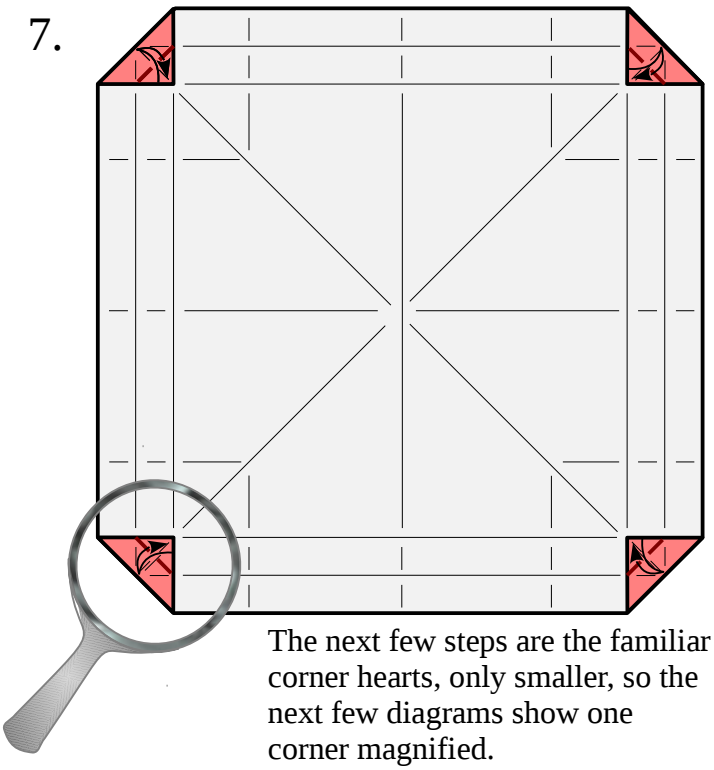
Fold and unfold the sixteenths.

6.



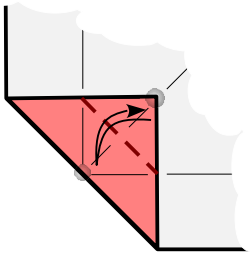
Four (4) valley folds.

7.



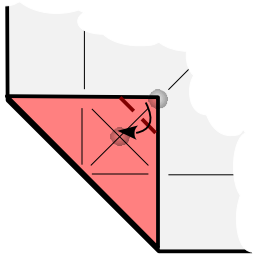
The next few steps are the familiar corner hearts, only smaller, so the next few diagrams show one corner magnified.

8.



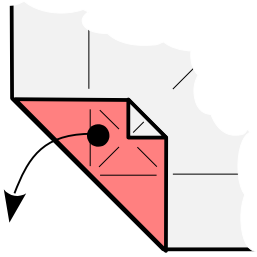
Fold and unfold all four (4) corners the same way.

9.



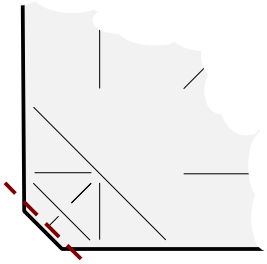
Fold all four (4) corners the same way.

10.



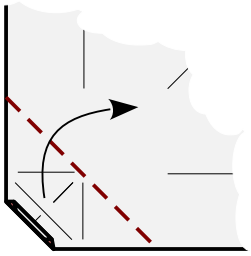
Unfold all four (4) of the larger dog-eared corners the same way.

11.



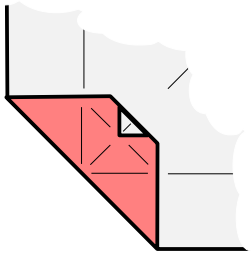
Make tiny hems to round the tops of all four (4) hearts.

12.



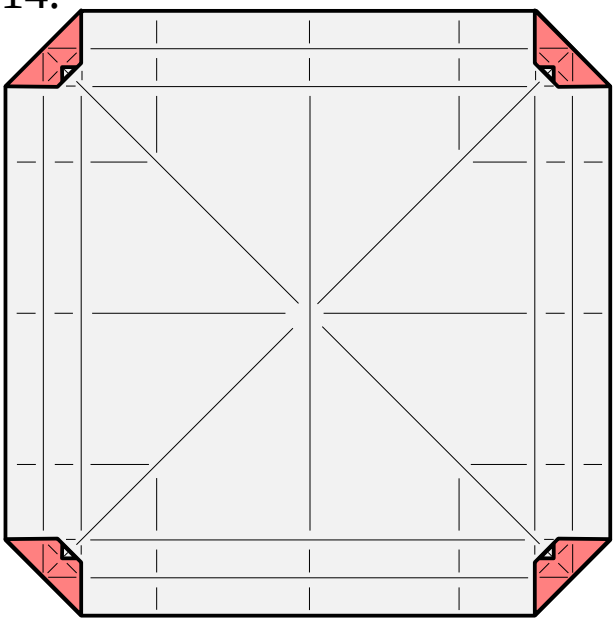
Refold step 6 on all four (4) corners.

13.

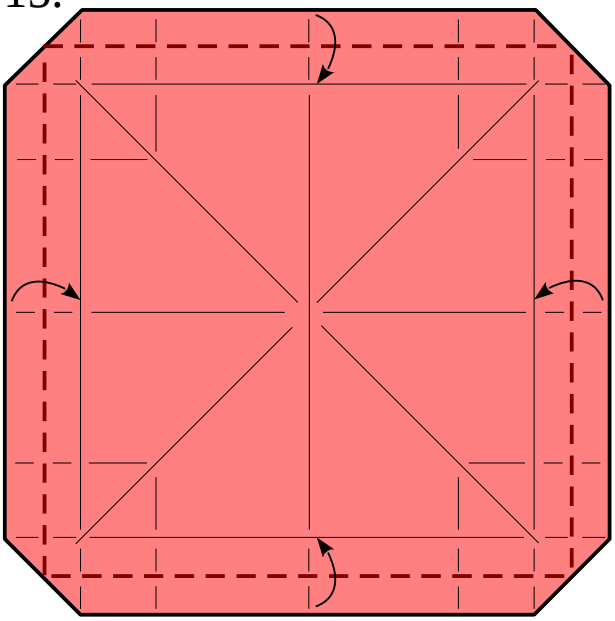


Return to full view.

14.



15.



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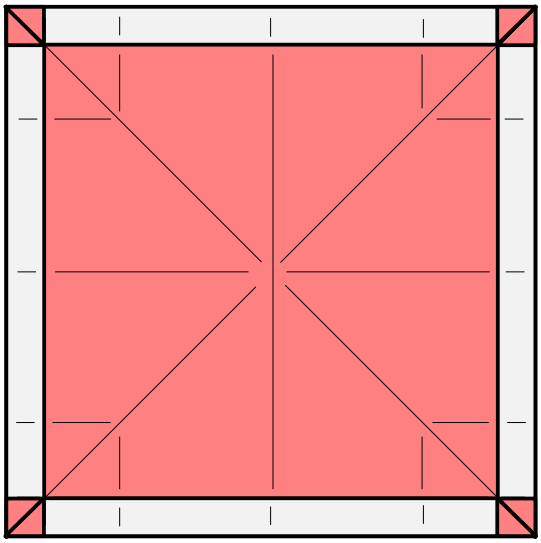
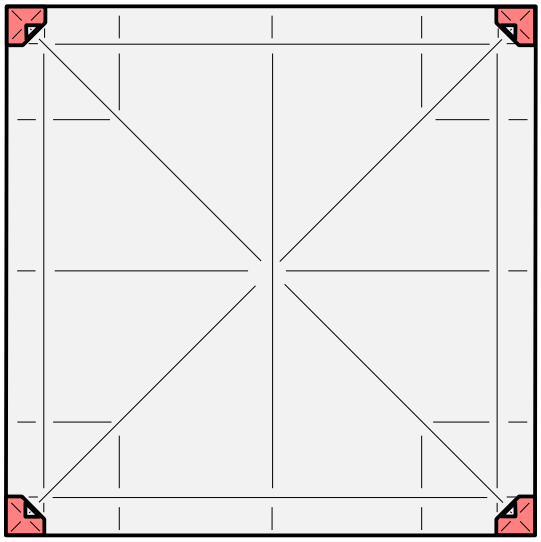
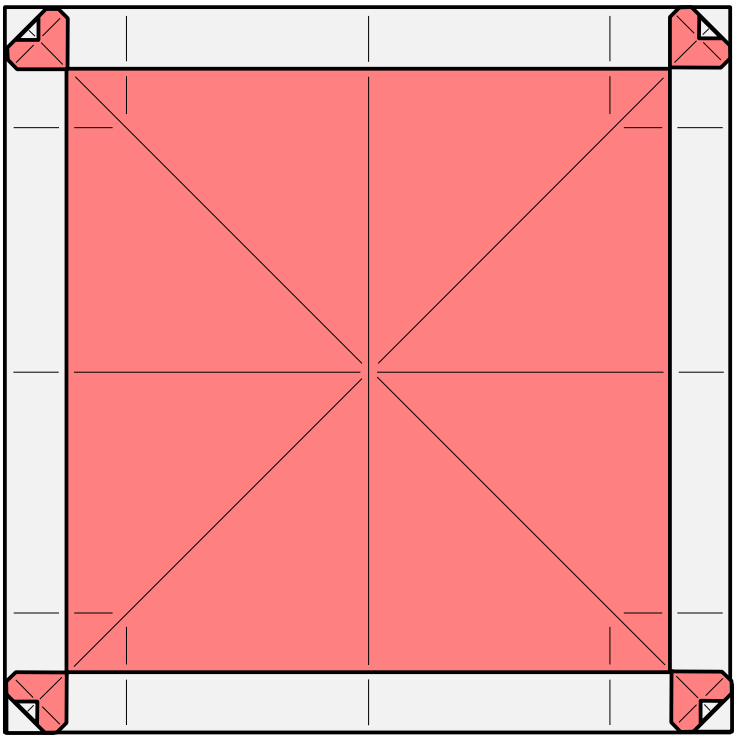


17.

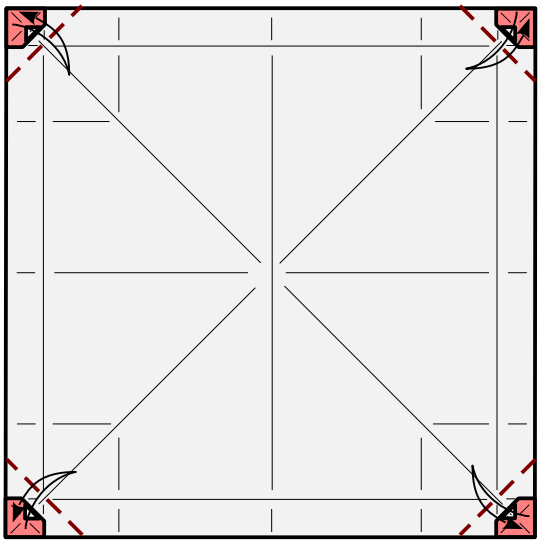


Heart Start 6: Inverted Hearts

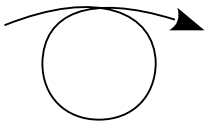


So far the hearts have all had their bottoms pointing outward. It is a simple matter to point them inwards, but it does eat some paper and add layers. The hearts are somewhat more loosely attached, however, so the extra layers are not so disagreeable as they might be and it is always possible to round the sides of the hearts.

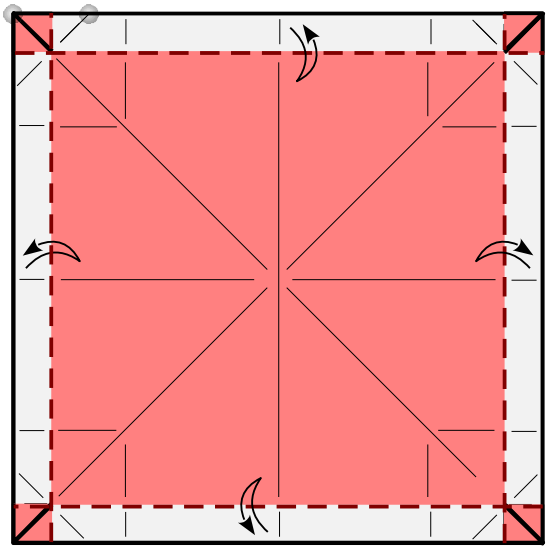
1.

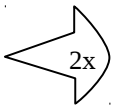


Begin with Heart Start 5.

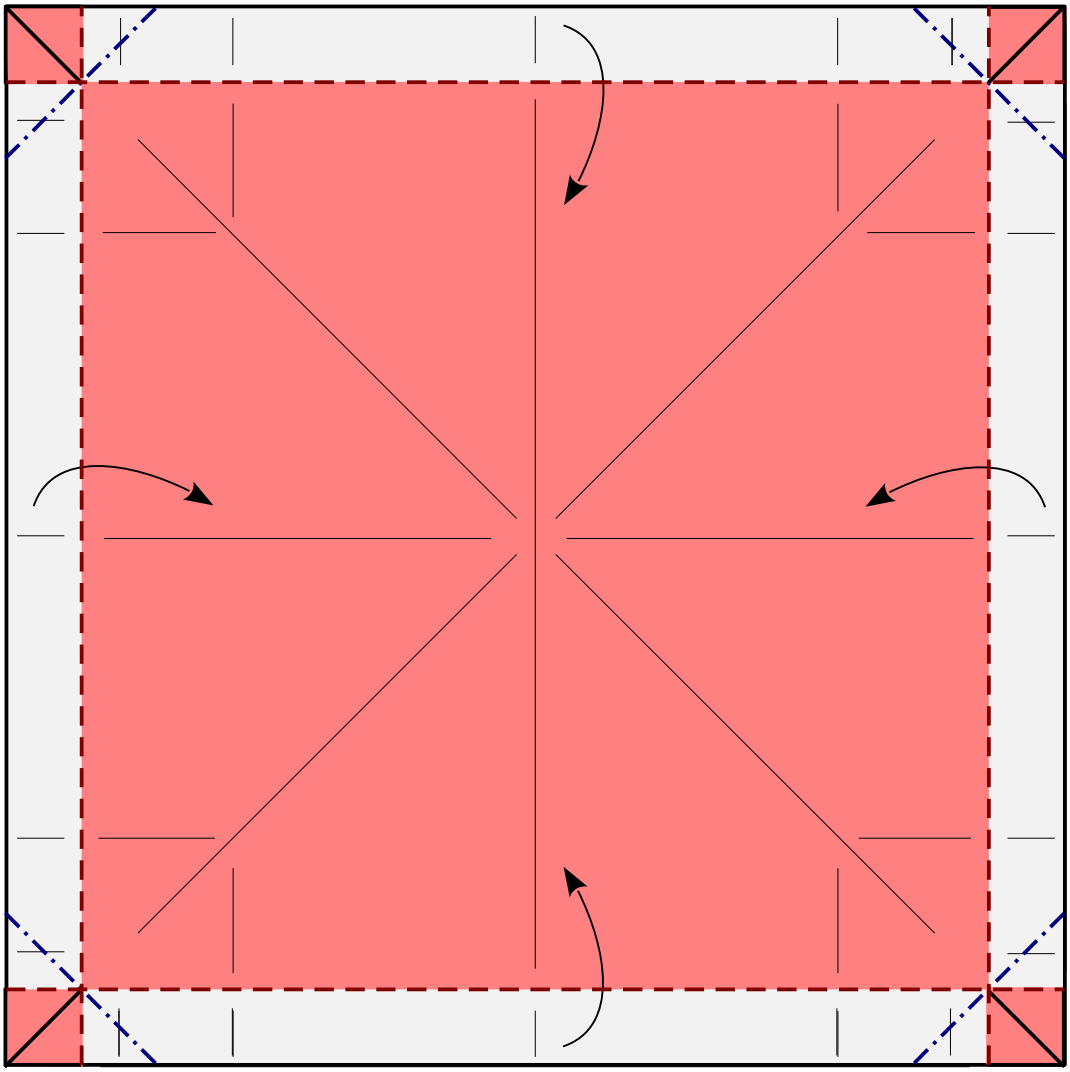


2.



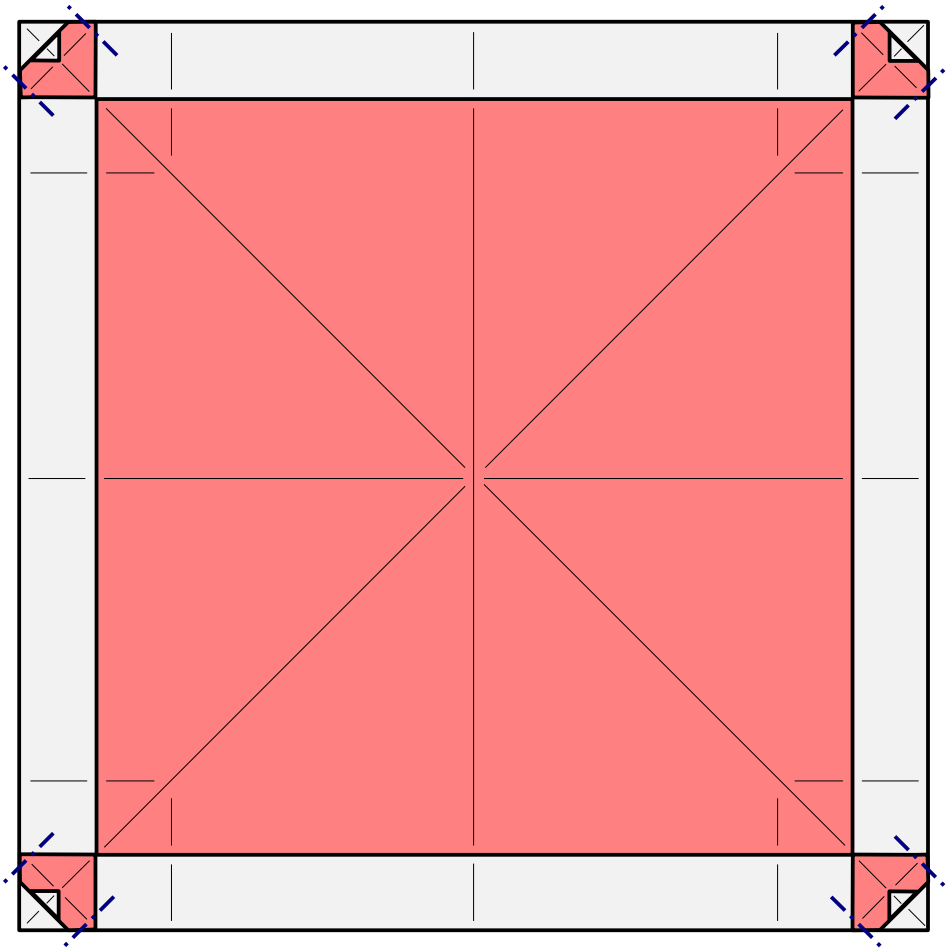


4.



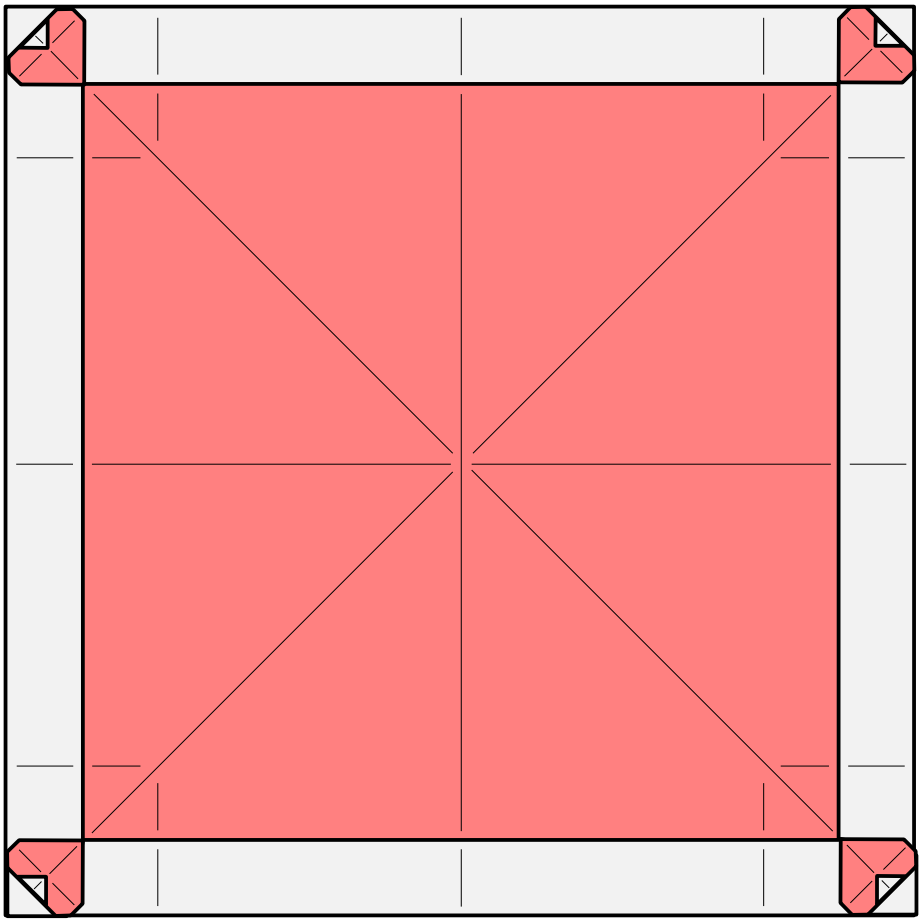
Collapse like four little preliminary bases on the corners.

5.

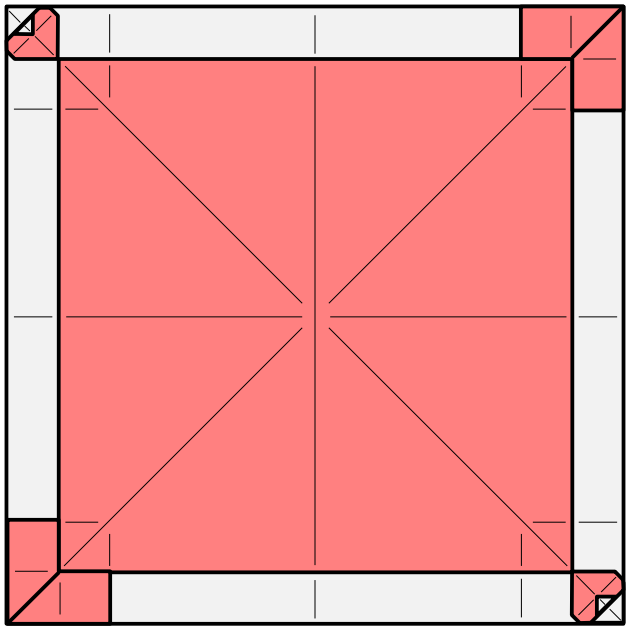


These inverted hearts are already free enough from the square to round their side corners using tiny mountain folds.

6.

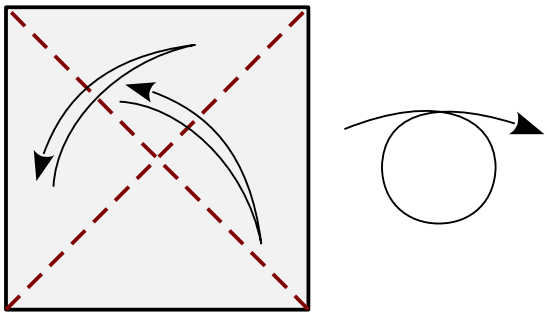


Heart Start 7: Fewer Inverted Hearts



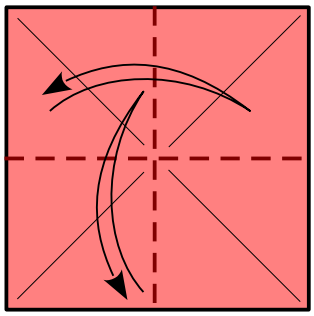
This is almost as easy but not the same as with non-inverted hearts, so here's the details. Pick and choose which corners get hearts as you like. For just one heart, the more efficient solution is again to work with just two edges rather than all four. The important part comes before forming the hearts, of course, so these diagrams again start from scratch rather than from Heart Start 5. The important difference is in step 6.

1.



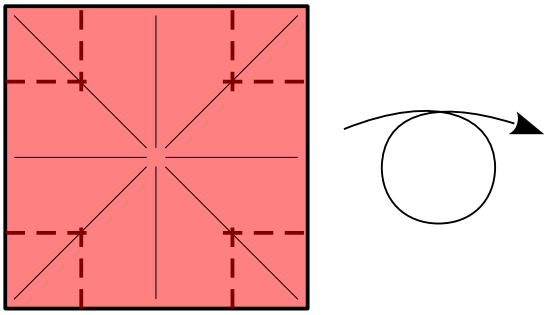
Fold and unfold.

2.



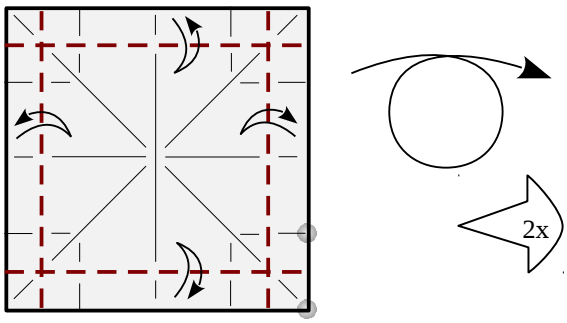
Fold and unfold.

3.



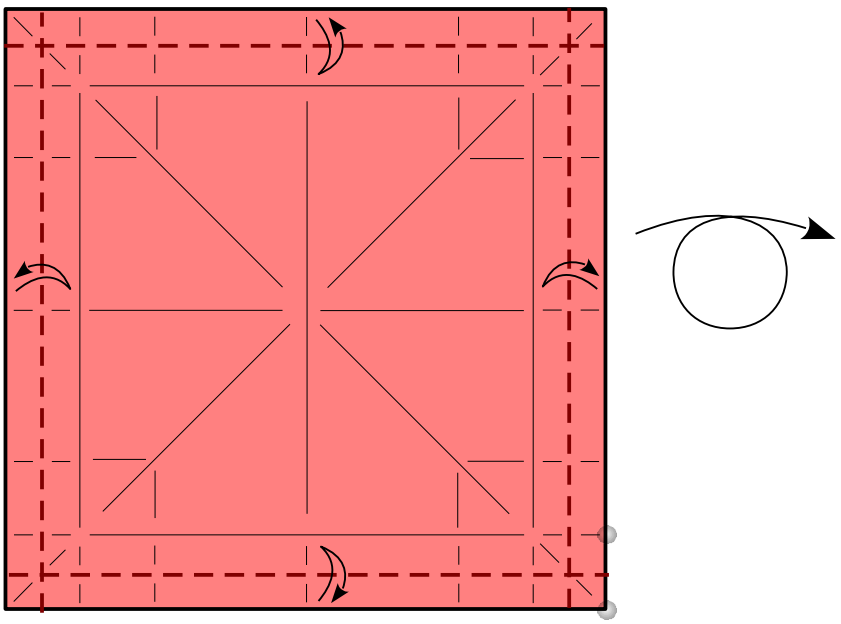
Pinch the quarters. For easy landmarks, make them cross the diagonal creases.

4.



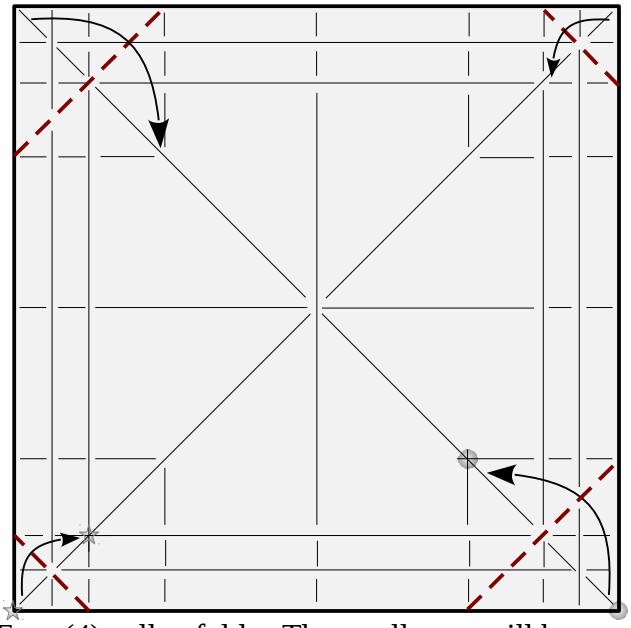
Fold and unfold the eighths.

5.



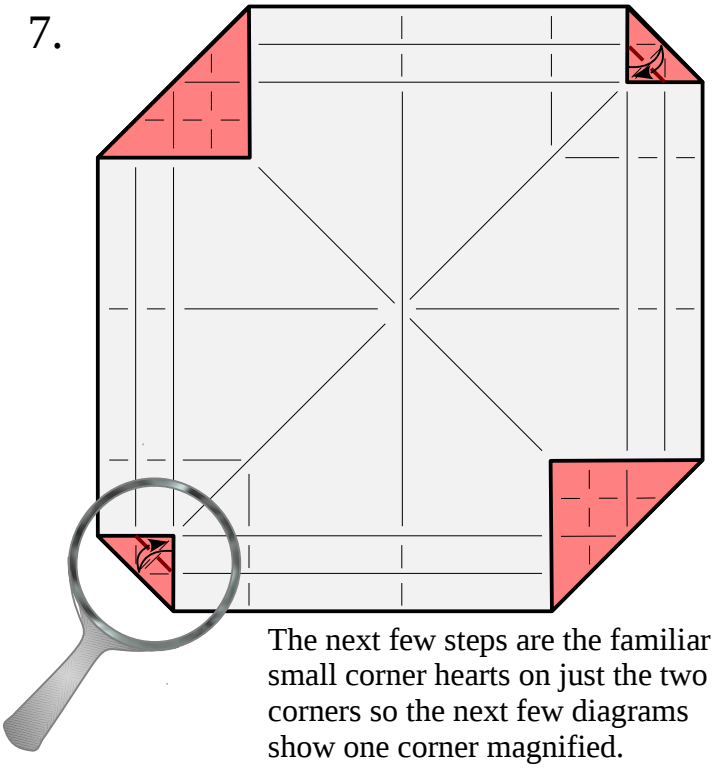
Fold and unfold the sixteenths.

6.



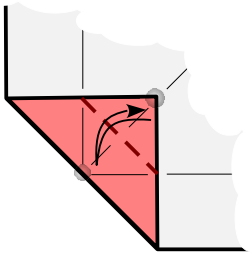
Four (4) valley folds. The small ones will become hearts; the larger ones make the corners without hearts. Mix them up as needed for various models. Two opposite corners are just for example. For a color change on a non-heart corner, change its valley fold to a mountain fold.

7.



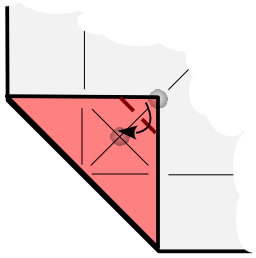
The next few steps are the familiar small corner hearts on just the two corners so the next few diagrams show one corner magnified.

8.



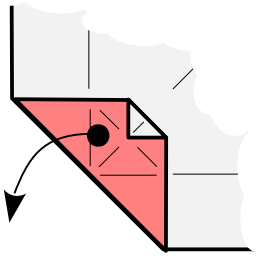
Fold and unfold all four (4) corners the same way.

9.



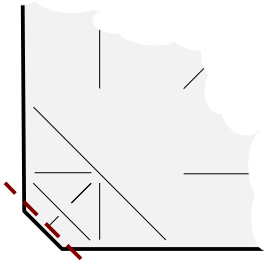
Fold all four (4) corners the same way.

10.



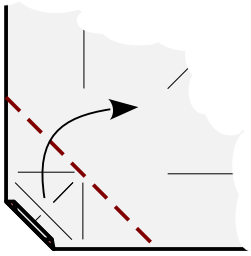
Unfold all four (4) of the larger dog-eared corners the same way.

11.



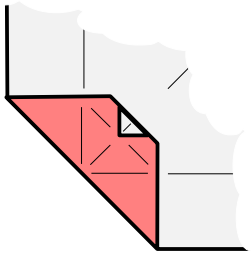
Make tiny hems to round the tops of all four (4) hearts.

12.



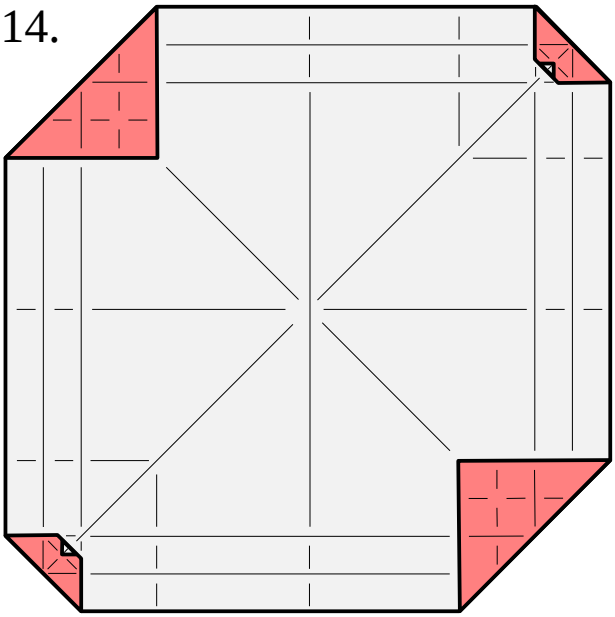
Refold step 6 on all four (4) corners.

13.

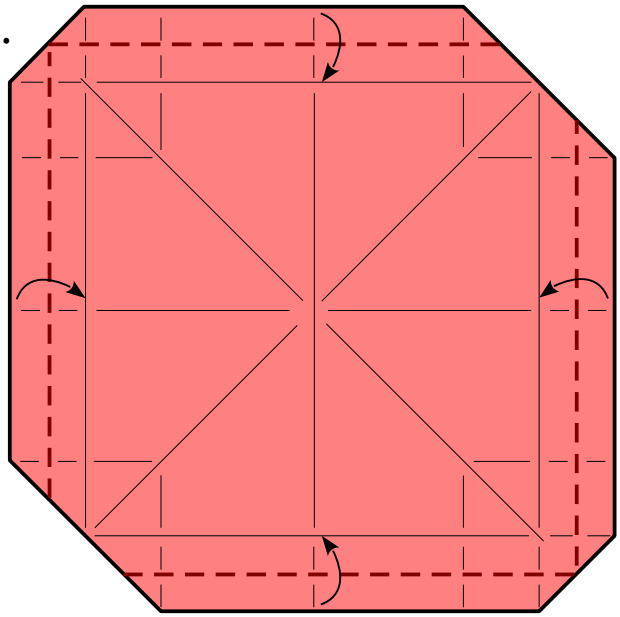


Return to full view.

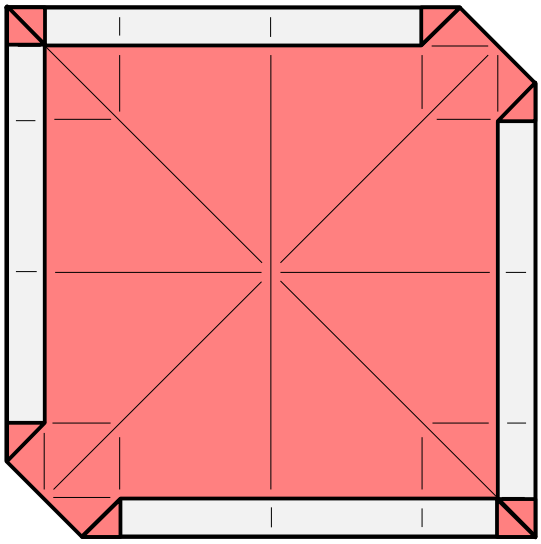
14.



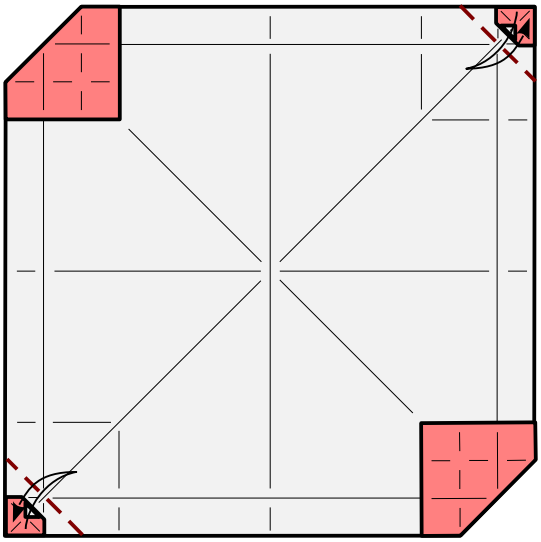
15.



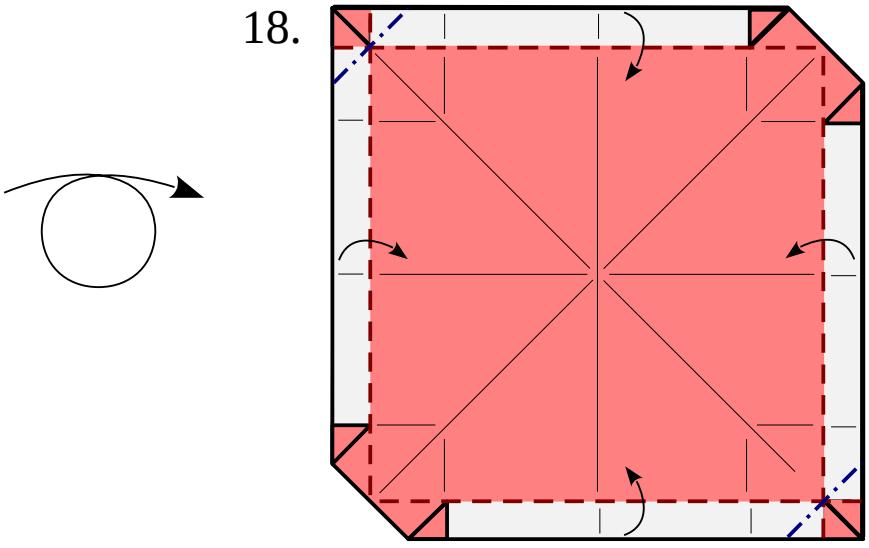
16.



17.

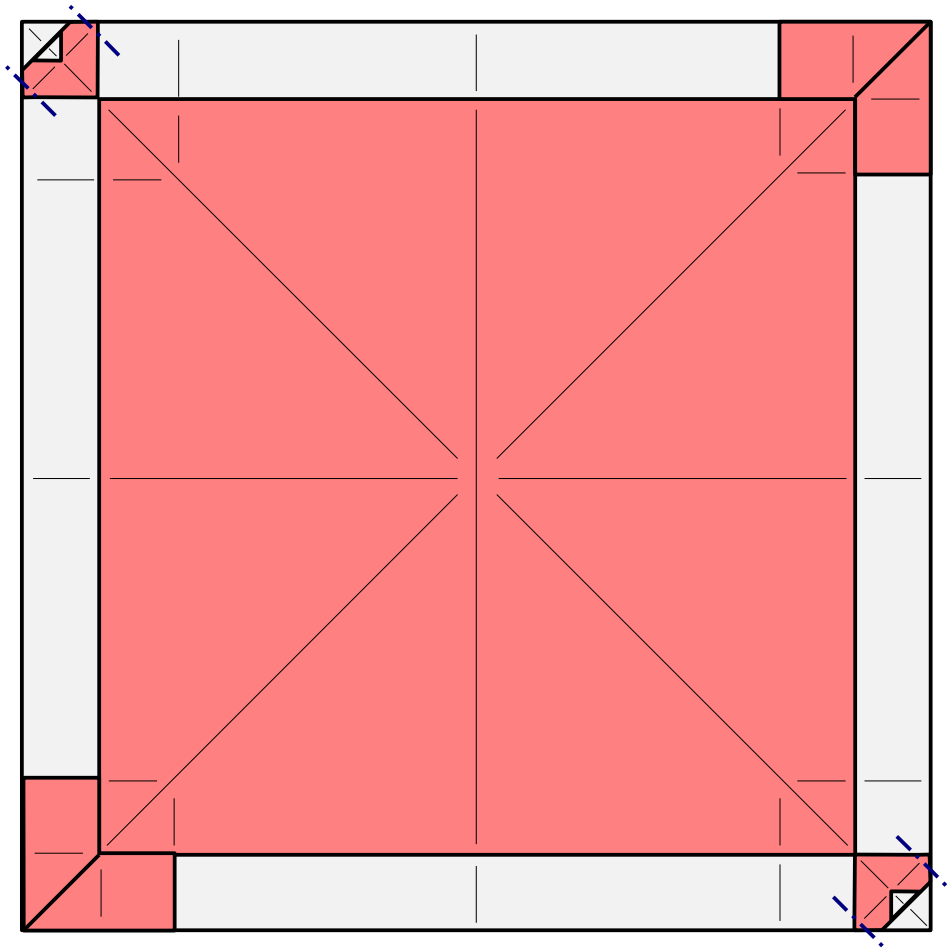


18.



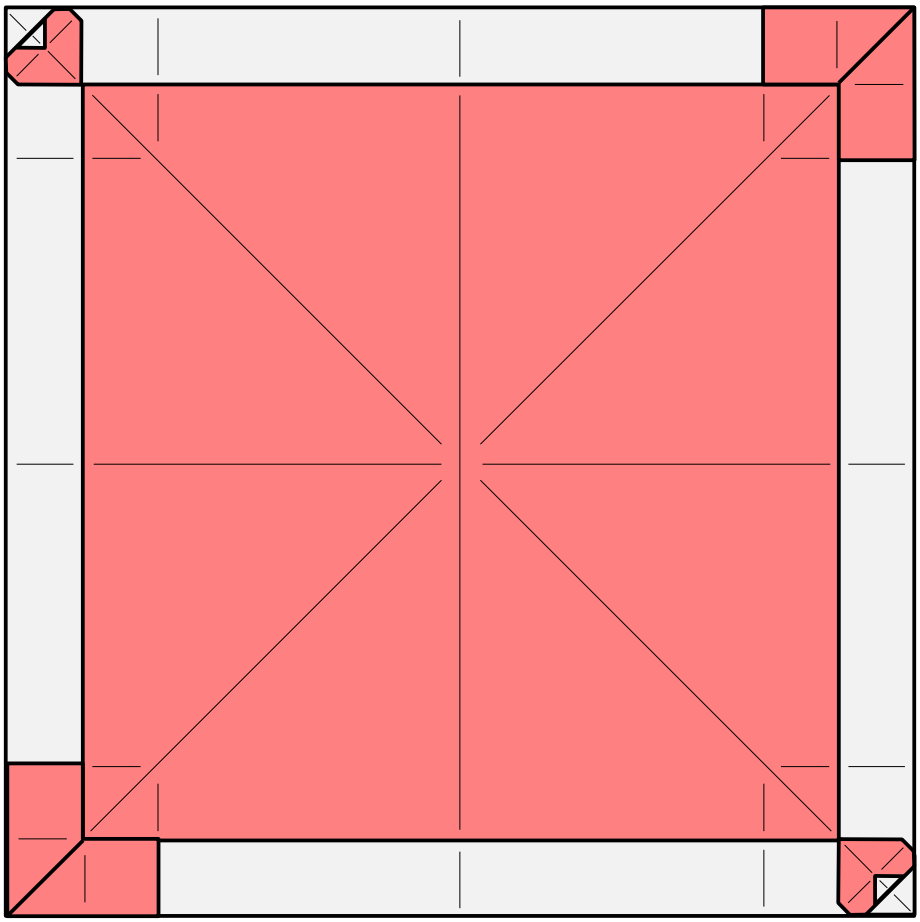
Collapse like two little preliminary bases on the corners.

19.

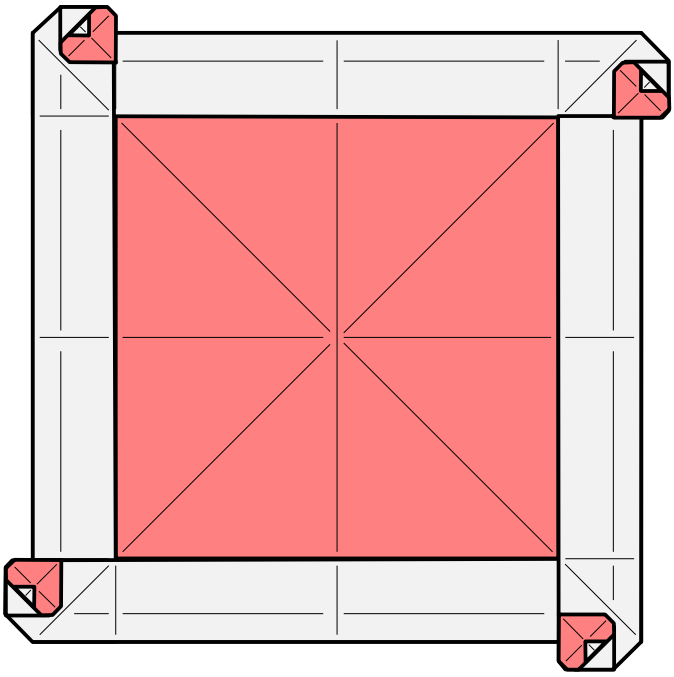


These inverted hearts are already free enough from the square to round their side corners using tiny mountain folds.

20.

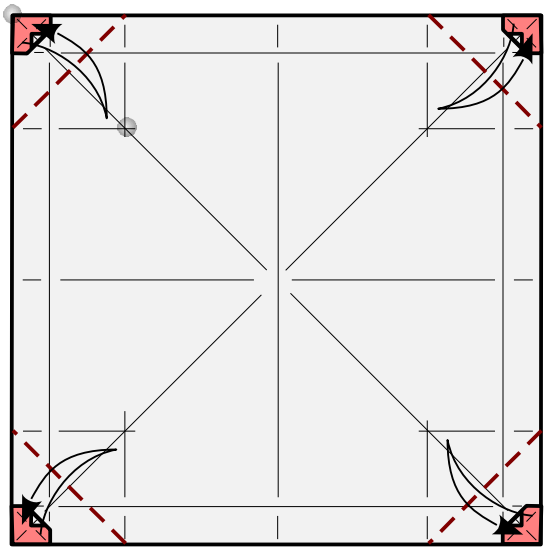


Heart Start 8: Articulated Hearts

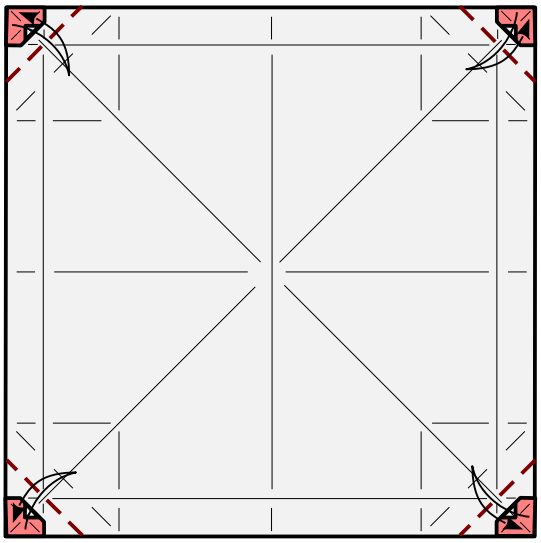


So far the hearts have been stuck in place with their bottoms pointing outward. Not only do articulated hearts point inward rather than outward, but they can also pivot to face the other side of the paper and show on the other side if the corner is narrowed. No longer does the location of the heart dictate which face of the square takes the role of the colorful side in order to show the hearts. Furthermore, they can rest on either side of the diagonal, allowing for some adjustments to symmetry. All these wonderful features take a fair amount of paper, so smaller hearts like the 1/16 width hearts in Heart Start 5 are more useful.

1.

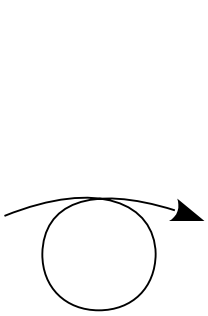


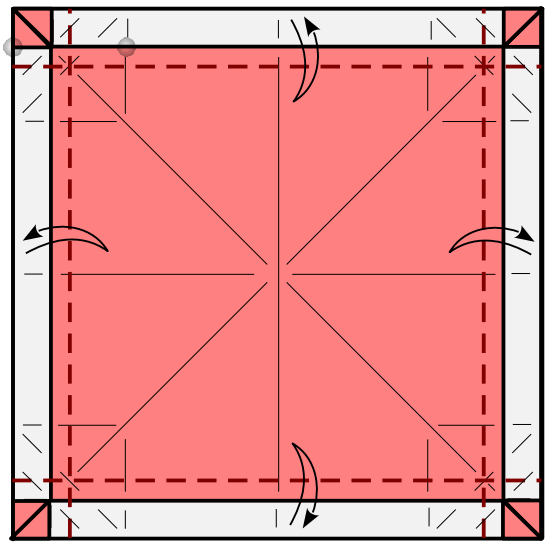
2.

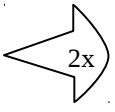


Begin with Heart Start 5.

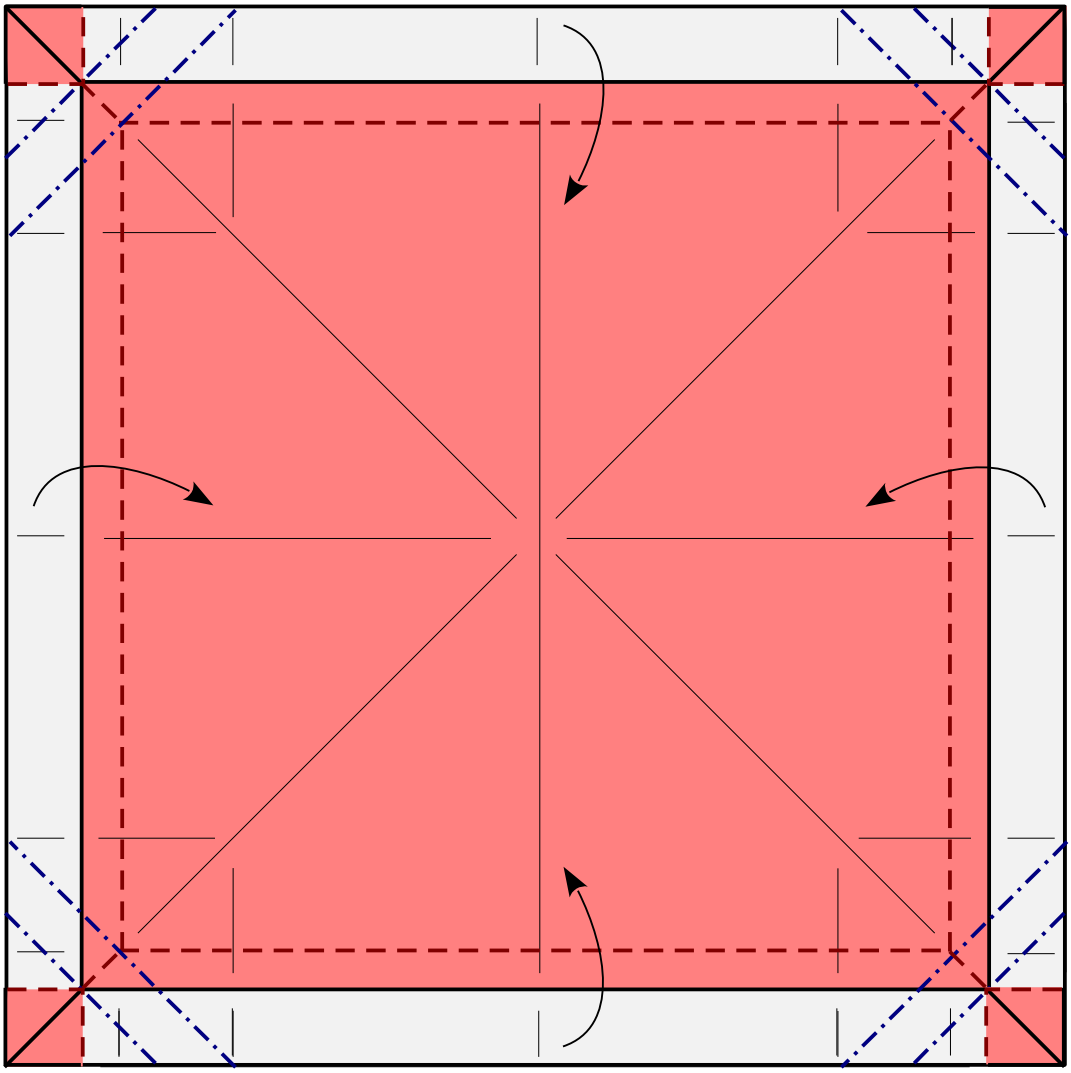
3.





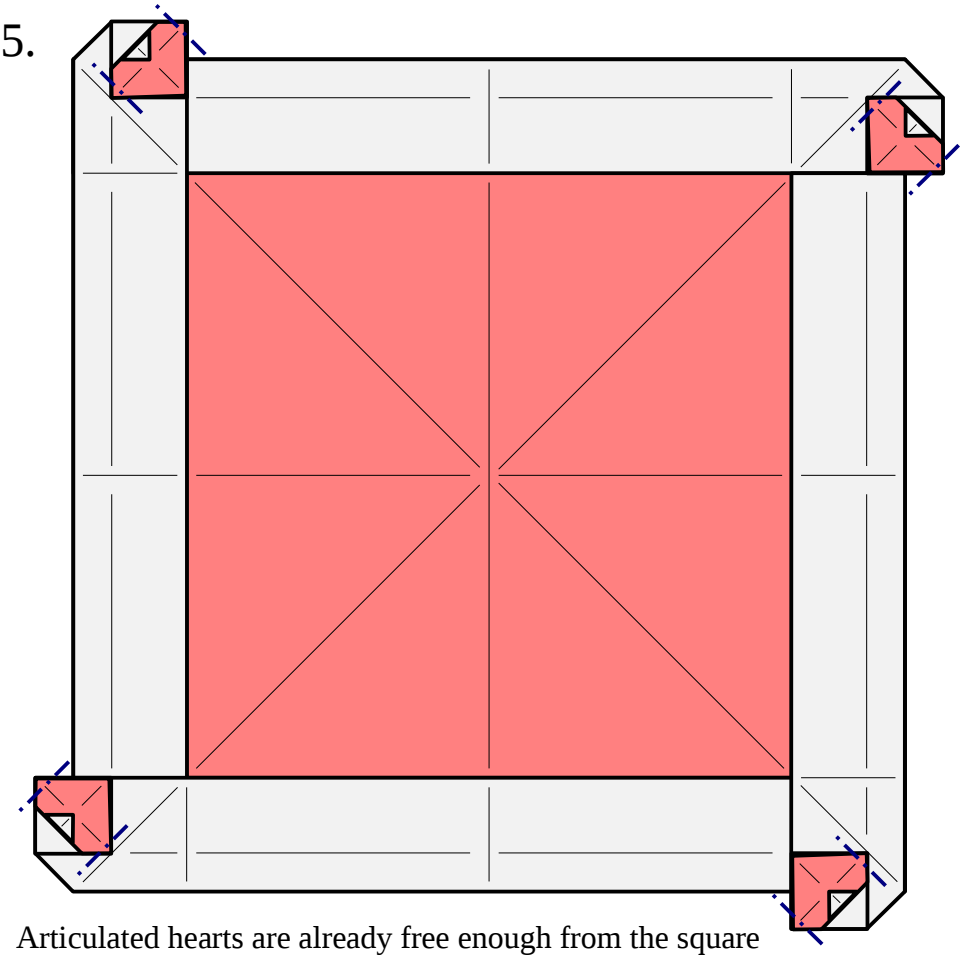


4.



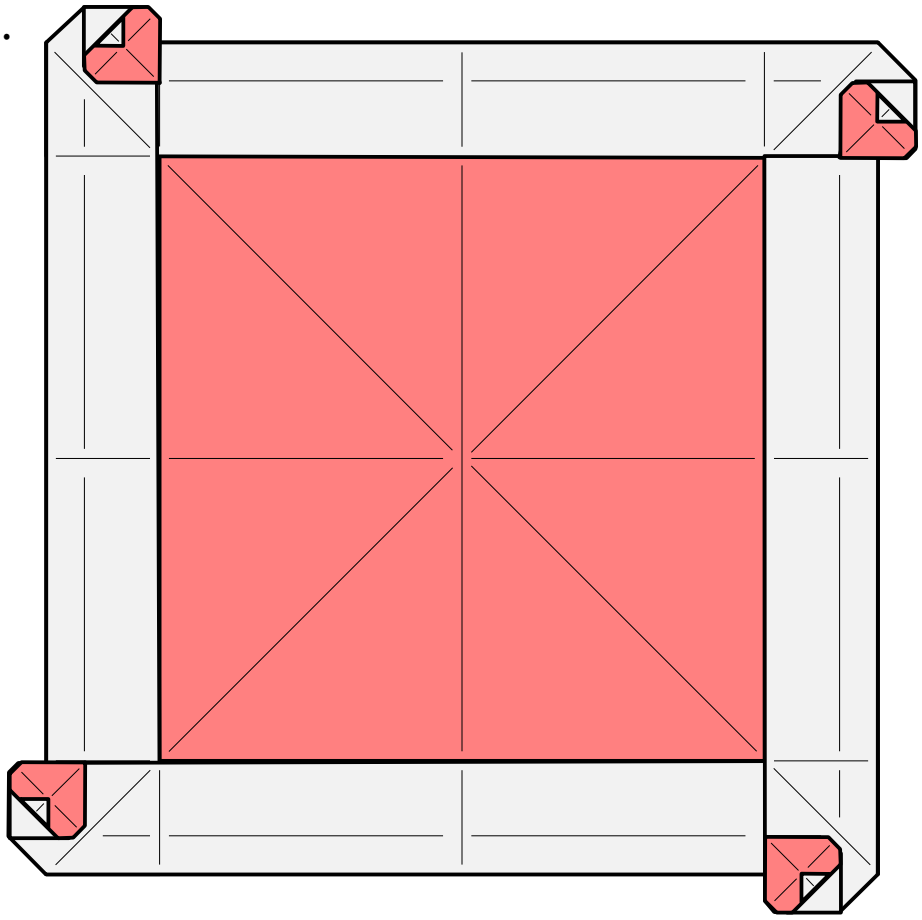
Collapse. Flatten the hearts clockwise or widdershins, as you wish, but it helps precision to exercise them both ways.

5.

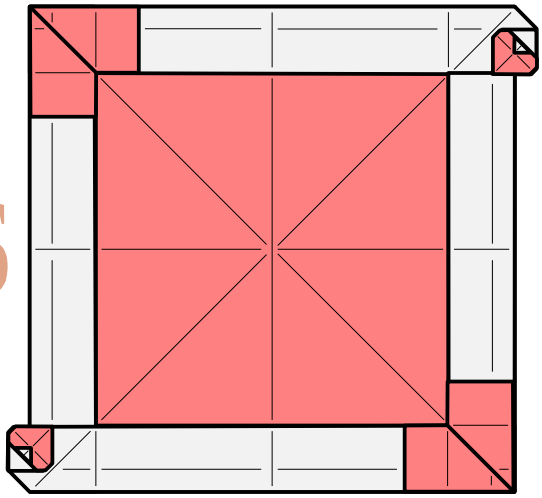


Articulated hearts are already free enough from the square to round their side corners using tiny mountain folds.

6.

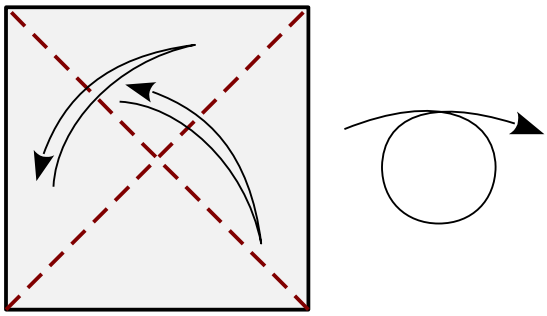


Heart Start 9: Fewer Articulated Hearts



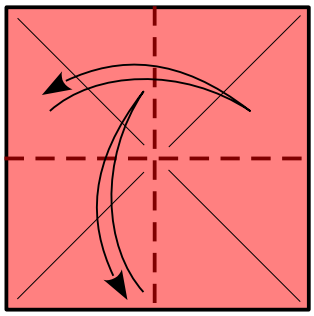
Reducing the number of articulated hearts is similar to reducing the number of inverted hearts, but the corners need a deeper landmark, so the following diagrams demonstrate specifically how to do this. Valley/mountain-ness of the those folds becomes a highly useful option, depending on which side of the paper will be the colorful side of the paper.

1.



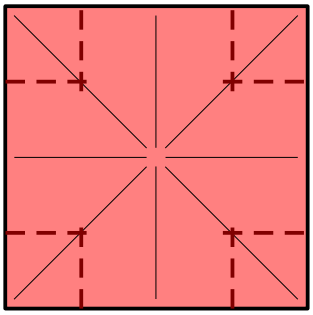
Fold and unfold.

2.



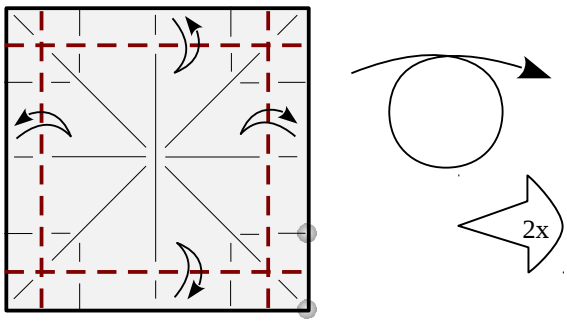
Fold and unfold.

3.



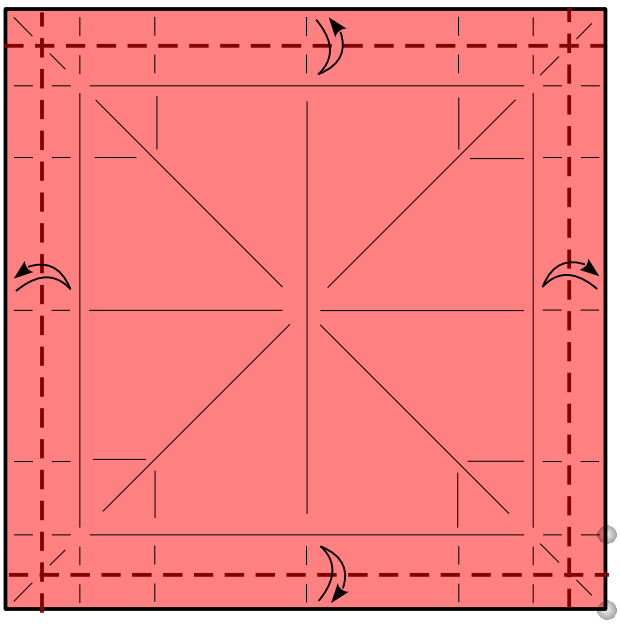
Pinch the quarters. For easy landmarks, make them cross the diagonal creases.

4.



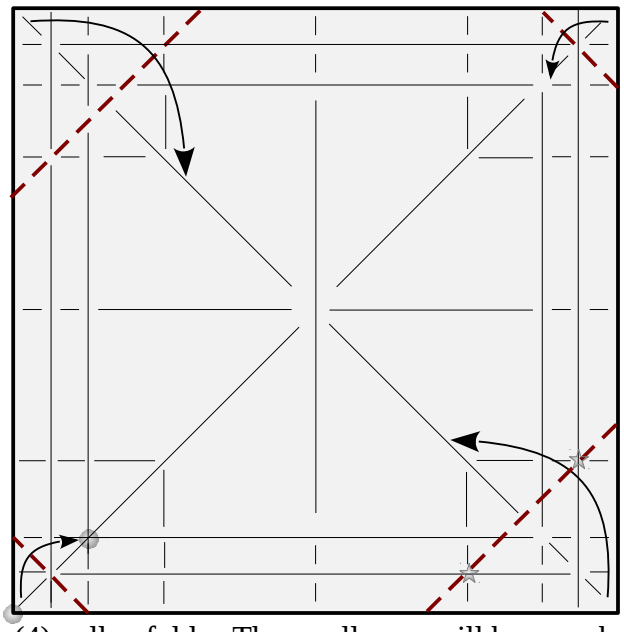
Fold and unfold the eighths.

5.



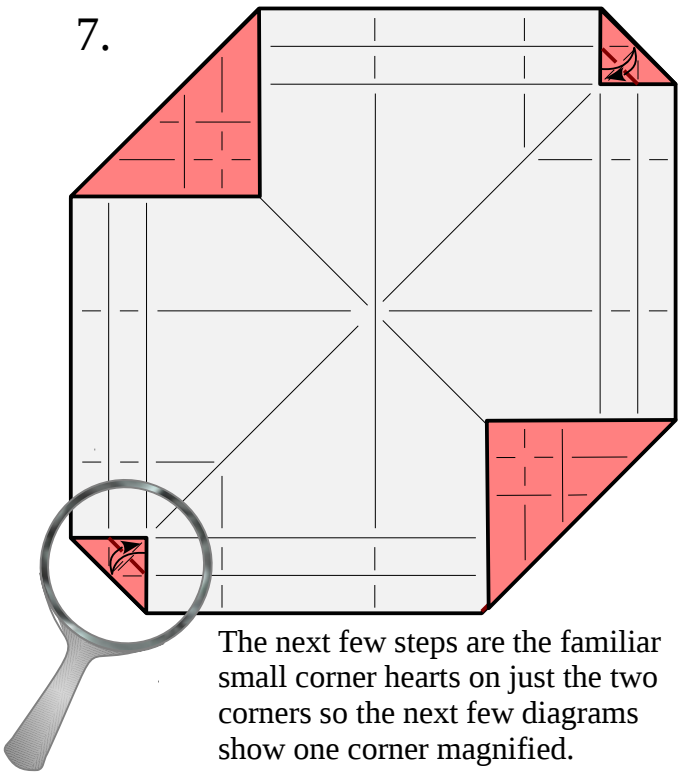
Fold and unfold the sixteenths.

6.



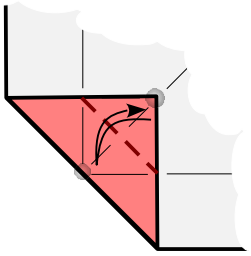
Four (4) valley folds. The small ones will become hearts; fold the corner to the second nearest intersection along the diagonal. The larger ones make the corners without hearts; fold *through* the intersections marked with stars and make sure the corner lands on the diagonal. Mix them up as needed. For a color change on a non-heart corner, swap its valley fold for a mountain fold.

7.



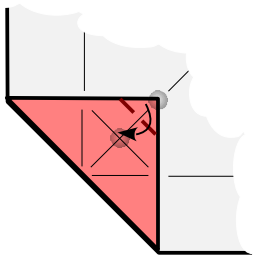
The next few steps are the familiar small corner hearts on just the two corners so the next few diagrams show one corner magnified.

8.



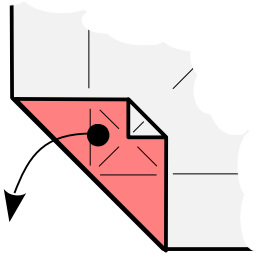
Fold and unfold all four (4) corners the same way.

9.



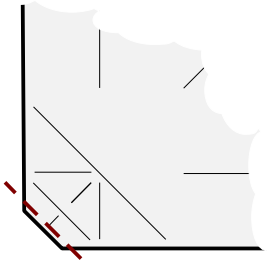
Fold all four (4) corners the same way.

10.



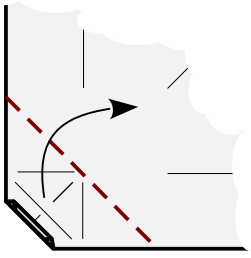
Unfold all four (4) of the larger dog-eared corners the same way.

11.



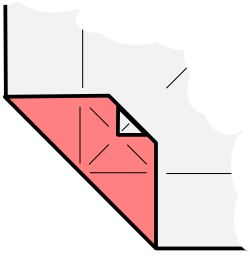
Make tiny hems to round the tops of all four (4) hearts.

12.



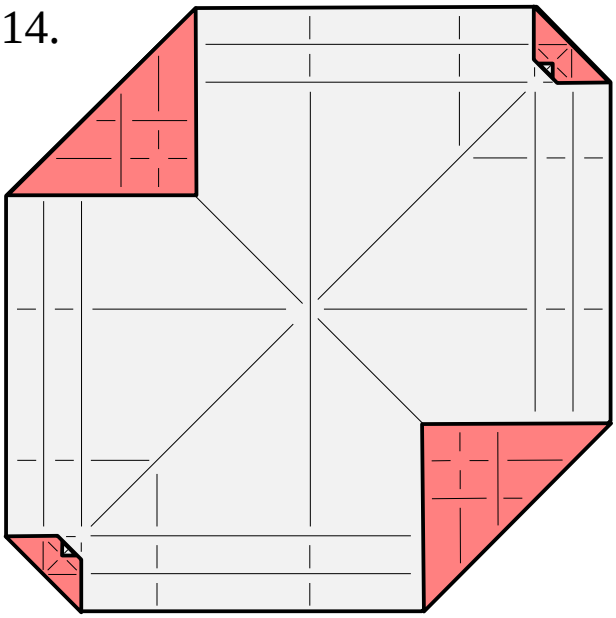
Refold step 6 on all four (4) corners.

13.

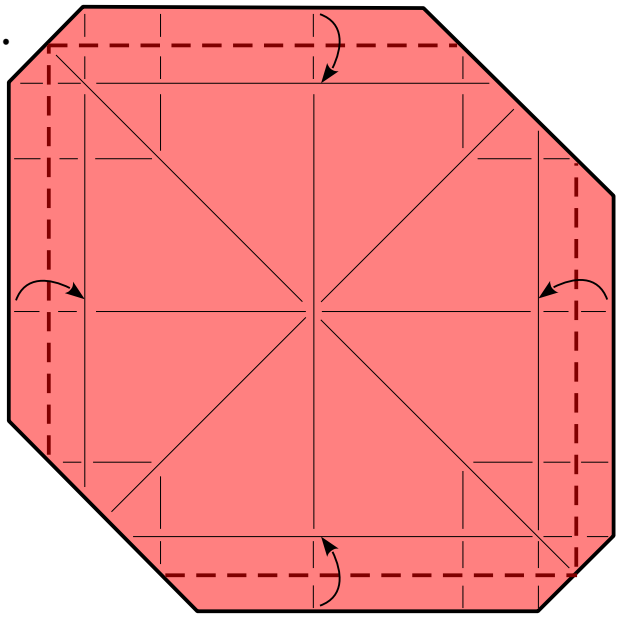


Return to full view.

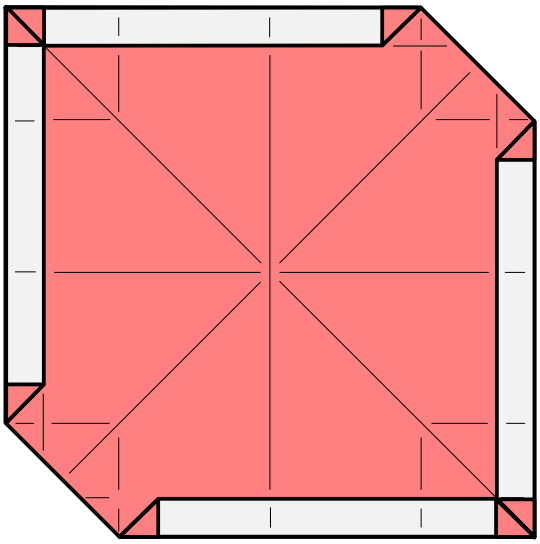
14.



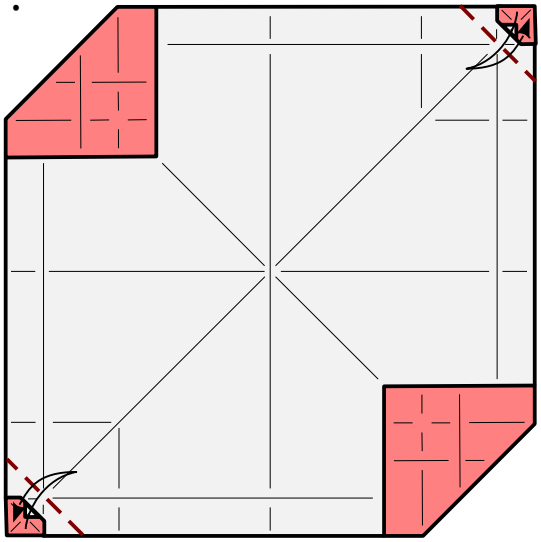
15.



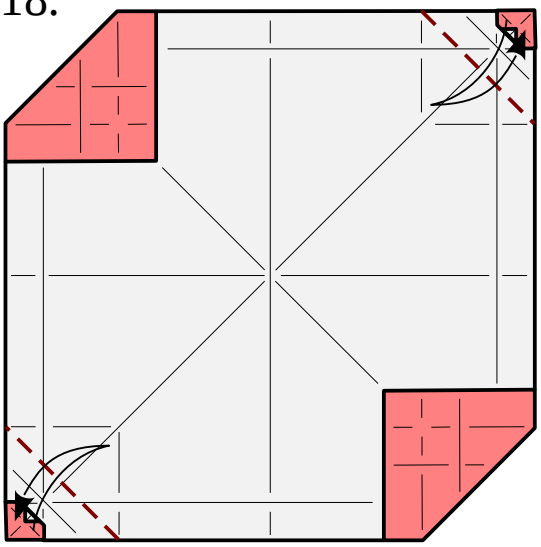
16.



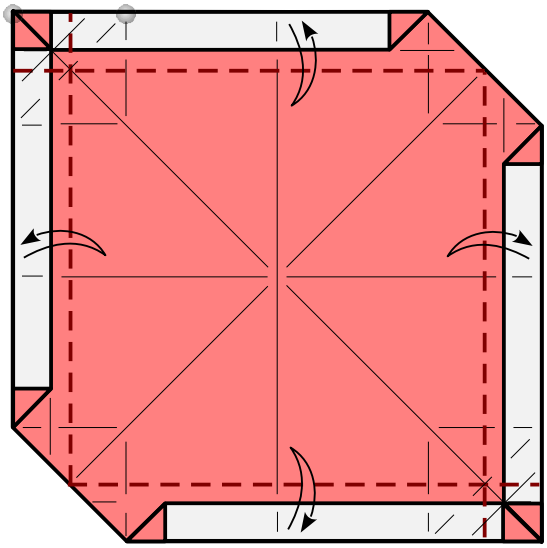
17.



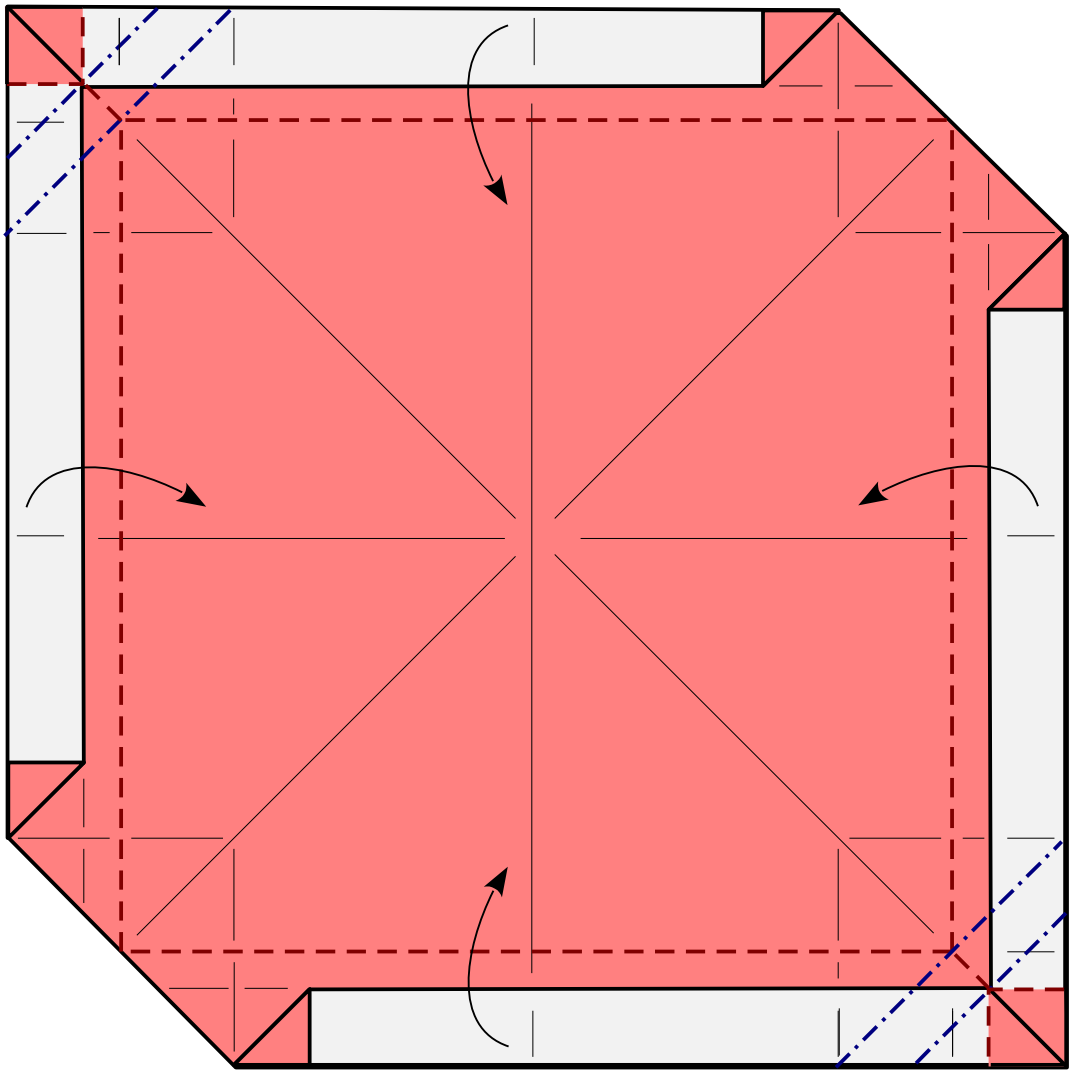
18.



19.

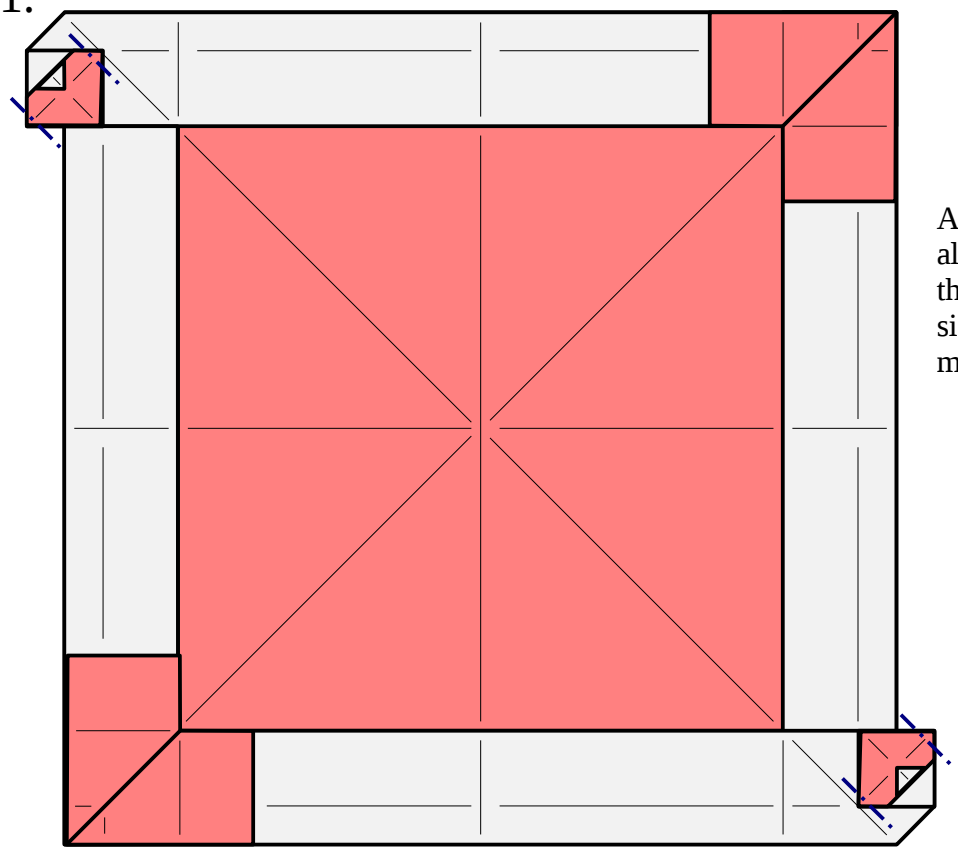


20.



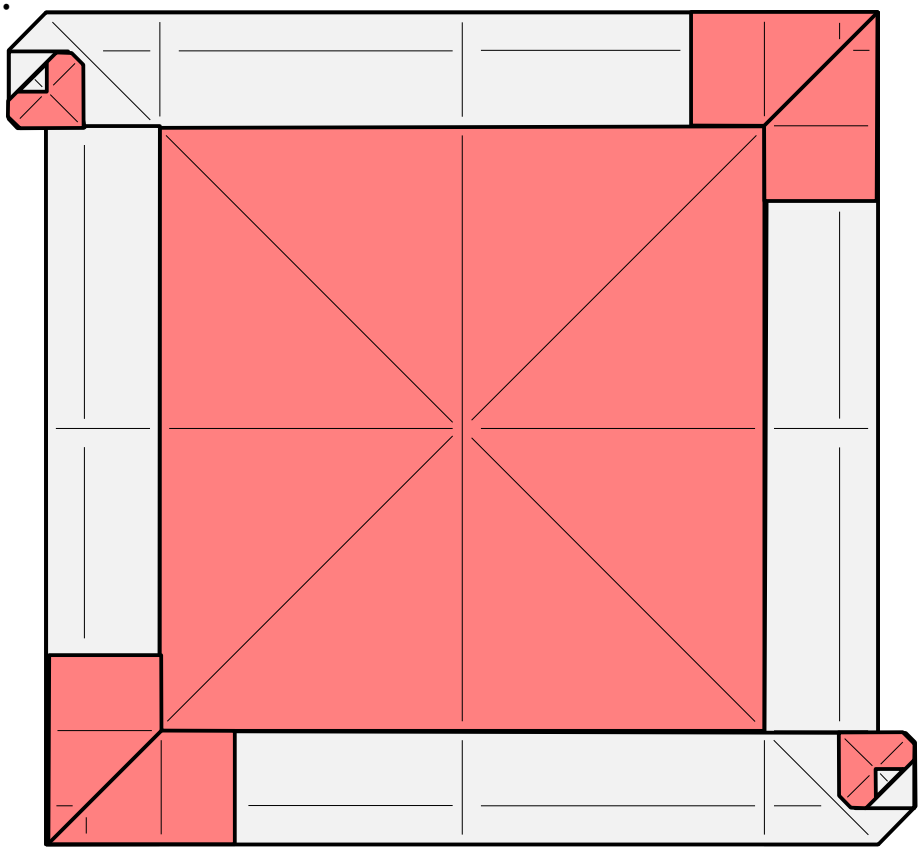
Collapse. Flatten the hearts clockwise or widdershins, as you wish, but it helps precision to exercise them both ways.

21.



Articulated hearts are already free enough from the square to round their side corners using tiny mountain folds.

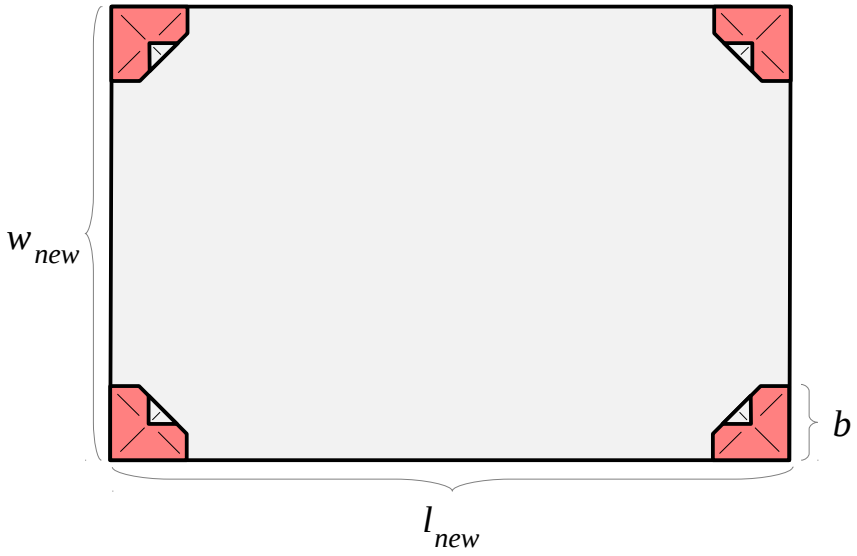
22.



Transplanting onto General Rectangles

Hearts can be transplanted onto up to four corners of a square… to end up with another square, which then becomes the starting square for some chosen model. Some models need rectangles other than squares but nevertheless want Heart Transplants. Grafting hearts onto rectangles is a bit more complicated than grafiting them onto squares. The hearts use a border that is the same breadth everywhere. Subtracting such a border from a rectangle does *not* preserve the proportions of the rectangle; it changes them. While some rectangular model are flexible about the proportions of the rectangle, many want precise proportions or ones within a narrow range. Trial and error could suffice for the former, but precision demands a little applied math.

First, examine the dimensions of the desired rectangle.



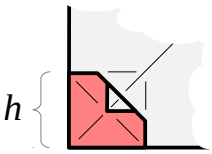
The rectangle to cut must be bigger and of specific but different proportions. There is an obvious calculation for the plain rectangle to fold the above rectangle of width w_{new} and length l_{new} with a border breadth b to accommodate the heart and any inversion or articulation.

$$w = w_{new} + 2b$$

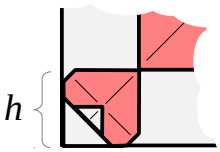
$$l = l_{new} + 2b$$

That's nice and neat and simple enough theoretically, however, it is not so very useful on its own. It specified the border without regard to the heart width or the width of the rectangle. Handy landmarks are relative to the size of that rectangle to cut. Carefully selecting $b = w_{new}/6$, $b = w_{new}/14$, $b = l_{new}/6$ or $b = l_{new}/14$ makes it somewhat useful… for plain, non-inverted, non-articulated hearts. These numbers are based on the square Heart Starts that use hearts one-eighth and one-sixteenth the width of the starting square which notes that the hearts are one-sixth and one-fourteenth of the width of the resulting square plus the fact that a square is simple a rectangle where the width and length are equal. Greater generality is highly desirable. So are easy landmarks.

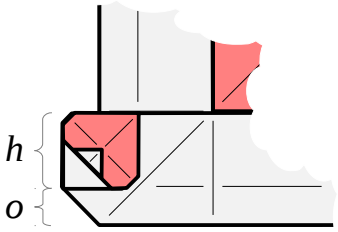
First, let's get the border defined relevant to the breadth of the heart, *h*. Articu[illegible] have an offset *o*, which is typically but not necessarily *h*/2 (as in Heart Start 8)



$b_{basic}=h$



$b_{inverted}=2h$



$b_{articulated}=2h+o$

Now that the border breadth *b* is defined in terms of the heart breadth *h*, what is h? An arbitrary width sounds nice, but it isn't easy to fold reliably. For producing dependably producing rectangles of specific proportions, RAT folds are not useful. The handiest landmarks are based on powers of two, though other landmarks are also possible. In a non-square rectangle, the length and width provide two different results, either of which can be used. The distance is then copied to the other dimension around a 45° diagonal to replicate the distance on the other perpendicular sides, or for greater accuracy, around that angle at each of the four corners. If this is not completely clear, see the example at later in this section. Typically $2^3=8$ or $2^4=16$ are the most useful, but more generally $h=w/2^n$ or $h=l/2^n$.

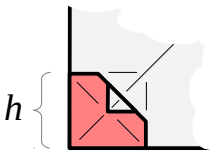
Generally, length is considered to be longer than width. For the rest of this discussion, it is very helpful to allow the length to be shorter than the width, so that the width can be always be the dimension of which h is a fraction. (More complicated landmarks are possible, but they are beyond the scope of this discussion.)

For basic hearts of breadth $h=w/2^n$,

$$w=w_{new}+2b_{basic}=w_{new}+2h=w_{new}+\frac{2w}{2^n}=w_{new}+\frac{w}{2^{n-1}}$$

$$w-\frac{w}{2^{n-1}}=w_{new}=w\left(1-2^{n-1}\right)$$

$$w=\frac{w_{new}}{\left(1-\frac{1}{2^{n-1}}\right)}$$



$b_{basic}=h$

and

$$l=l_{new}+2b_{basic}=l_{new}+2h=l_{new}+\frac{2w}{2^n}=l_{new}+\frac{w}{2^{n-1}}$$

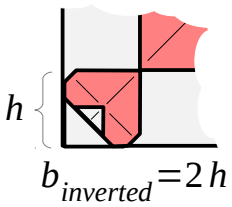
$$l=l_{new}+\frac{w_{new}}{2^{n-1}\left(1-\frac{1}{2^{n-1}}\right)}$$

For inverted hearts of breadth $h=w/2^n$,

$$w = w_{new} + 2\,b_{inverted} = w_{new} + 2(2h) = w_{new} + \frac{2^2 w}{2^n} = w_{new} + \frac{w}{2^{n-2}}$$

$$w - \frac{w}{2^{n-2}} = w_{new} = w\left(1 - 2^{n-2}\right)$$

$$\boxed{w = \frac{w_{new}}{\left(1 - \frac{1}{2^{n-2}}\right)}}$$



and

$$l = l_{new} + 2\,b_{inverted} = l_{new} + 2(2h) = l_{new} + \frac{2^2 w}{2^n} = l_{new} + \frac{w}{2^{n-2}}$$

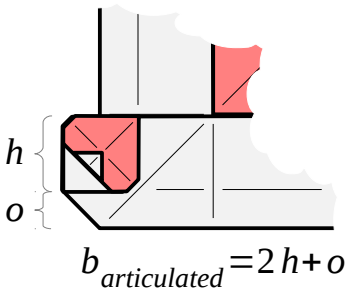
$$\boxed{l = l_{new} + \frac{w_{new}}{2^{n-2}\left(1 - \frac{1}{2^{n-2}}\right)}}$$

For articulated hearts of breadth $h=w/2^n$ and offset o,

$$w = w_{new} + 2\,b_{articulated} = w_{new} + 2(2h+o) = w_{new} + \frac{2^2 w}{2^n} + 2o = w_{new} + \frac{w}{2^{n-2}} + 2o$$

$$w - \frac{w}{2^{n-2}} = w_{new} + 2o = w\left(1 - 2^{n-2}\right)$$

$$\boxed{w = \frac{w_{new} + 2o}{\left(1 - \frac{1}{2^{n-2}}\right)}}$$



and

$$l = l_{new} + 2\,b_{articulated} = l_{new} + 2(2h+o) = l_{new} + \frac{2^2 w}{2^n} + 2o = l_{new} + \frac{w}{2^{n-2}} + 2o$$

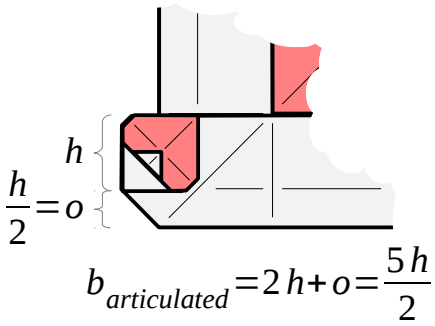
$$\boxed{l = l_{new} + \frac{w_{new}}{2^{n-2}\left(1 - \frac{1}{2^{n-2}}\right)} + 2o}$$

Of course, that offset o is usually $h/2$, so for articulated hearts of breadth $h=w/2^n$ and offset $o=h/2$, $b_{articulated}=2h + h/2 = 5h/2$ making

$$w = w_{new} + 2\,b_{articulated} = w_{new} + 2\left(\frac{5h}{2}\right) = w_{new} + 5h = w$$

$$w - 5\frac{w}{2^n} = w_{new} = w\left(1 - \frac{5}{2^n}\right)$$

$$\boxed{w = \frac{w_{new}}{\left(1 - \frac{5}{2^n}\right)}}$$



$$b_{articulated} = 2h + o = \frac{5h}{2}$$

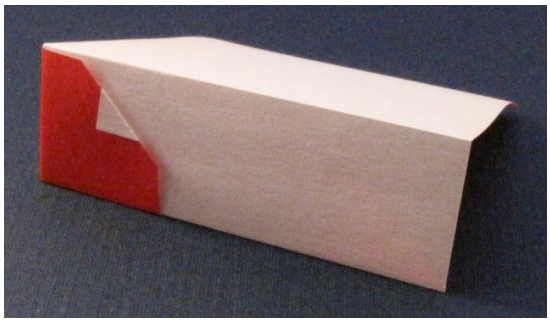
and

$$l = l_{new} + 2\,b_{articulated} = l_{new} + 2\left(\frac{5h}{2}\right) = l_{new} + 5h = l_{new} + \frac{5w}{2^n}$$

$$\boxed{l = l_{new} + \frac{5\,w_{new}}{2^n\left(1 - \frac{5}{2^n}\right)}}$$

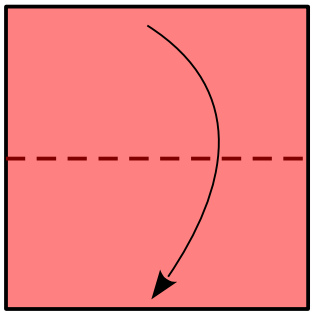
Heart Place Card Holder

By Wensdy Whitehead



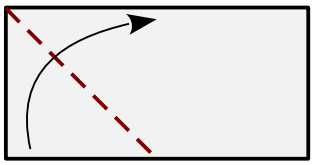
Recommended Paper: 3” (7.5cm) square of kami or duo. If only white paper is available, color one corner on the front of the paper.

1.



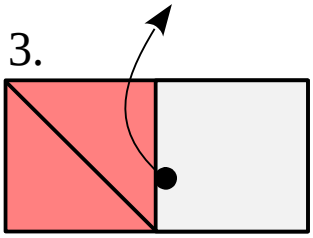
Book fold.

2.



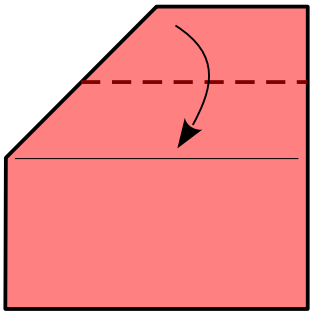
Valley fold the top layer only.

3.

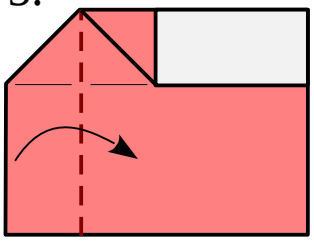


Unfold the book fold.

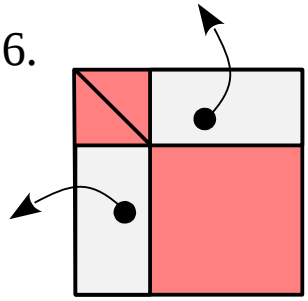
4.



5.

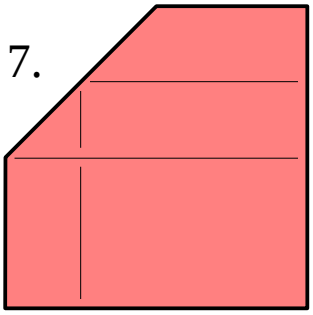


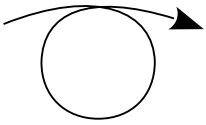
6.



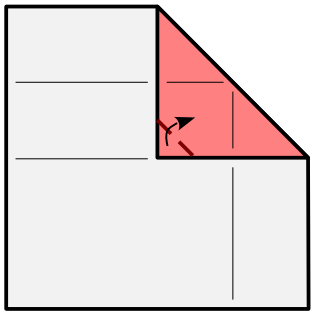
Temporarily unfold steps 4 and 5.

7.



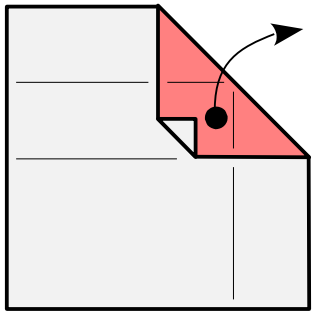


8.



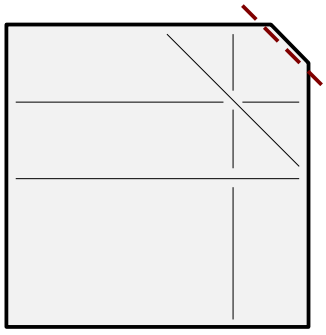
Eyeballing this step is easier with the creases from steps 4 and 5 as guides, but if rough judgment is to rough for you, add part of the diagonal while the paper is completely unfolded and follow the exact placement shown in the Heart Starts. This does add visible creases, however.

9.



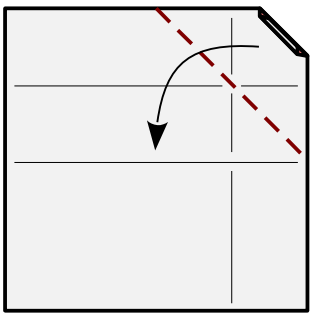
Unfold the larger dog-eared corner.

10.



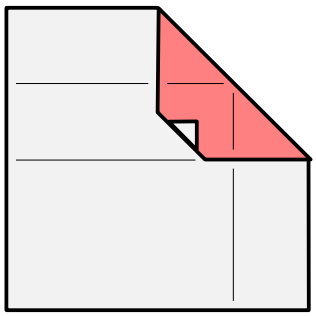
Make a tiny hem to round the top of the heart.

11.

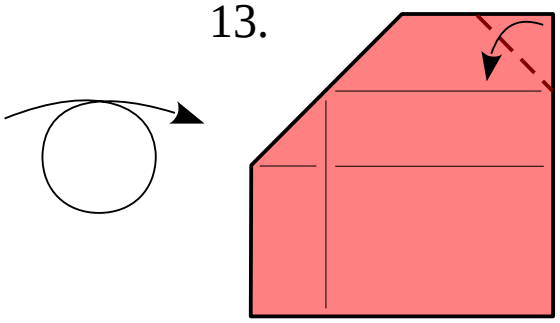


Refold, using the existing crease.

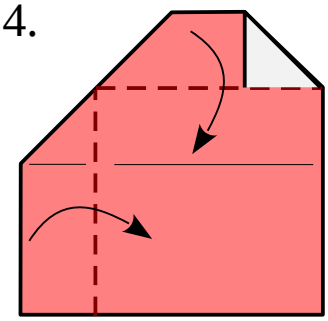
12.



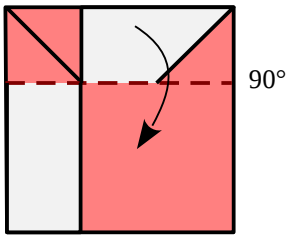
13.



14.



15.



Refold, but stop at about 90° so it can stand easily (or refold completely for storage). Folding in half instead of using the existing crease invites folks setting them out to barely open them such that they fall over easily, but this enforces a solid base.

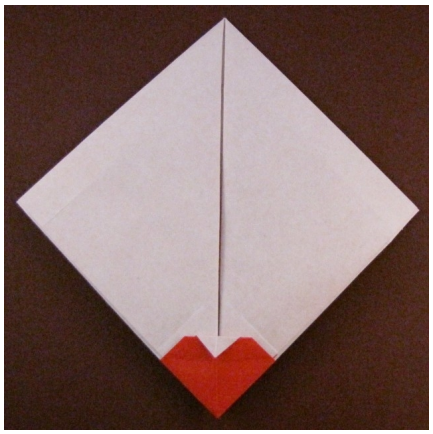
16.

Slip a name card, business card, model label or any other miniature sign in the heart pocket. Done!

The Place Card Holder in use with a business card.

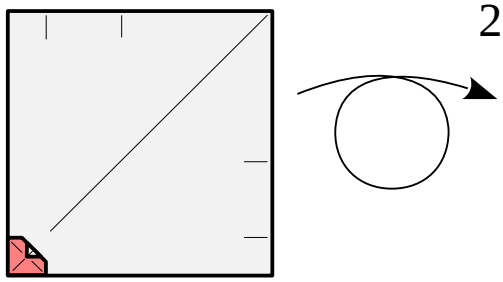
One Heart Letter Fold 1

By Wensdy Whitehead



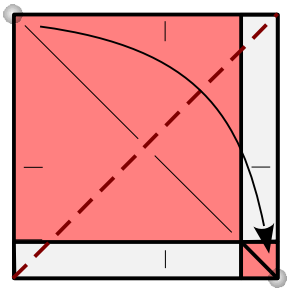
Recommended Paper: 6” (15cm) square or larger of kami or other thin two-sided paper. If only white paper is available, color one corner on the front of the paper.

1.



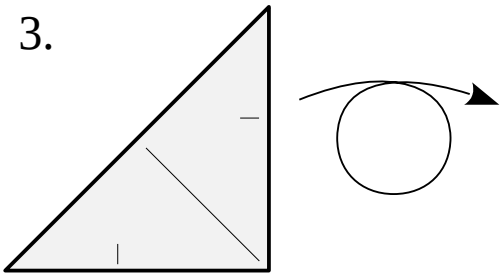
Begin with Heart Start 3 (1/8 width heart on a single corner).

2.

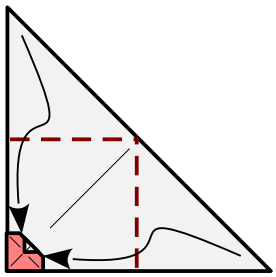


Fold in half corner to corner.

3.

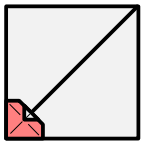


4.



Fold the sharp (45°) corners to the square (90°) corner and tuck into the pocket heart.

5.

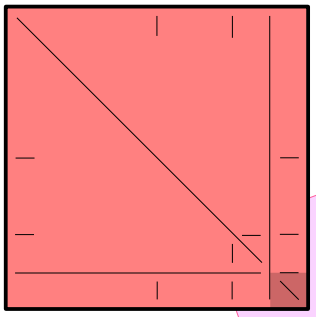


Done... or for a very snug note, repeat steps 2-4.

6.

The snug version – which can also open like a classic paper hat.

Where to Write

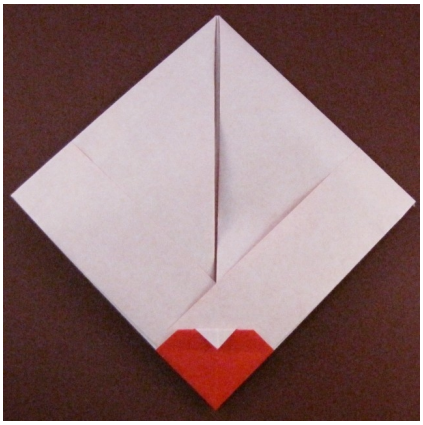


The single heart makes a useful pocket to hold corners for letter folds, and One-Heart Letter Folds 1-4 are variations on how to get corners tucked in there. The appearance varies somewhat but the available writing area varies more greatly. There are also various little additional folds to vary the appearance even more.

Where to write? All but one little colorful corner is hidden, so it is clear: write on the colorful side, but not on the shaded corner that will be the heart.

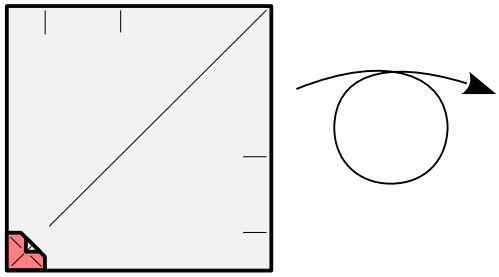
One Heart Letter Fold 2

By Wensdy Whitehead



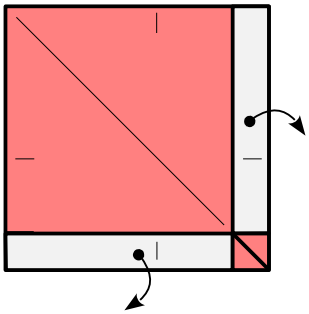
Recommended Paper: 6” (15cm) square or larger of kami or other thin two-sided paper. If only white paper is available, color one corner on the front of the paper.

1.



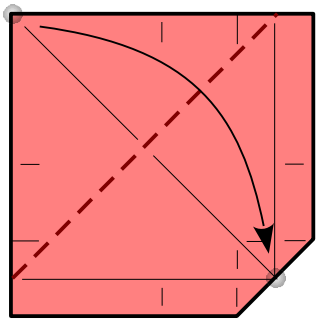
Begin with Heart Start 3 (1/8 width heart on a single corner).

2.

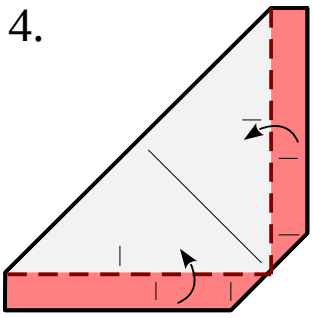


Temporarily unfold.

3.

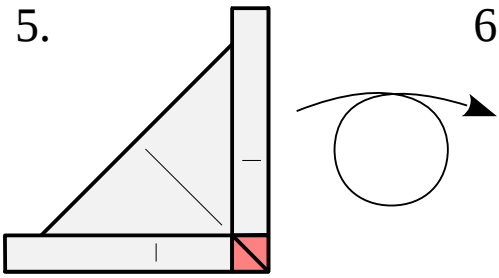


4.

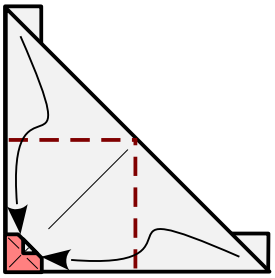


Refold. No new creases.

5.

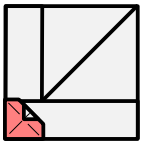


6.



Fold to the corner and tuck into the heart.

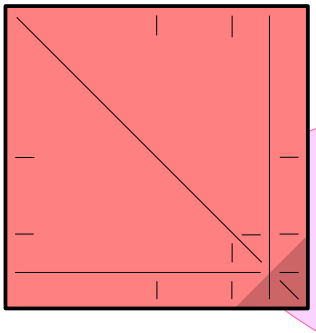
7.



Done!

Where to Write

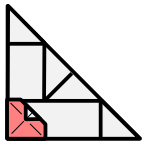
In the previous similar letter fold, the heart is the only color on the outside, but there is a loose corner. This variation trades the loose corner for a small colorful square on the back. This variation can also hold something small and flat inside.



Where to write? All but one little colorful corner is hidden, so it is clear: write on the colorful side, but not on the shaded corner that will be the heart.

7a.

8a.



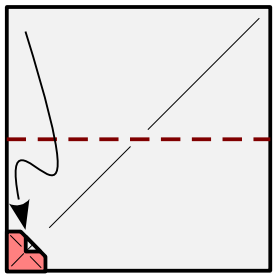
Prefer a triangular note? Fold in half again, tucking the square corner into the heart, too.

One Heart Letter Fold 3

By Wensdy Whitehead

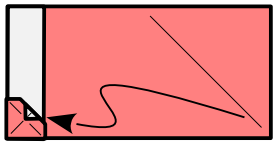
Recommended Paper: 6” (15cm) square or larger of kami or other thin two-sided paper. If only white paper is available, color one corner on the front of the paper.

1.



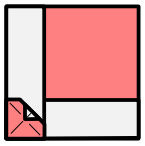
Begin with Heart Start 3 (1/8 width heart on a single corner). Fold in half edge-to-edge and tuck the corner under the heart.

2.



Fold in half end-to-end and tuck the corner under the white rectangle.

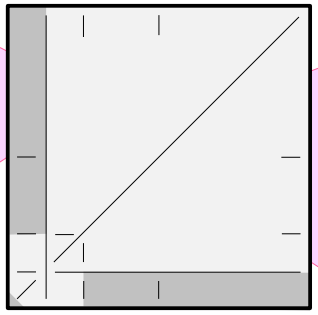
3.



Done!

Where to Write

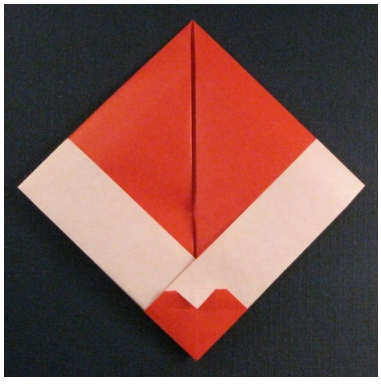
Same for One Heart Letter Folds 3 and 4!



Where to write? Aside from a couple of bars, most of the white side is hidden, so write on the white side, but not on the shaded edges which will show.

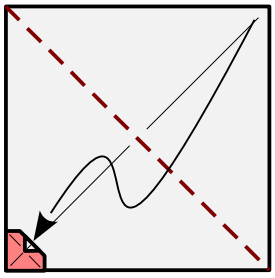
One Heart Letter Fold 4

By Wensdy Whitehead



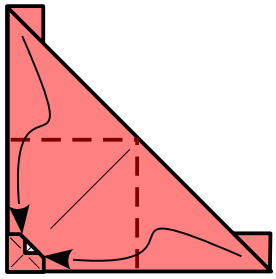
Recommended Paper: 6” (15cm) square or larger of kami or other thin two-sided paper. If only white paper is available, color one corner on the front of the paper.

1.



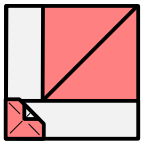
Begin with Heart Start 3 (1/8 width heart on a single corner). Fold in half edge-to-edge and tuck the corner under the heart.

2.



Fold to the corner and tuck into the heart.

3.



Done! Writing area is the same as for One Heart Letter Fold 3 above.

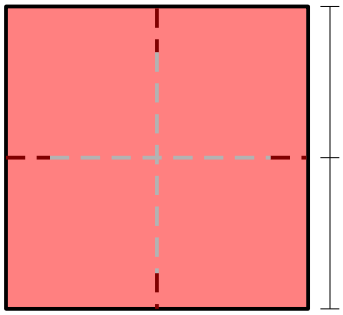
Double Heart Letter Fold

By Wensdy Whitehead

Recommended Paper: thin two-sided 6” (15cm) square or larger. If only white paper is available, color two (2) adjacent corners on the front of the paper.

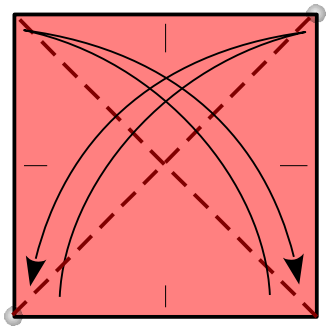
This letter fold needs a Heart Start 2 with two hearts on adjacent rather than opposite corners. Fully detailed diagrams follow.

1.



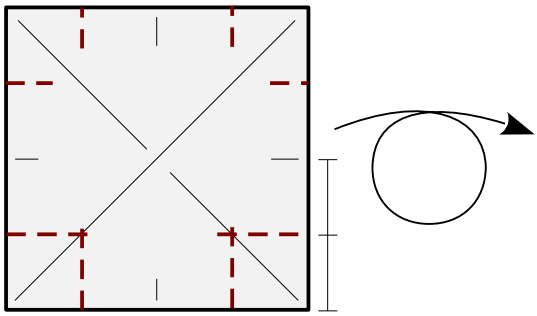
Pinch the book folds.

2.



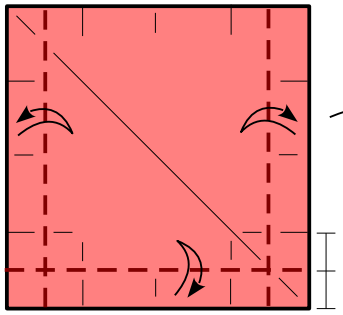
Fold and unfold.

3.



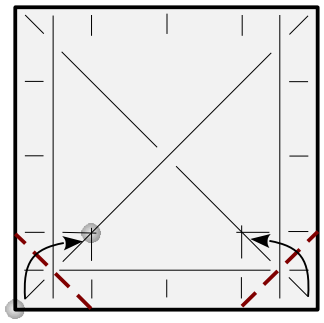
Pinch the quarters.

4.

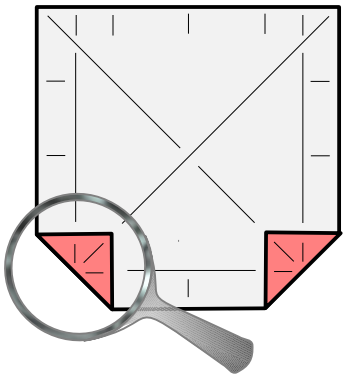


Fold and unfold the eighths.

5.

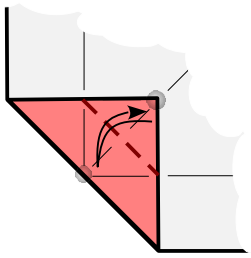


6.



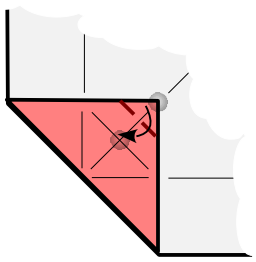
Partial, magnified view of one familiar corner heart. Fold the other right hand heart also.

7.



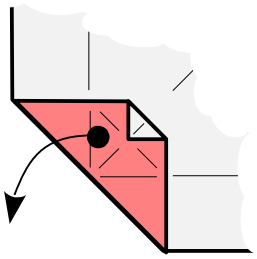
Fold and unfold all four (4) corners the same way.

8.



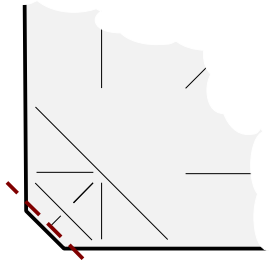
Fold all four (4) corners the same way.

9.



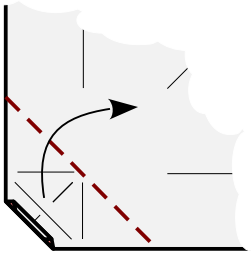
Unfold all four (4) of the larger dog-eared corners the same way.

10.



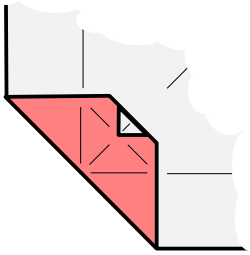
Make tiny hems to round the tops of all four (4) hearts.

11.



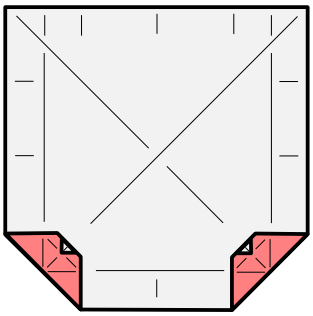
Refold step 6 on all four (4) corners.

12.

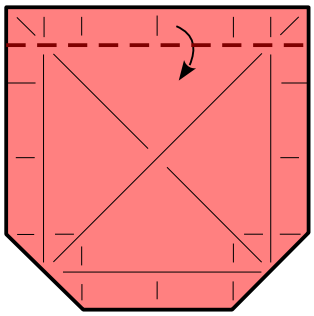


Return to full, unmagnified view.

13.

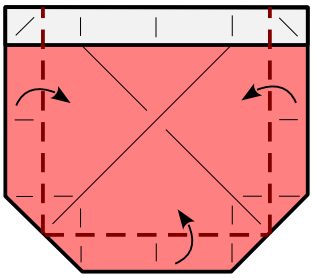


14.



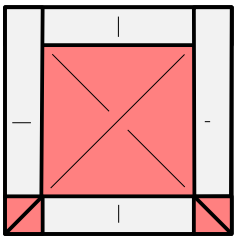
Fold the other eighth.

15.

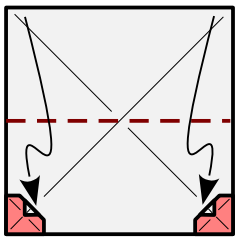


Refold the other eighths. No new creases.

16.

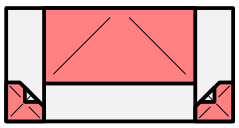


17.



Fold in half and tuck the corners behind the hearts.

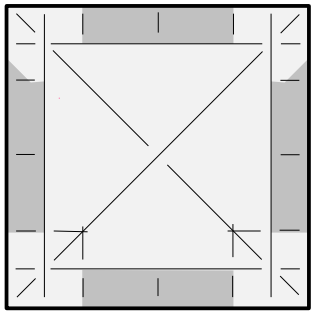
19.



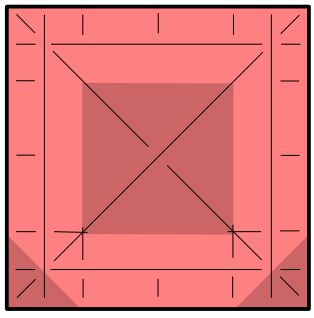
Done!

For some quick variations, try folding the north edge further in step 14, reducing the size of the red rectangle.

Where to Write



The shaded areas will show on the outside; write on the rest of the white side.



The shaded areas will show on the outside; the colorful side has some interesting border area for decoration or short extra messages.

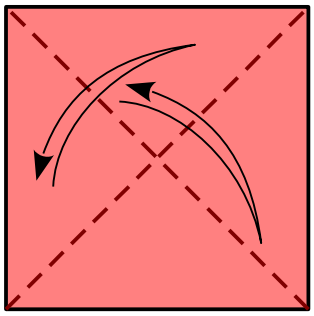
Love Bug

By Wensdy Whitehead

Recommended Paper: paper-backed foil, kami or other two-sided square paper 3-6” (7.5-15cm) on a side.

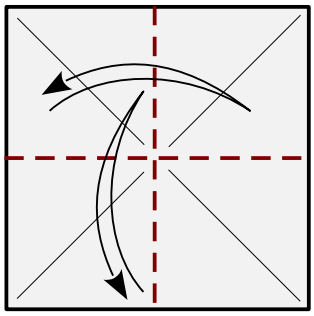
The Love Bug is based on the traditional Cicada, which comes with an inconvenient color-change. The Love Bug uses only one heart, but to get rid of the other color-change and make the heart properly visible, use Heart Start 2 with just one heart instead of the more efficient Heart Start 3. Fully detailed diagrams follow.

1.



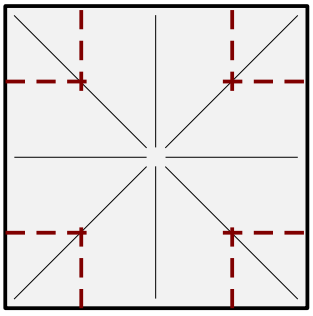
Fold and unfold.

2.



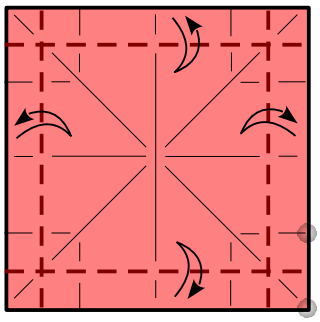
Fold and unfold.

3.



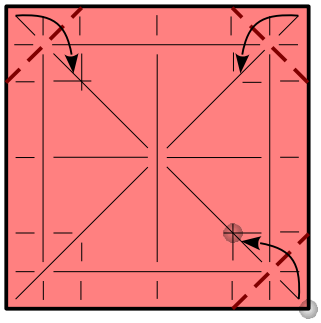
Pinch the quarters. For easy landmarks, make them cross the diagonal creases.

4.



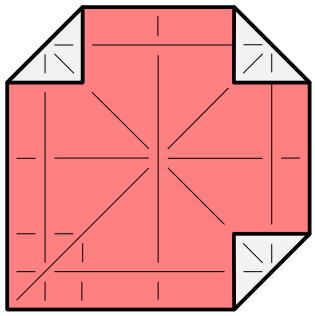
Fold and unfold the eighths.

5.

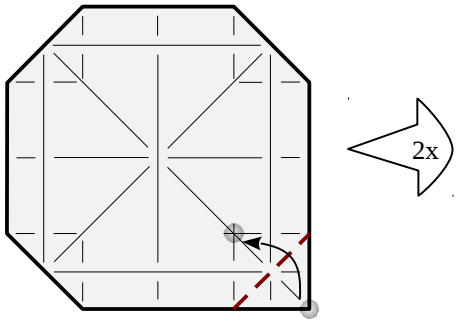


Valley fold the corners that should not have hearts.

6.

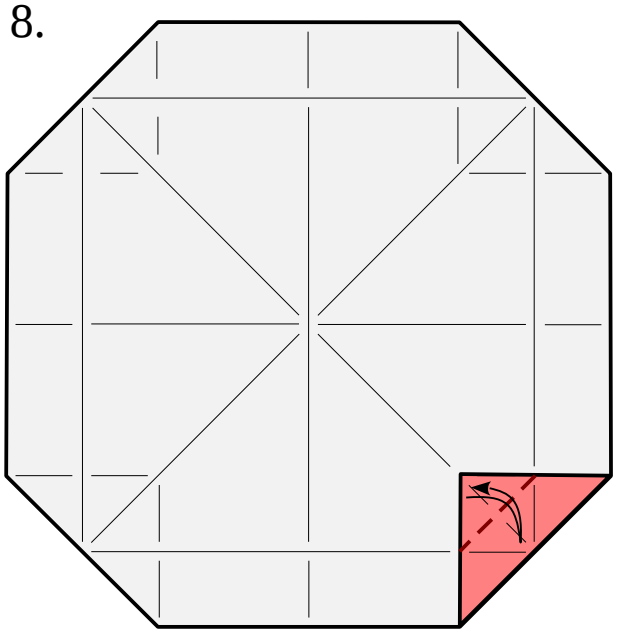


7.

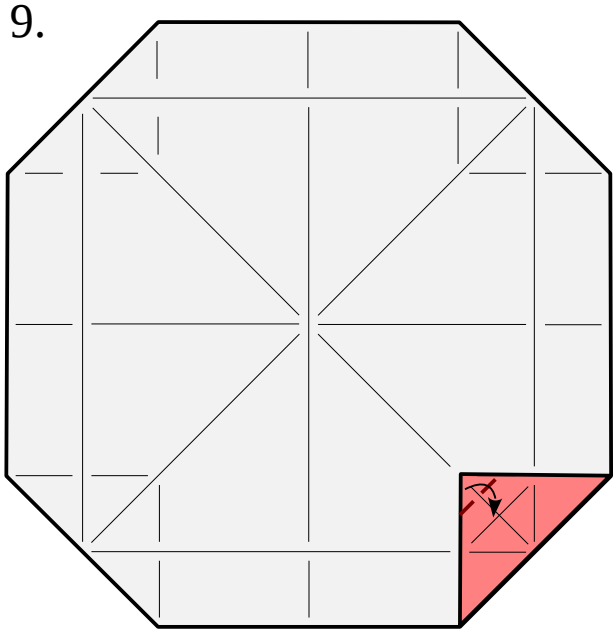


Valley fold the corners that should have hearts.

8.

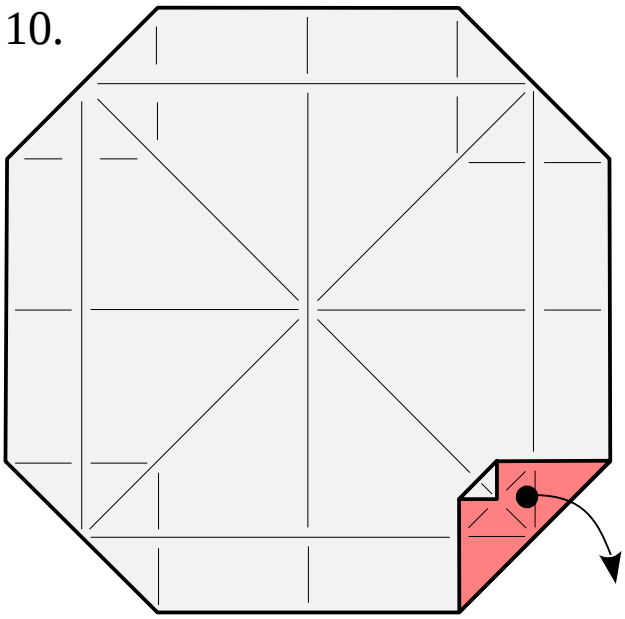


9.



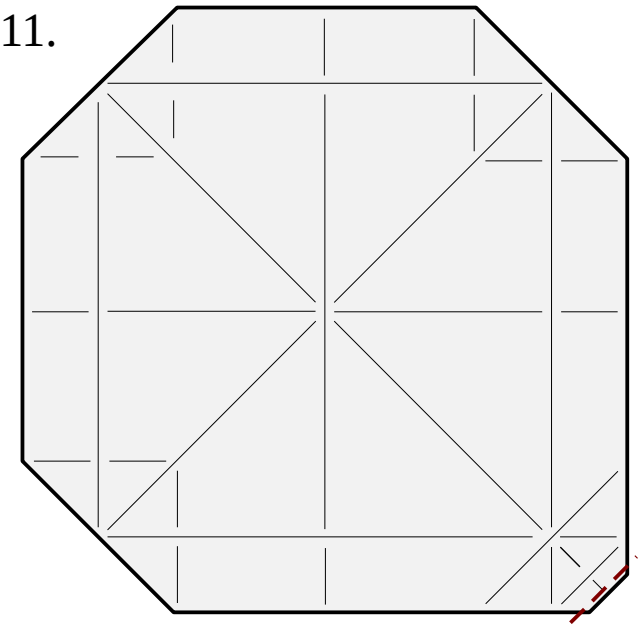
The next few steps can be accomplished by a good eye estimating the center and deft fingers, but adding this fold is easier. A pinch across each diagonal will suffice, but the fold is small anyhow.

10.



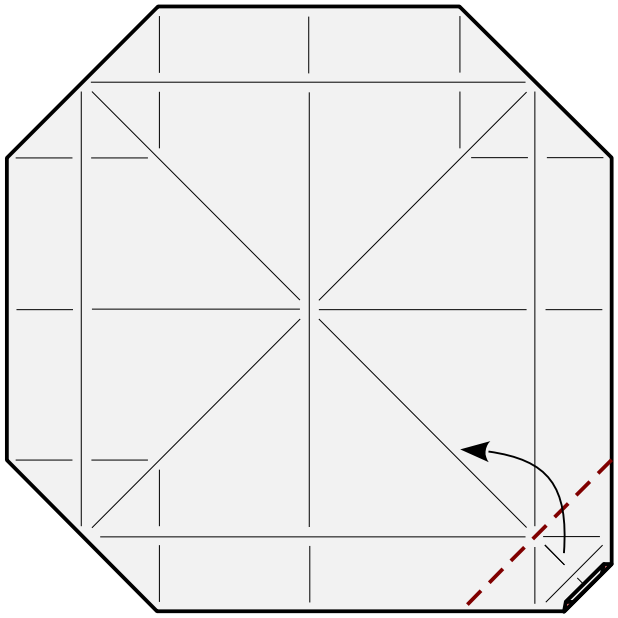
Unfold the larger dog-eared corners.

11.



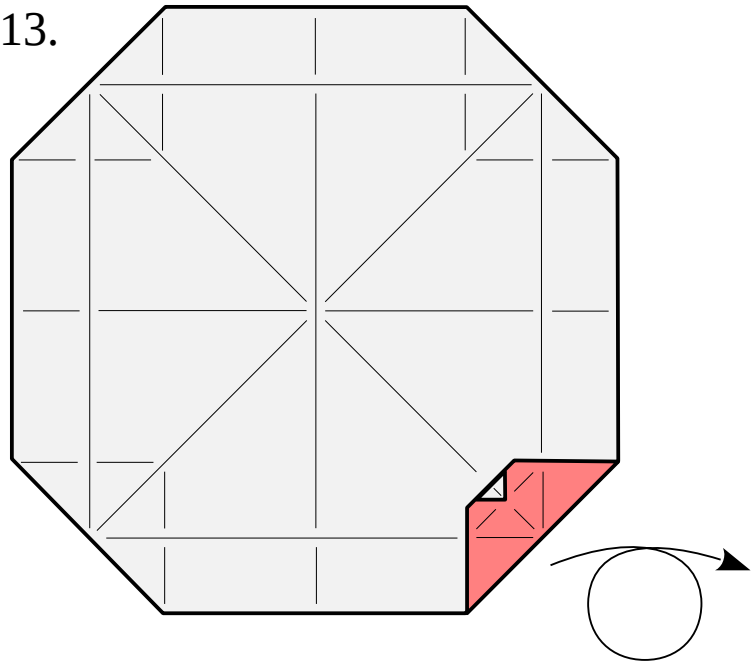
Make tiny hems to round the tops of the hearts.

12.

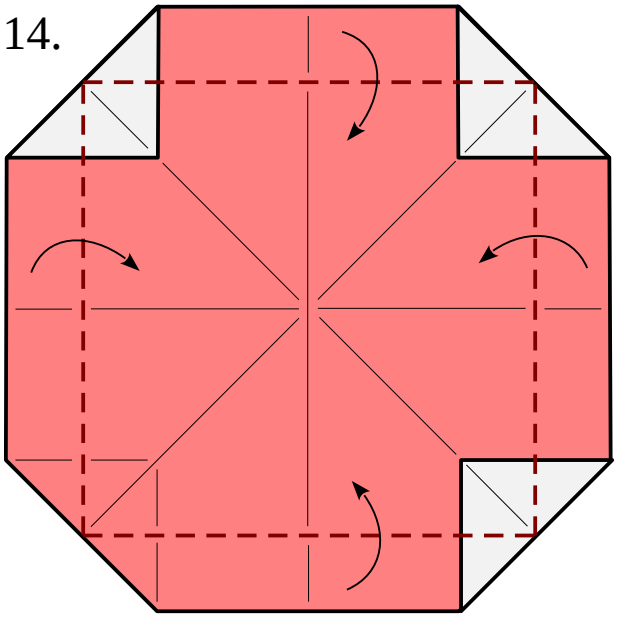


Refold step 5 which was unfolded in step 8.

13.

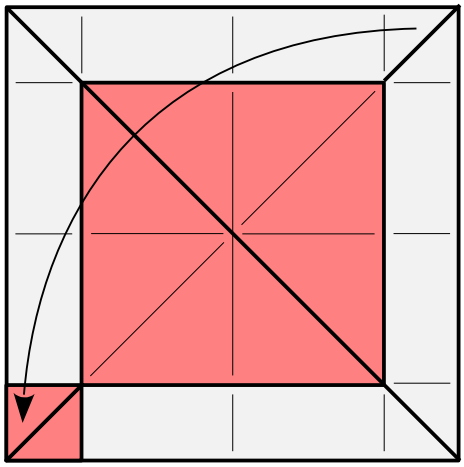


14.

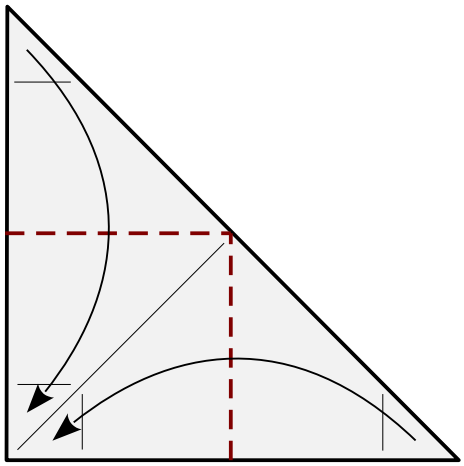


Refold the eighths. No new creases.

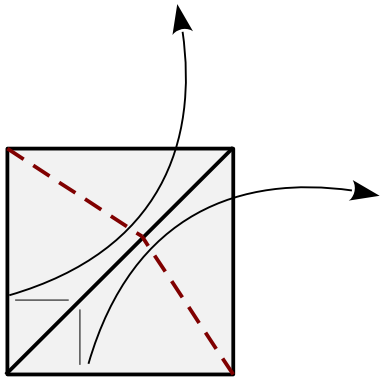
15.



16.

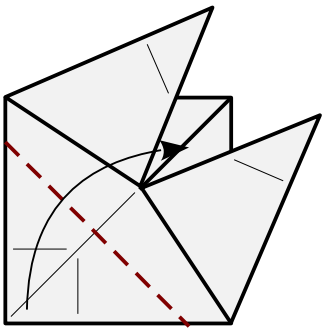


17.



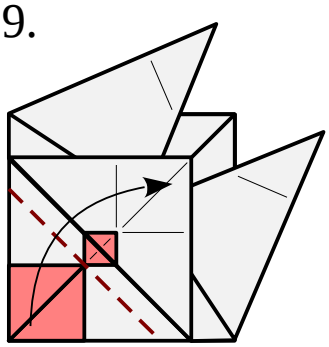
Matching RAT angles at the corners.

18.



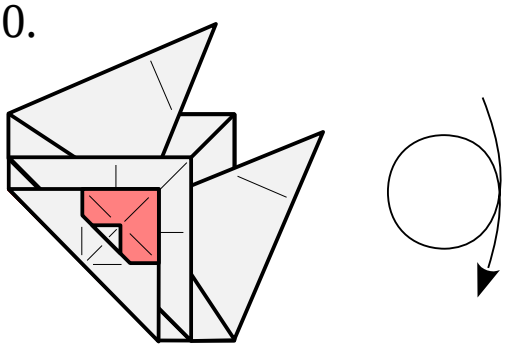
RAT fold the top layer perpendicular to the diagonal.

19.

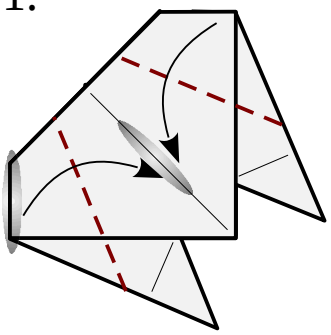


RAT fold perpendicular to the diagonal.

20.

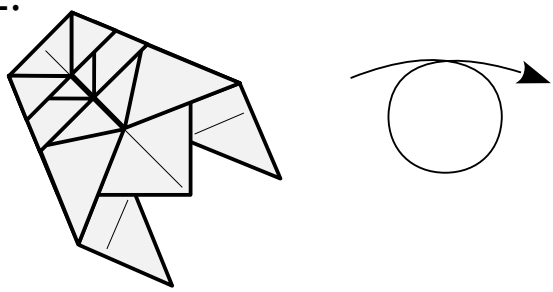


21.

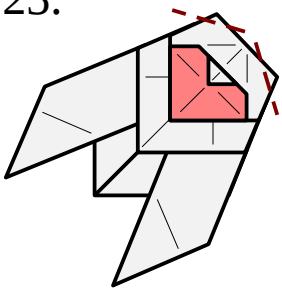


Fold the short outer edges to the diagonal.

22.

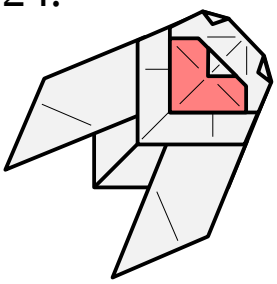


23.



Tiny RAT folds for eyes.

24.

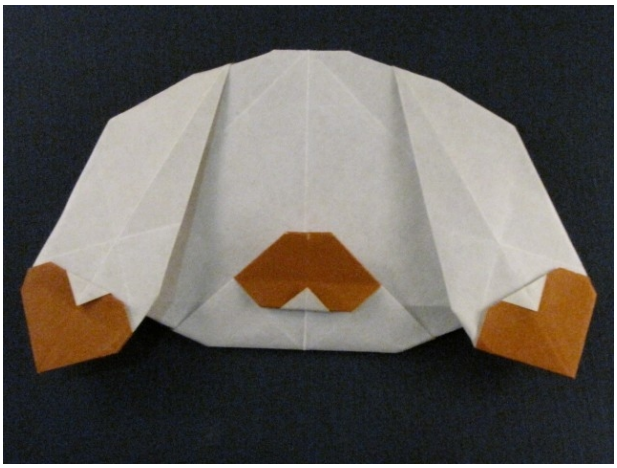


Done!

Spot

Puppy Love II

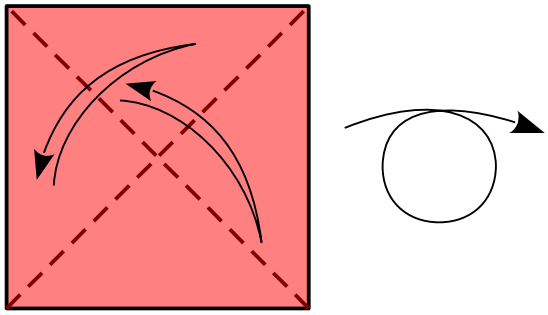
By Wensdy Whitehead



Recommended Paper: kami or other two-sided square paper 6” (15cm) on a side.

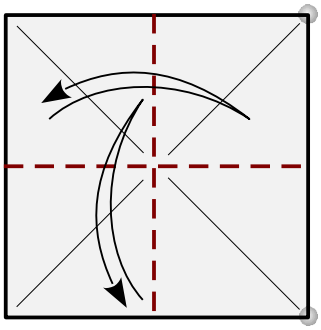
Spot needs a Heart Start 2 with three hearts instead of two. Fully detailed diagrams follow.

1.



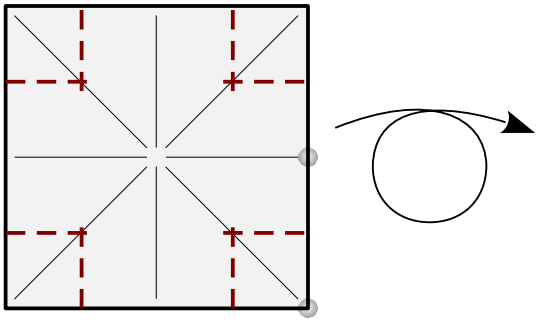
Fold and unfold.

2.



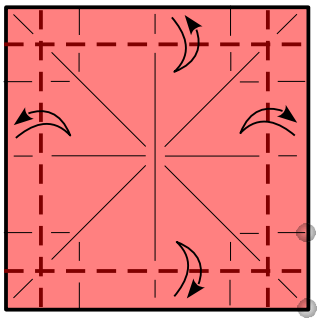
Fold and unfold.

3.



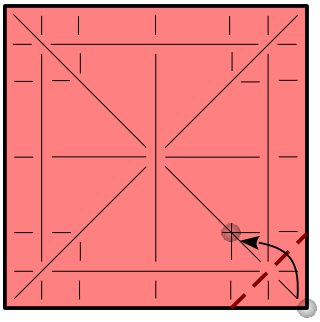
Pinch the quarters.

4.



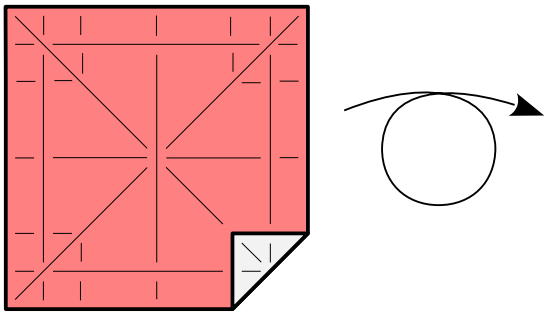
Fold and unfold the eighths.

5.

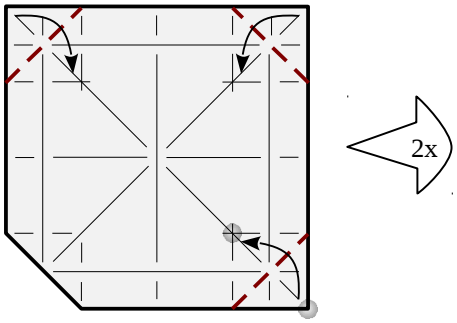


Valley fold the corners that should not have hearts.

6.

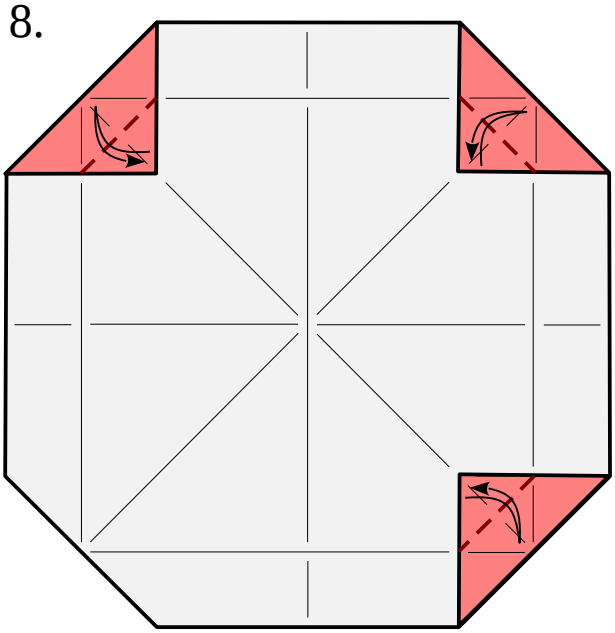


7.



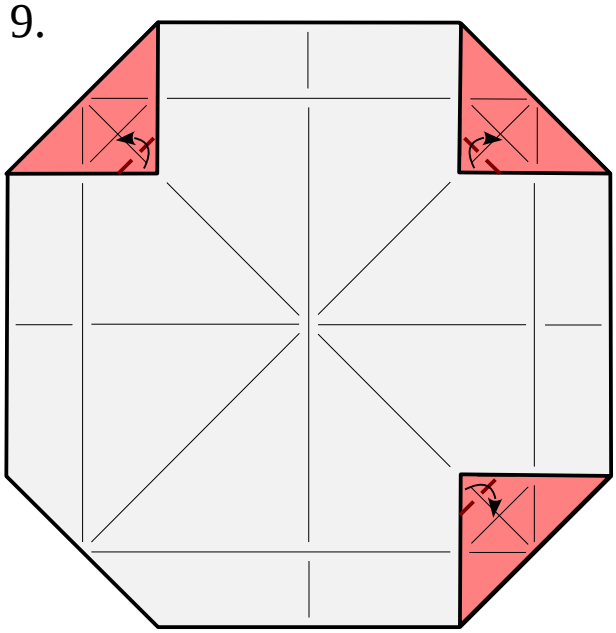
Valley fold the corners that should have hearts.

8.

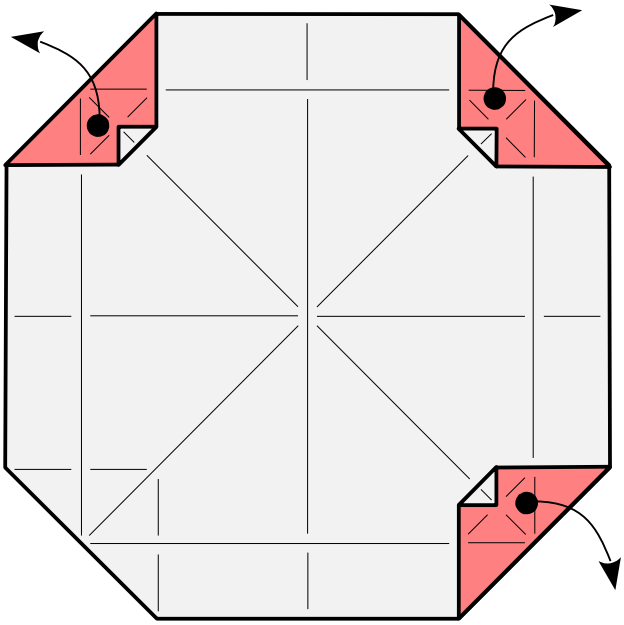


The next few steps can be accomplished by a good eye estimating the center and deft fingers, but adding this fold is easier. A pinch across each diagonal will suffice, but the fold is small anyhow.

9.

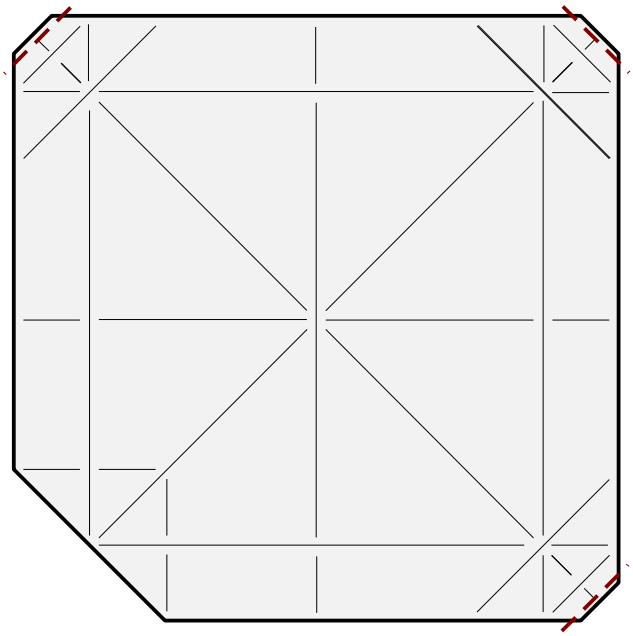


10.



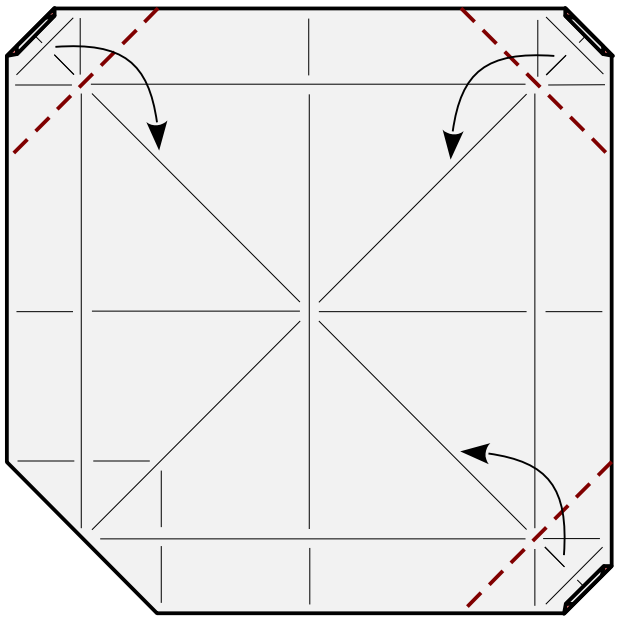
Unfold the larger dog-eared corners.

11.



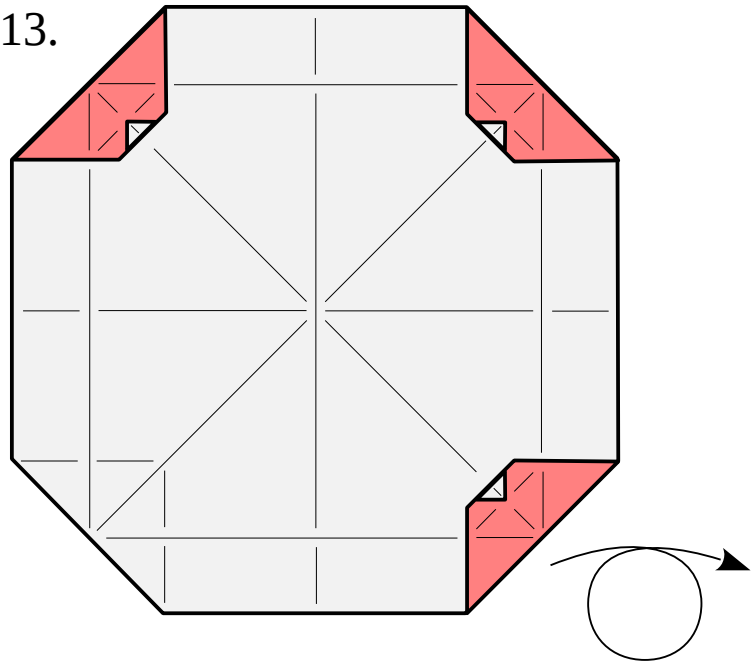
Make tiny hems to round the tops of the hearts.

12.

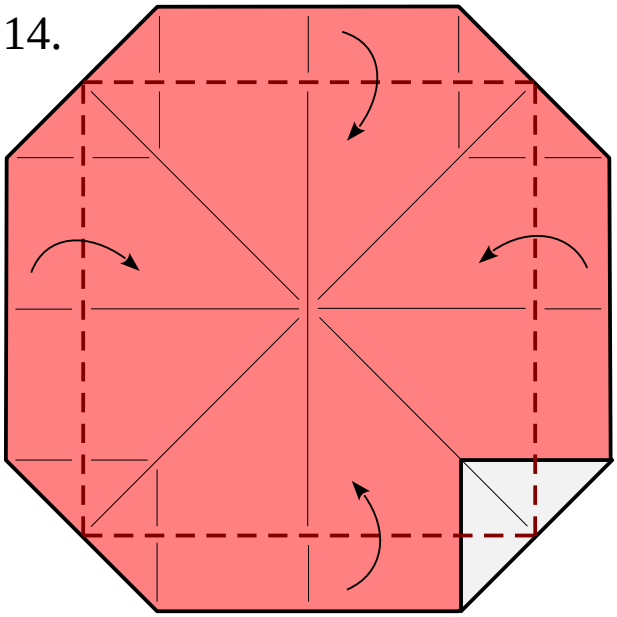


Refold step 5 which was unfolded in step 8.

13.

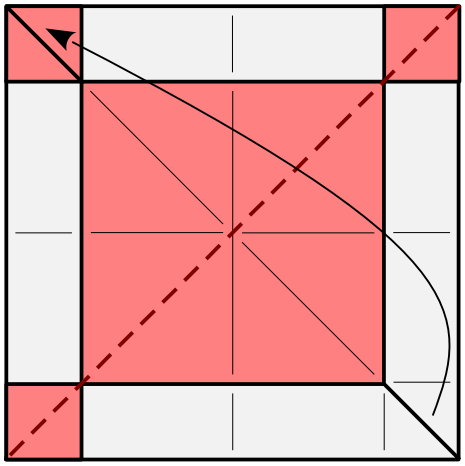


14.

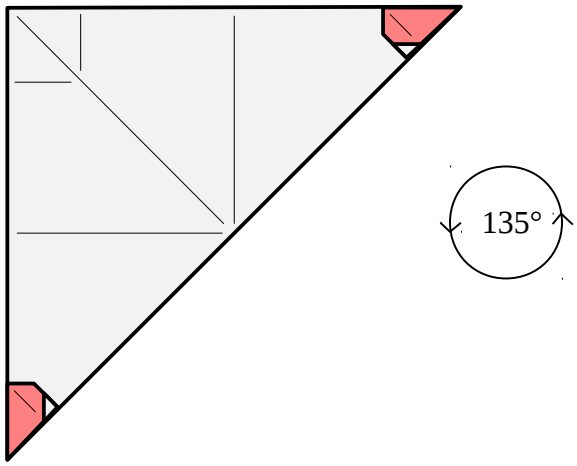


Refold the eighths. No new creases.

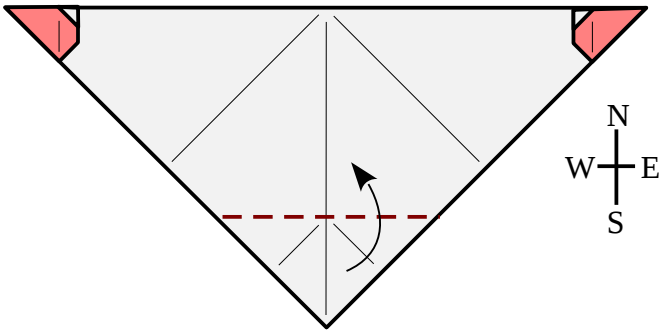
15.



16.

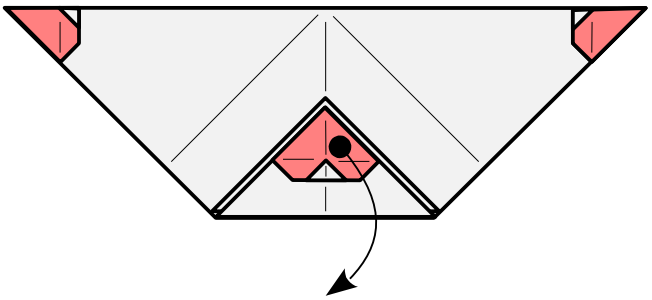


17.



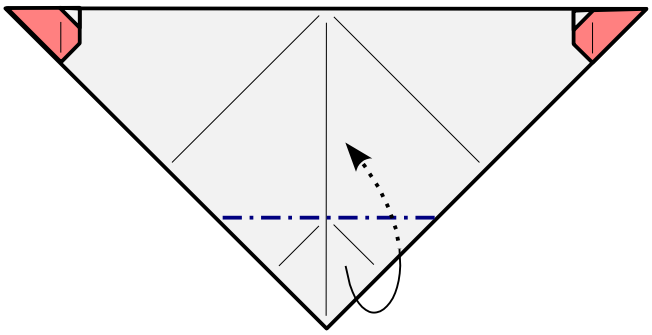
Fold straight north to position the muzzle. This can be a RAT distance to shape the face, but through the intersection is always good.

18.



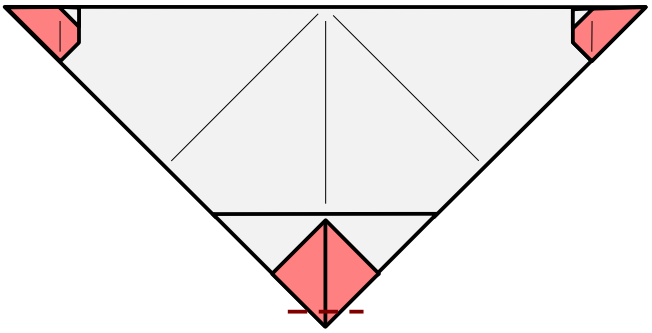
Good position, but too much paper creep! Temporarily unfold in order to deal with that.

19.



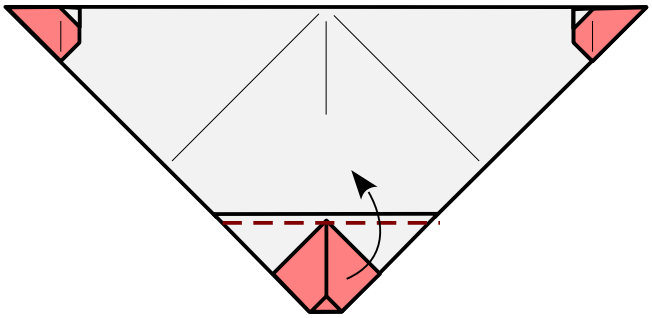
Mountain fold the top layer underneath, so it won't show as paper creep.

20.



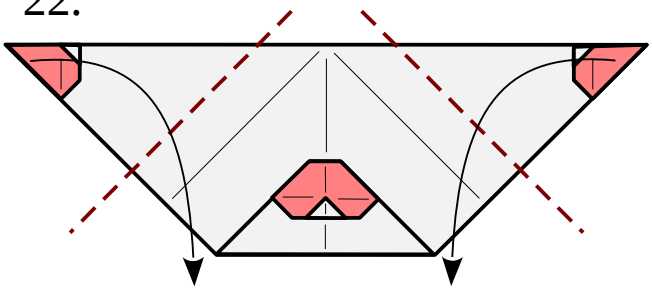
A tiny valley fold to round the top of the muzzle.

21.



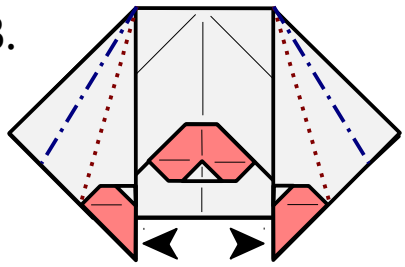
Restore the muzzle.

22.



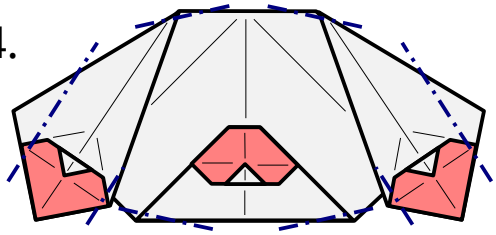
RAT fold the ears symmetrically. About 45° is good. There's already a crease in the middle; if you need to gently fold the face in half temporarily to duplicate the first RAT fold, it shouldn't hurt anything. Eyeballing symmetry is also fine.

23.



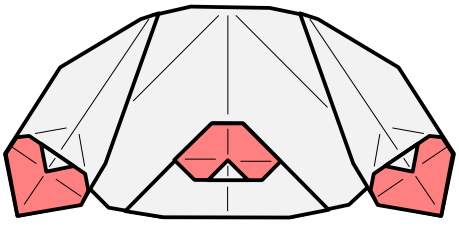
Squash each ear asymmetrically. The inner edge of the squash should align with the corner of the heart and the resulting ears should be mirror images of each other so the face is still symmetrical.

24.



Round the hearts and shape the ears. Little rounding mountain folds on the chin and the top of the head will also help larger flaps lie flat. For increased flatness, place in an encyclopedia for up to a week.

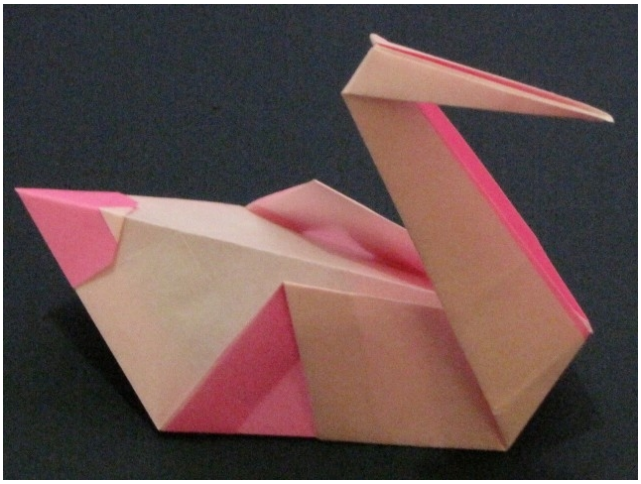
25.



Done! Your adorable new puppy Spot is paper-trained!

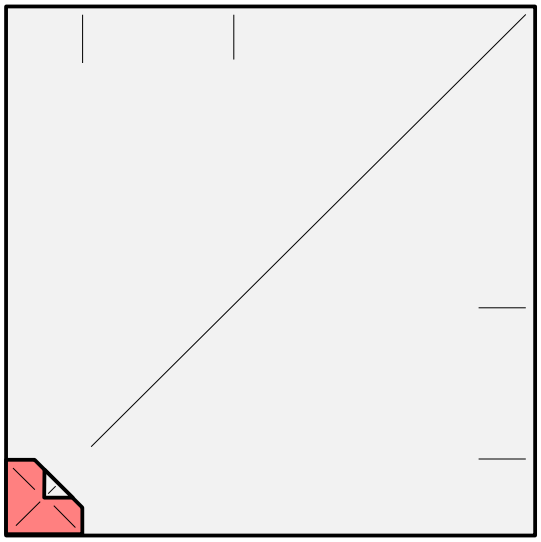
Heart Swan

By Wensdy Whitehead



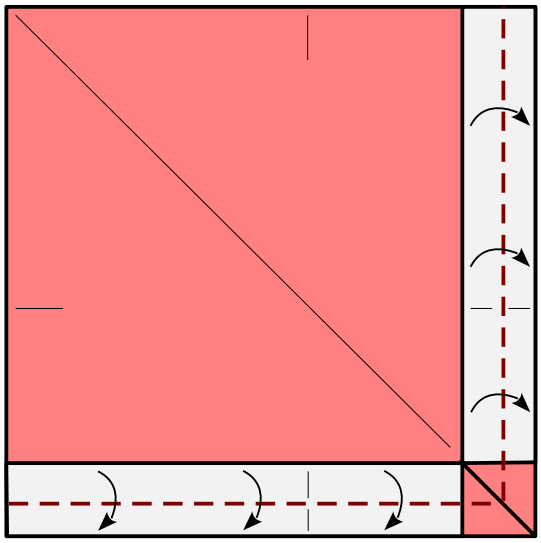
Recommended Paper: thin two-sided 6” (15cm) square or larger.

1.



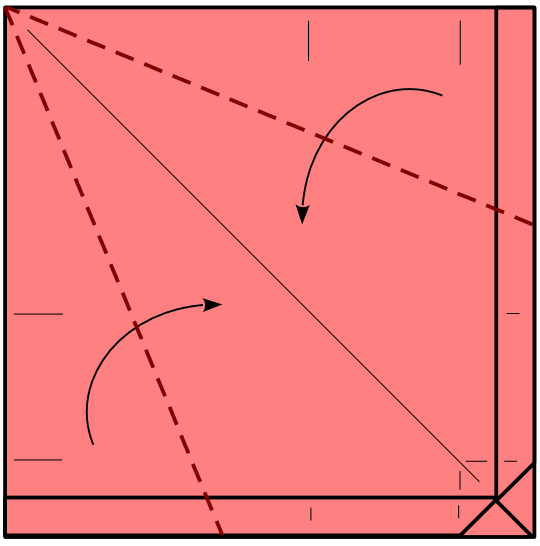
Begin with Heart Start 3 (one efficient 1/8 heart).

2.



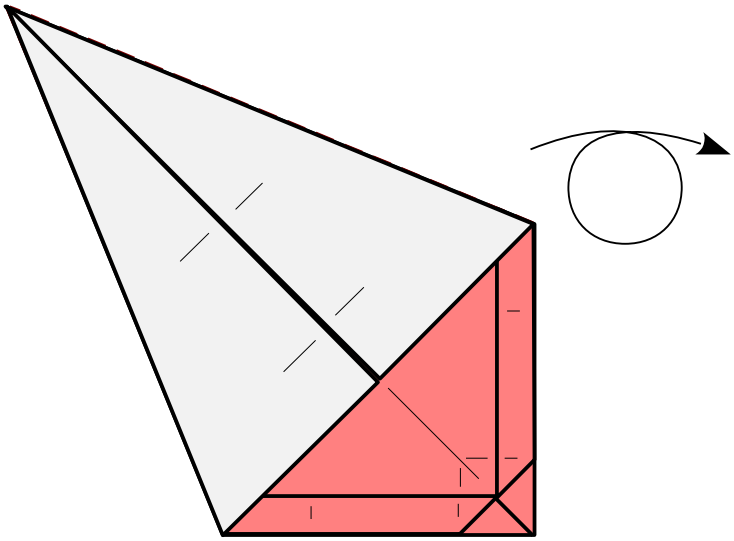
Fold the hems in half. Skipping this leaves a tiny color-change triangle on each wing instead of a large one. Turning it into a mountain fold makes a medium-size color-change triangle instead. Heart Swan II gets rid of the color-change triangle entirely.

3.



Kite fold.

4.



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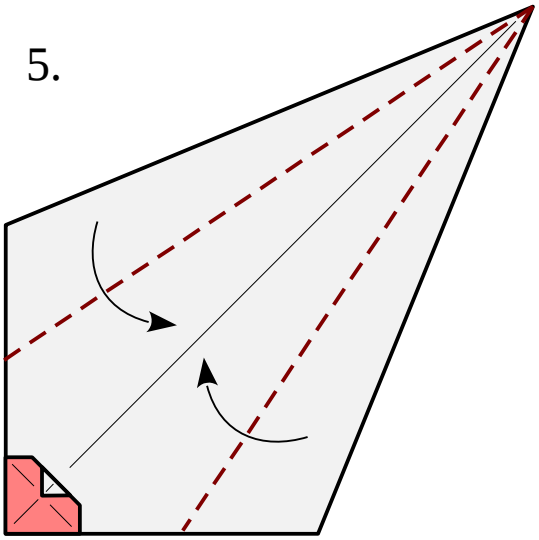

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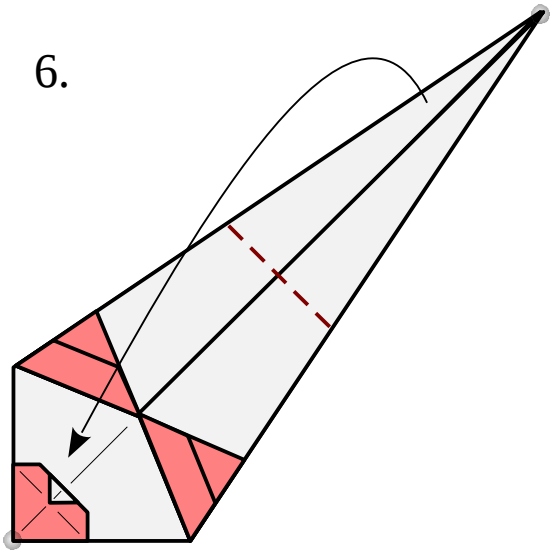
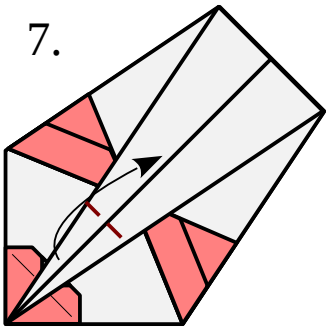
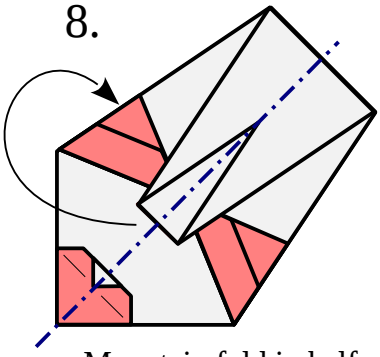


Valley fold in half.

7.

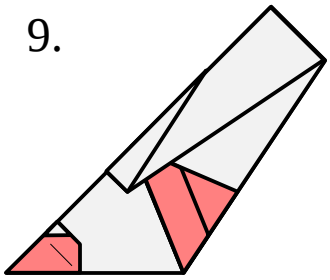


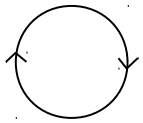
8.



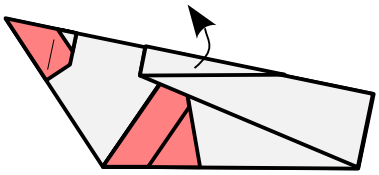
Mountain fold in half.

9.



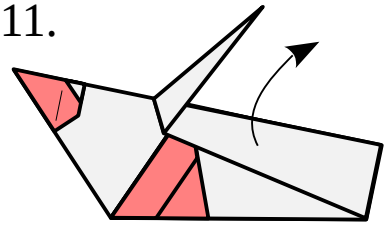


10.



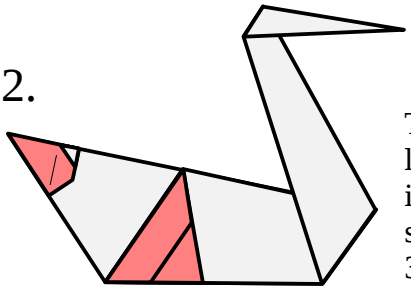
Swivel the head upwards and crease softly in the new position; you may want to adjust the angle after raising the neck in the next step.

11.



Likewise raise the neck.

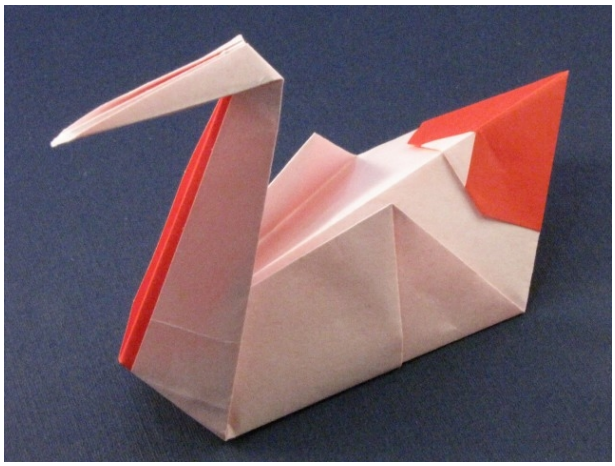
12.



To finish the model, let the model spring into slight 3D and shape it further into a 3D swan.

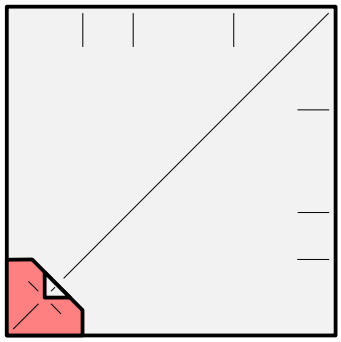
Heart Swan II

By Wensdy Whitehead



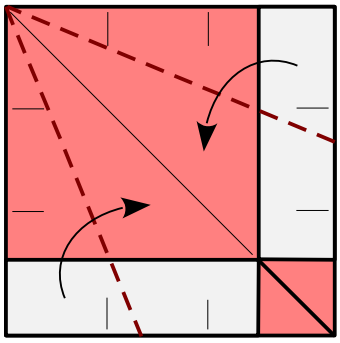
Recommended Paper: very thin two-sided 6” (15cm) square or larger.

1.



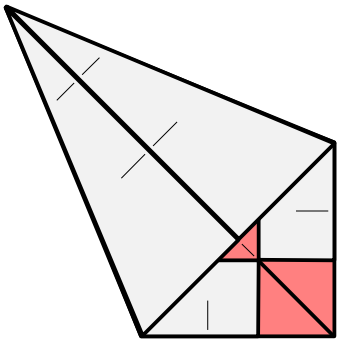
Begin with Heart Start 4 (the larger heart on a single corner).

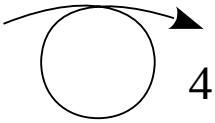
2.



Kite fold.

3.





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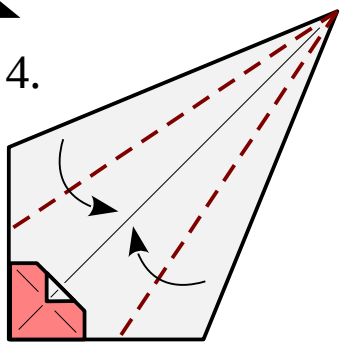
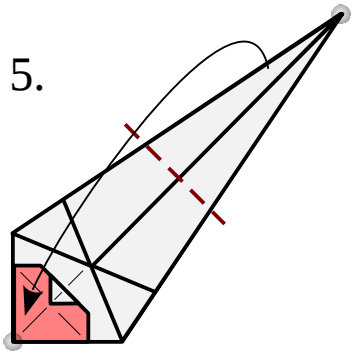
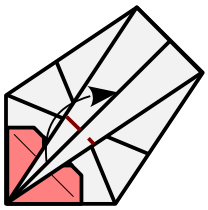


5.

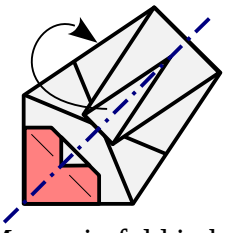


Valley fold in half.

6.

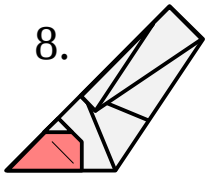


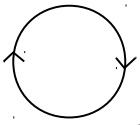
7.



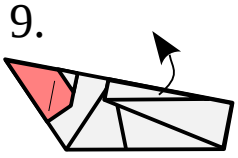
Mountain fold in half.

8.



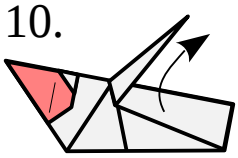


9.



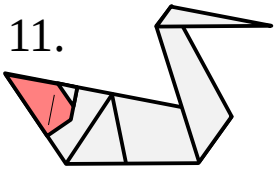
Swivel the head upwards and crease softly in the new position; you may want to adjust the angle after raising the neck in the next step.

10.



Likewise raise the neck.

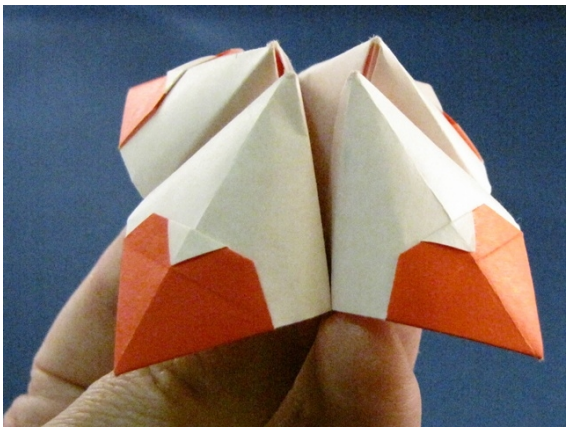
11.



To finish the model, let the model spring into slight 3D and shape it further into a 3D swan.

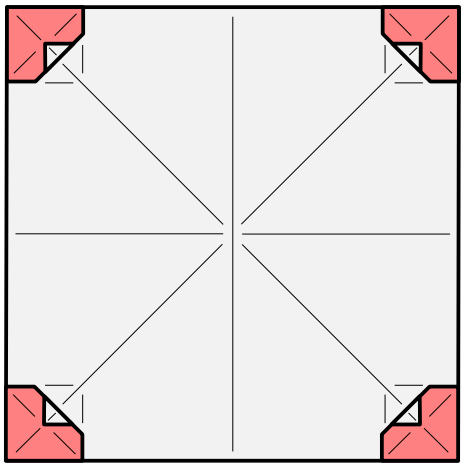
Fortune's Fancy

By Wensdy Whitehead



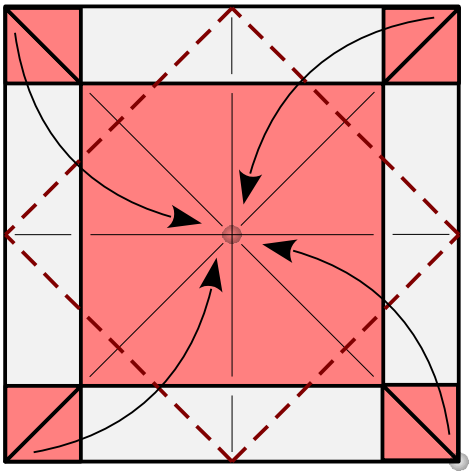
Recommended Paper: kami or other two-sided square paper 6-10” (15-25cm).

1.



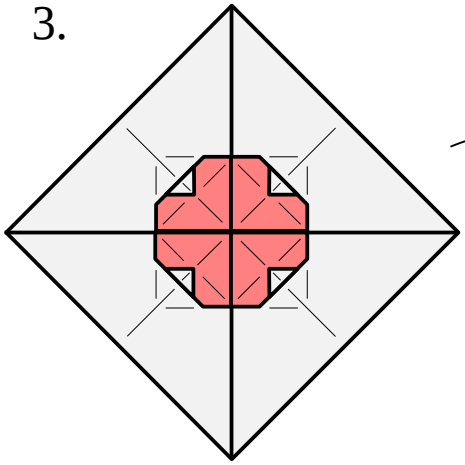
Begin with Heart Start 1.

2.

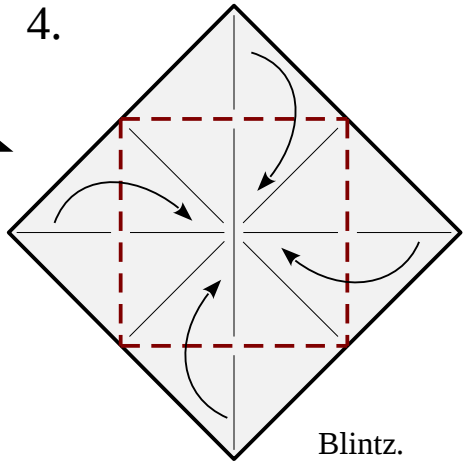


Blintz.

3.

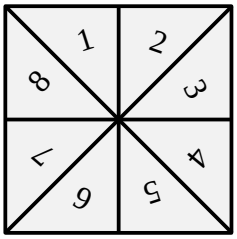


4.



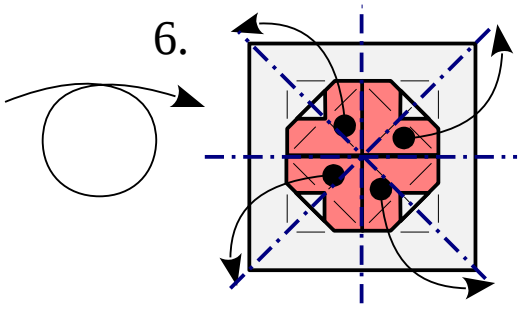
Blintz.

5.



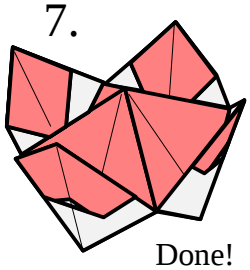
Optionally write a number or color on each triangle and a fortune on the paper under it, in the manner of the traditional fortune teller. Cooties juxtaposed with hearts would be a little weird, but go ahead and do that instead if so inclined.

6.



Bring into the classic 3D Fortune Teller form by collapsing the under layers into a loosely formed, colorful preliminary base while pulling open the square pockets with the hearts on them.

7.



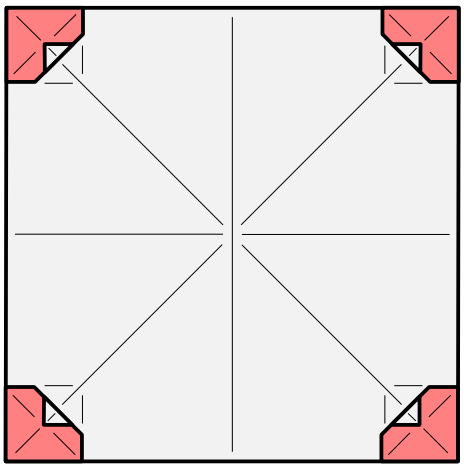
Done!

Lily-Hearted

By Wensdy Whitehead

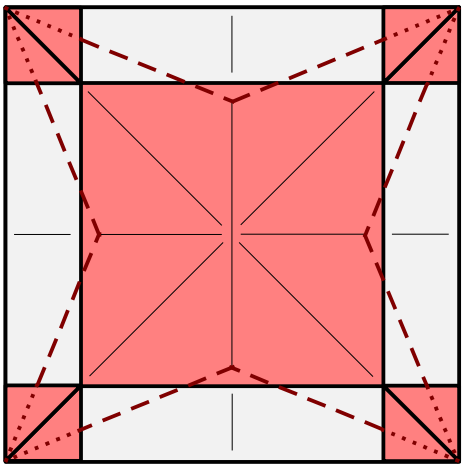
Recommended Paper: thin, paper-backed, color-change paper 6” (15cm) square or larger. Kami will work, but the petals will resist shaping.

1.

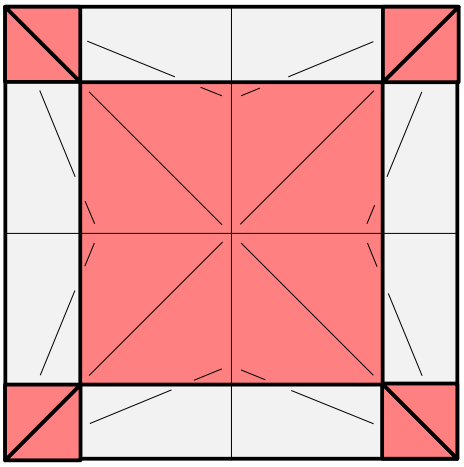


Begin with Heart Start 1.

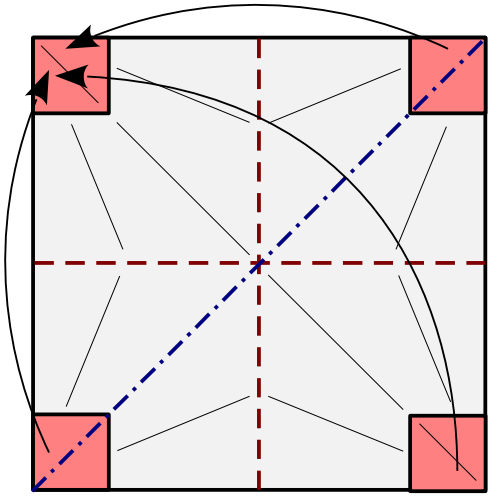
2.



3.

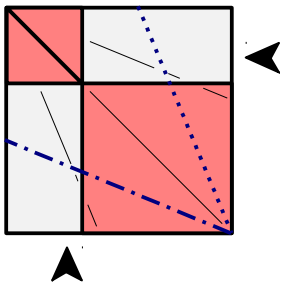


4.



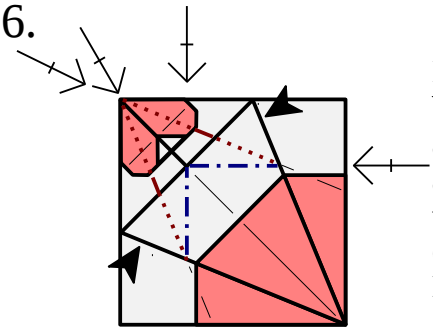
Collapse as a preliminary base.

5.



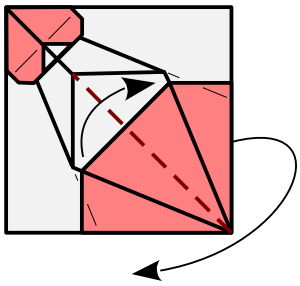
Squash. Repeat symmetrically behind.

6.



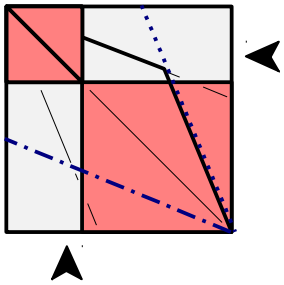
Inside-reverse folds. Repeat behind. (This may also be accomplished with a petal fold and then folding the petal upward (NW), but that adds an extra crease near a raw edge.) Do not fold the hearts.

7.



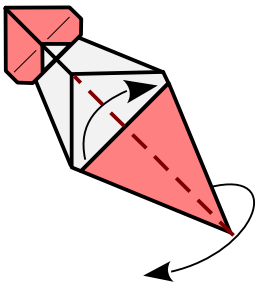
Page-turn front and back.

8.



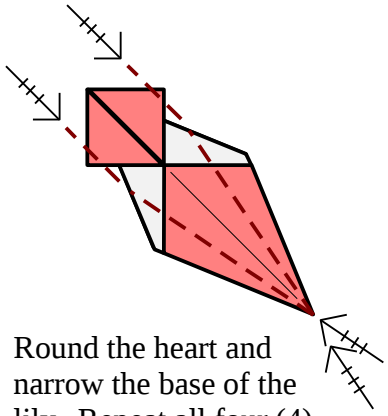
Repeat steps 17-18 on the remaining two

9.



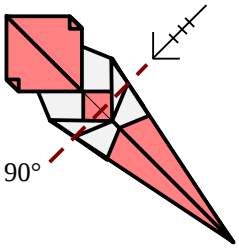
Page-turn front and back.

10.



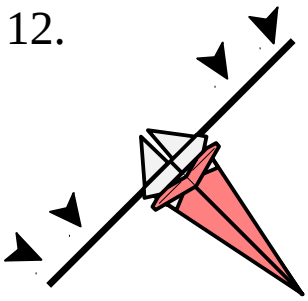
Round the heart and narrow the base of the lily. Repeat all four (4) ways. (Page-turn front and back to get at the second half of the folds.)

11.



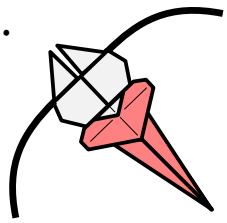
Fold the petals down into position for the bloom. Let the center pop 3D to allow all four (4) petals to fold down at about a right angle.

12.



Curl and shape the petals as desired.

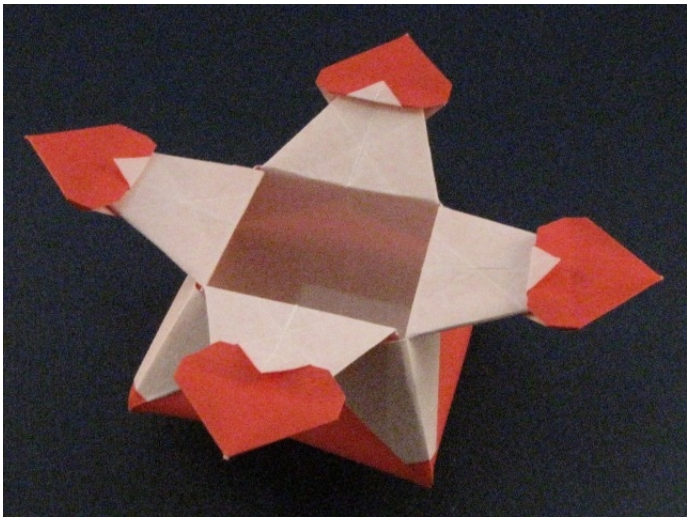
13.



Done!

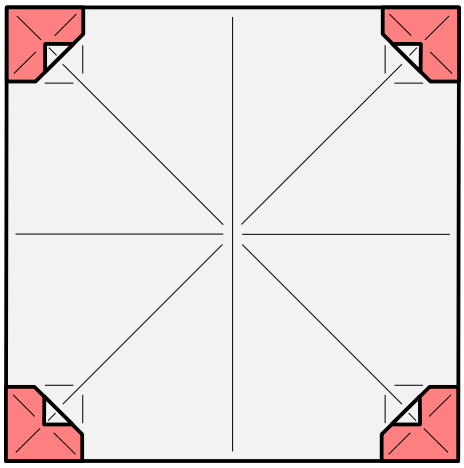
Heart Star Dish

By Wensdy Whitehead

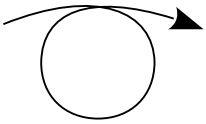


Recommended Paper: kami or other two-sided paper 6” (15cm) square or larger.

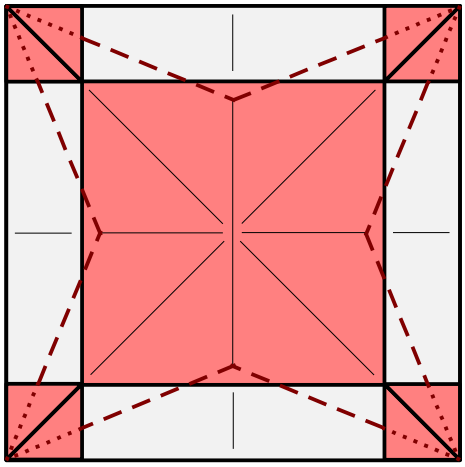
1.



Begin with Heart Start 1.

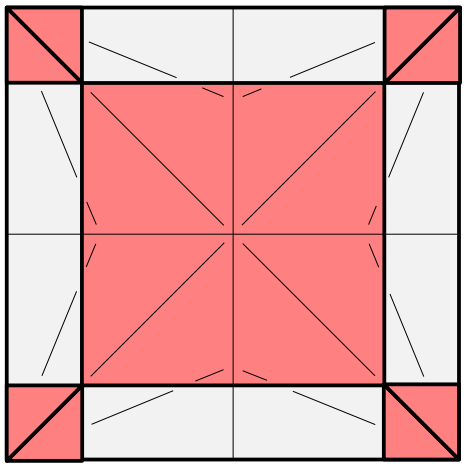


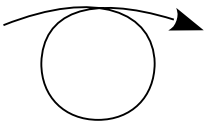
2.



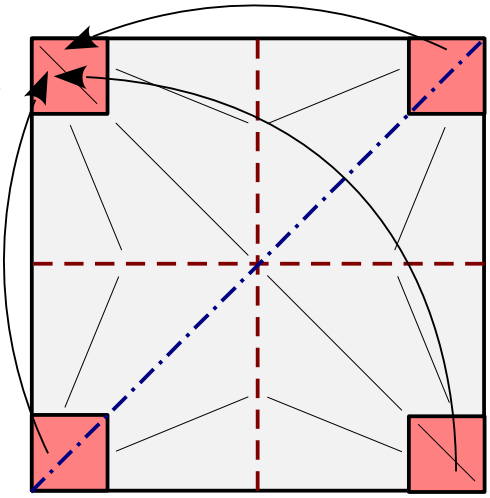
Pre-crease. On the colorful corners, try to fold only the inner white layer to avoid extra crease lines on the heart.

3.



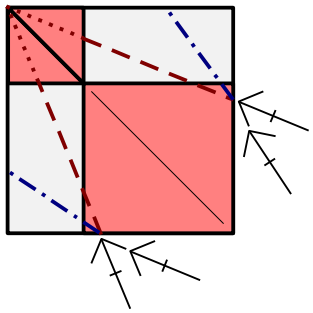


4.



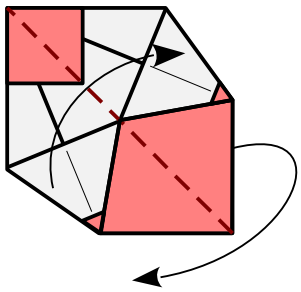
Collapse as a preliminary base.

5.



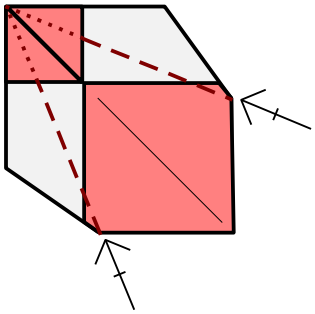
Squash the white layer, using the pre-creases. Repeat behind.

6.



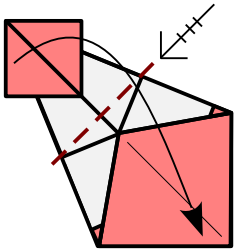
Page-turn front and back.

7.



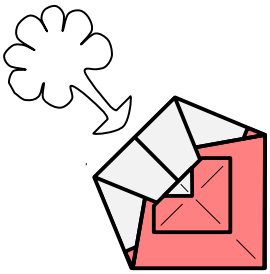
Valley fold the white layer. Repeat behind.

8.



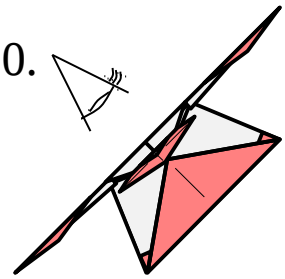
Fold down the front and back flaps as far as they will go. Page-turn front and back to do the same to the other two (2) similar flaps.

9.



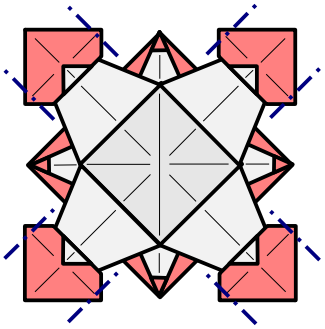
Inflate with your fingers, making the model into a star dish. Model becomes 3D.

10.



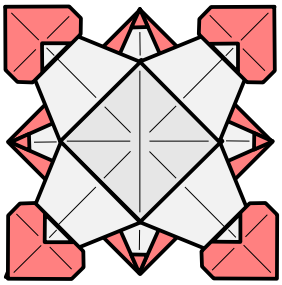
New view.

23.



Round the sides of the hearts using tiny mountain folds.

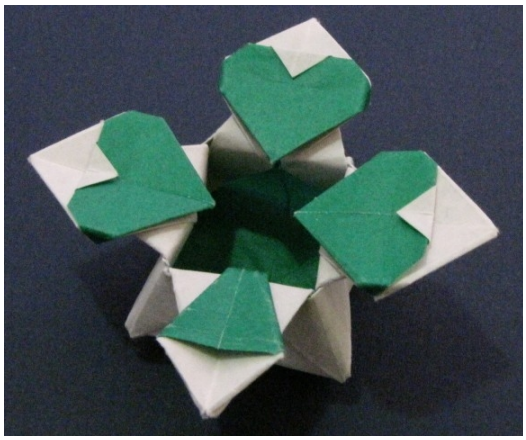
24.



Done!

Shamrock Star Dish

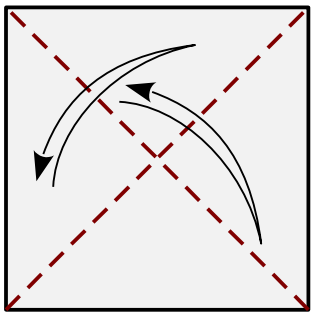
By Wensdy Whitehead



Recommended Paper: green kami or other two-sided paper 6” (15cm) square or larger. Mere 6” will produce only a very small (and not very useful) dish, so 10” or larger is better.

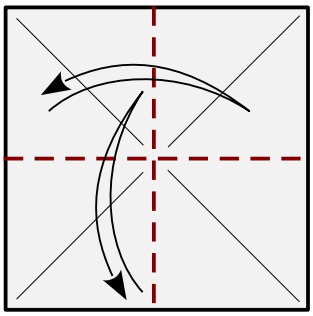
The Shamrock Star Dish uses a modified Heart Start 1.

1.



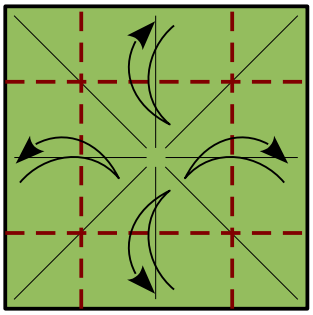
Fold and unfold.

2.



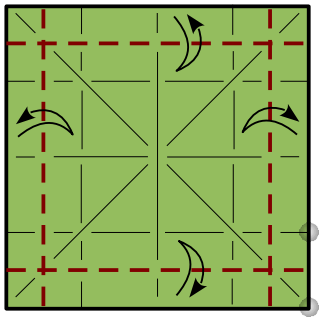
Fold and unfold.

3.



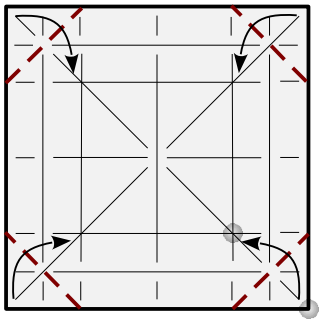
Fold and unfold the cupboard doors..

4.



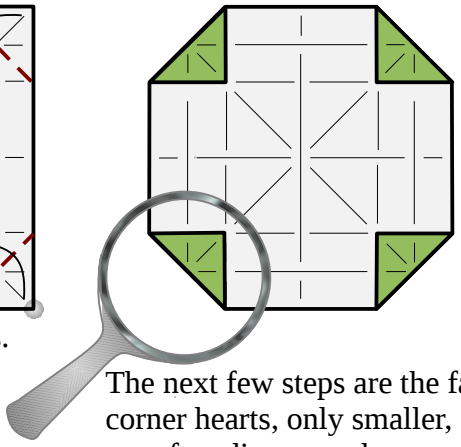
Fold and unfold the eighths.

5.



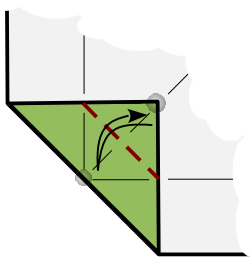
Four (4) valley folds.

6.



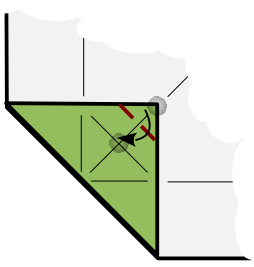
The next few steps are the familiar corner hearts, only smaller, so the next few diagrams show one corner magnified. Fold only three (3) hearts; leave the fourth corner alone for now.

7.



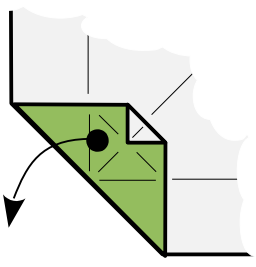
Fold and unfold all four (4) corners the same way.

8.



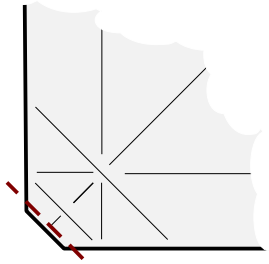
Fold all four (4) corners the same way.

9.



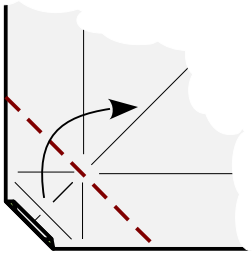
Unfold all four (4) of the larger dog-eared corners the same way.

10.



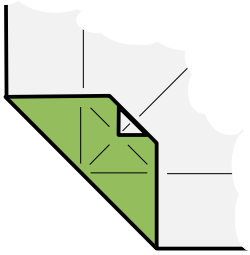
Make tiny hems to round the tops of all four (4) hearts.

11.



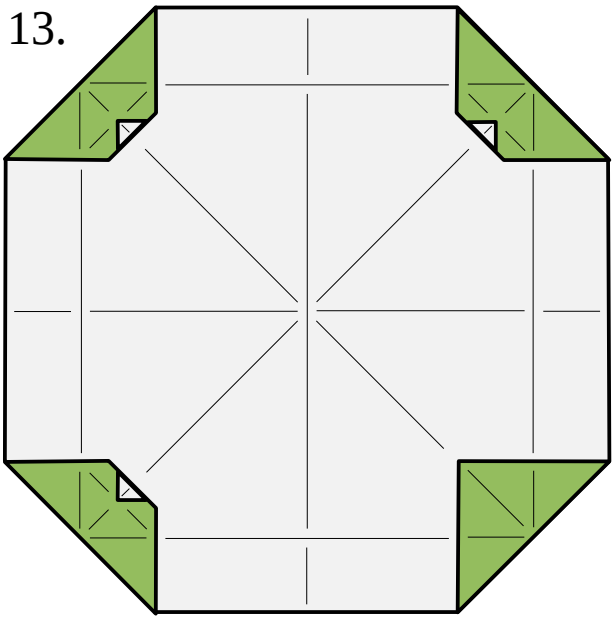
Refold step 6 on all four (4) corners.

12.

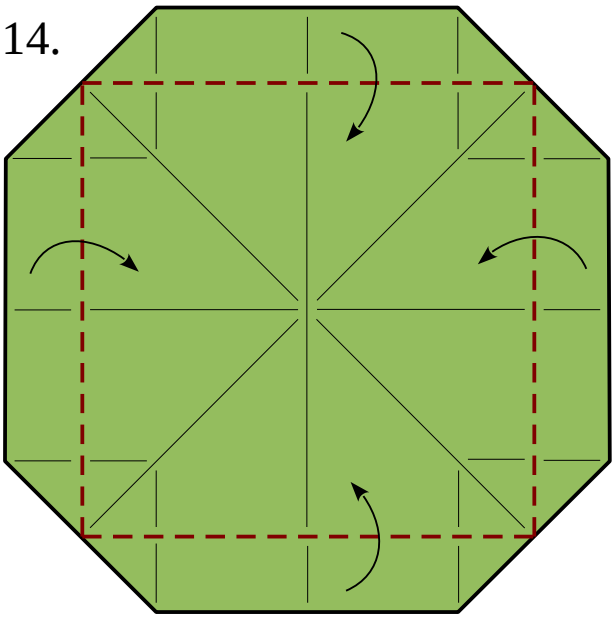


Return to full, unmagnified view.

13.

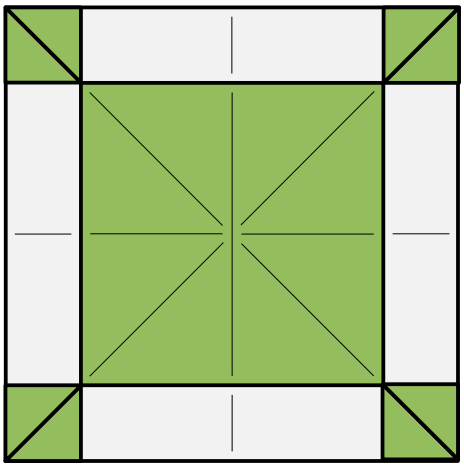


14.

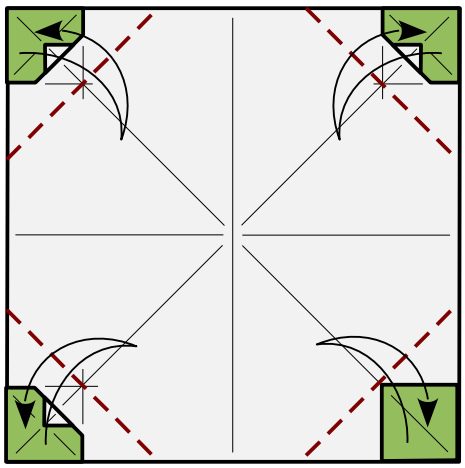


Refold the eighths. No new creases.

15.

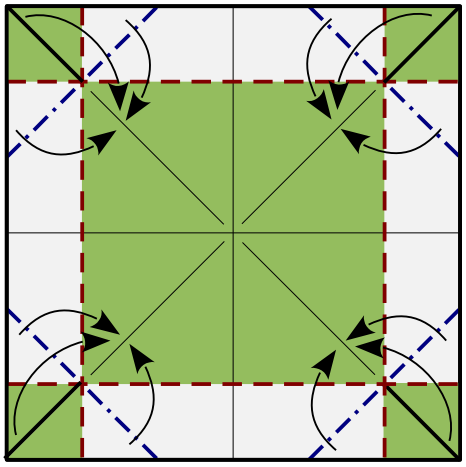


16.



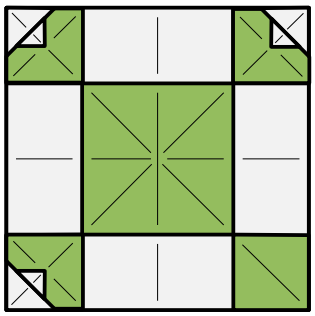
Fold and unfold. Because there is no 3/8 mark on the diagonal, align each diagonal along itself and the intersection of the pre-creases and on the reverse the color-change lines.

17.

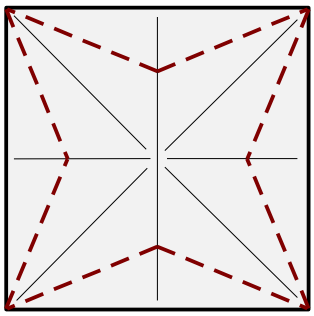


Give each of the intersections with the new diagonals a poke, then collapse each corner like a preliminary base.

18.

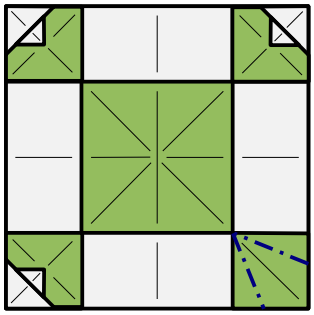


19.



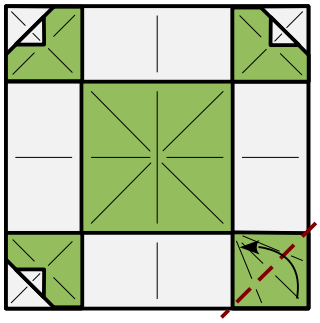
Pre-crease the large white square. Leave the small flaps behind alone.

20.

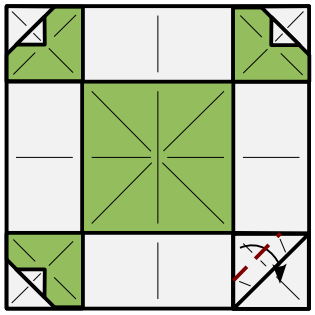


Pre-crease.

21.

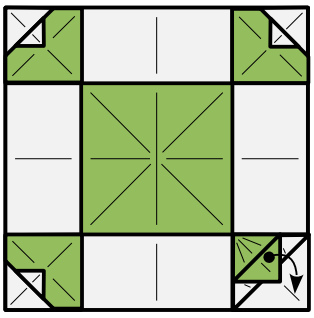


22.



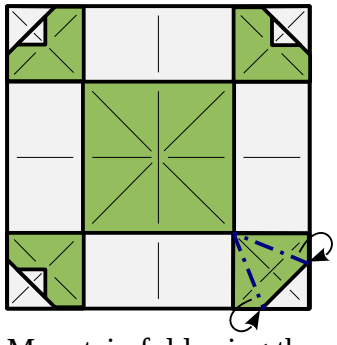
Flatten the bottom of the stem.

23.



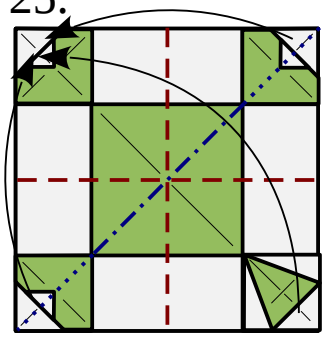
Unfold the diagonal from step 21, allowing the corner protruding beyond the diagonal to flip behind into the pocket.

24.



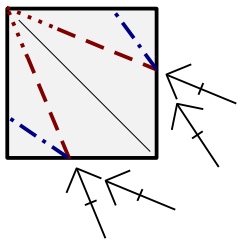
Mountain fold using the pre-creases to narrow the stem.

25.



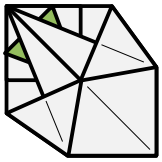
Collapse as a preliminary base. Because the corners are so thick, let the small flaps slip past each other rather than forcing them to fold.

26.

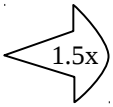


Squash the white layer, using the pre-creases. Repeat behind.

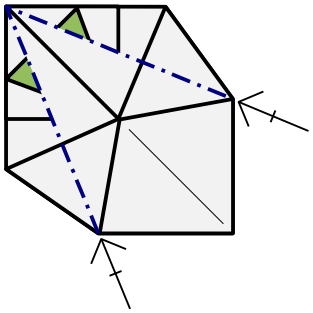
27.



Result.

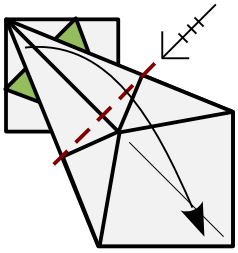


28.



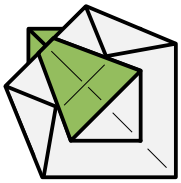
Page-turning may be impractical due to thickness, so just use the pre-creases to fold the outer halves of the four (4) recent squashes to the inside.

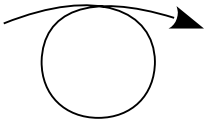
29.



Fold down the front and back flaps as far as they will go. Inside-reverse to do the same to the other two (2) similar flaps. Allow the corners of the green squares (which will be the leaves) to flip around freely. Fold all layers of the stem.

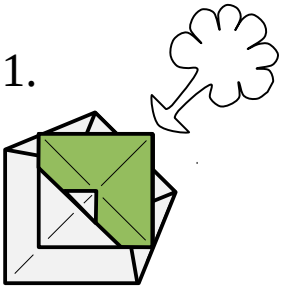
30.





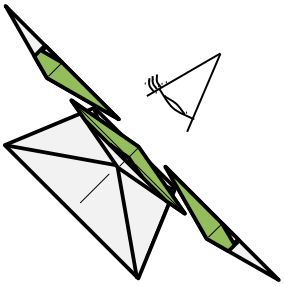
Result as seen from the side with the stem. Turning over just shows the result from the other side.

31.



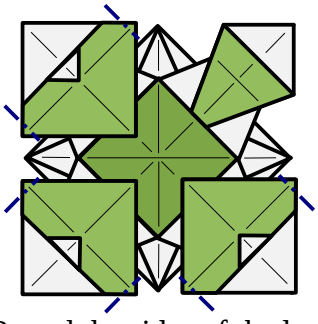
Inflate with your fingers, making the model into a star dish. Model becomes 3D.

32.



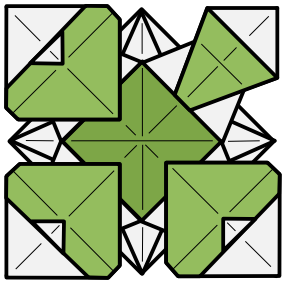
New view.

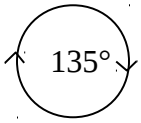
33.



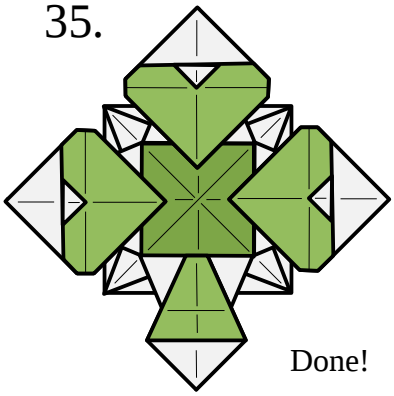
Round the sides of the leaves using tiny mountain folds.

34.





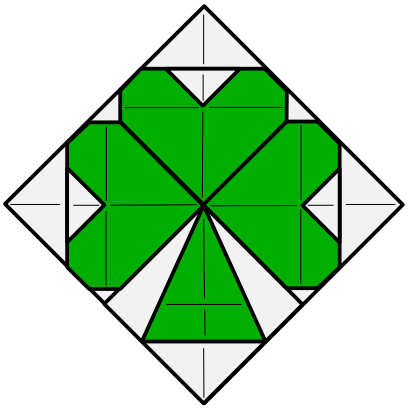
35.



Done!

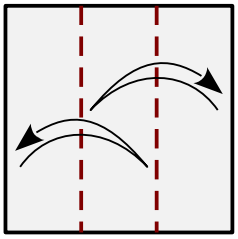
Shamrock N

by Wensdy Whitehead



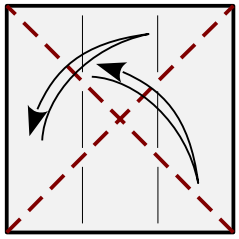
Recommended Paper: green paper-backed foil or other two-sided paper 4” (10cm) square or larger. Kami will work, but should spend some time pressed in an encyclopedia to make it properly flat.

1.



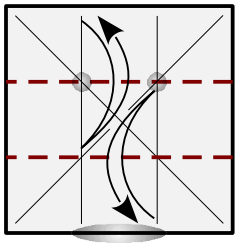
Fold in thirds using the S-method. If folding more than one, use one as a jig.

2.



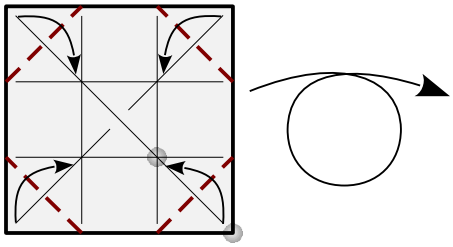
Fold and unfold.

3.



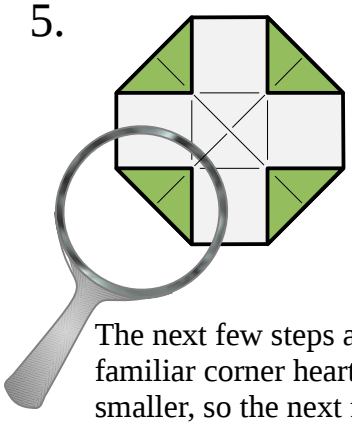
Fold to the far pair of intersections to replicate the thirds horizontally. Unfold.

4.



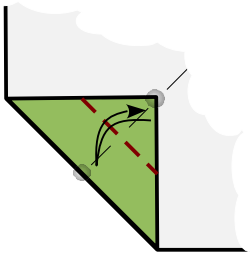
Fold each corner to the nearest intersection.

5.



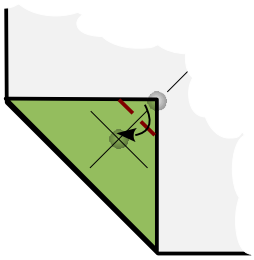
The next few steps are the familiar corner hearts, only smaller, so the next few diagrams show one corner magnified. Fold only three (3) hearts; leave the fourth corner alone for now.

6.



Fold and unfold all four (4) corners the same way.

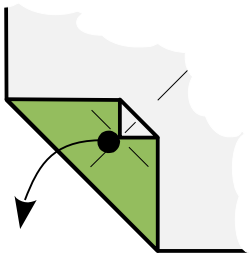
7.



Fold all four (4) corners the same way.

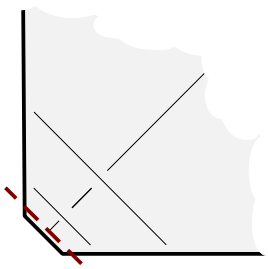
This Shamrock is the result of negative grafting. It is just the #Shamrock Star Dish minus the Star Dish.

8.



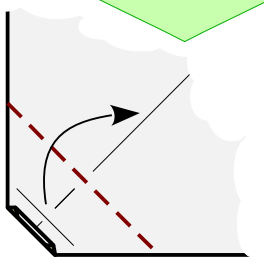
Unfold all four (4) of the larger dog-eared corners the same way.

9.



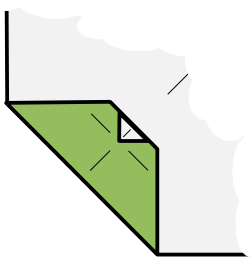
Make tiny hems to round the tops of all four (4) hearts.

10.



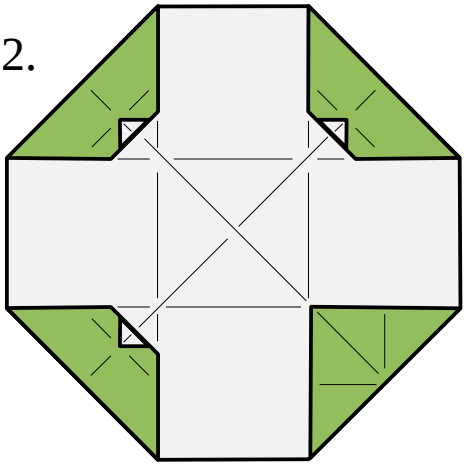
Refold step 6 on all four (4) corners.

11.

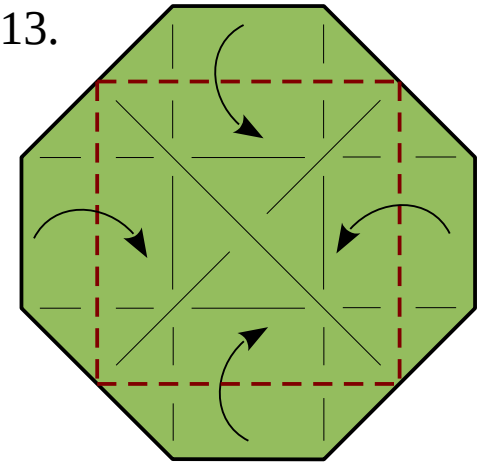


Return to full view.

12.

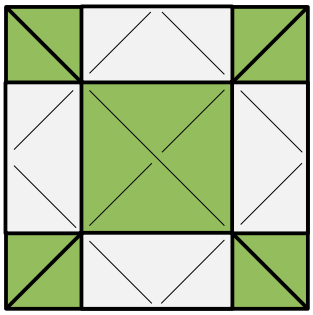


13.

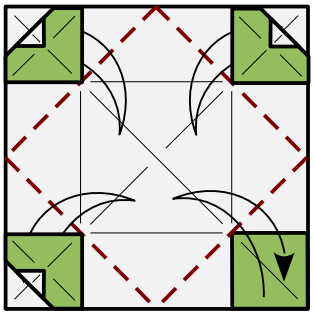


Fold to the thirds lines.

14.

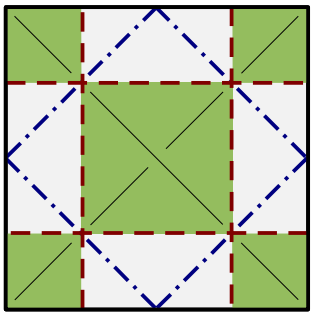


15.



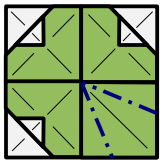
Blintz and unblintz. While blintzed, front and back sport the same color pattern!

16.



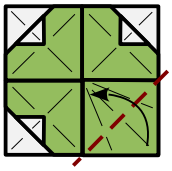
Collapse each corner as a preliminary base.

17.



Pre-crease as mountain folds.

18.

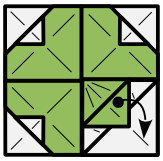


Fold one (1) layer only.

19.

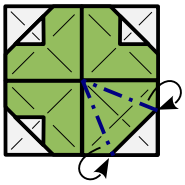
Flatten the bottom of the stem.

20.



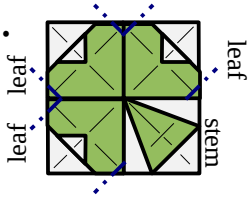
Unfold the diagonal from step 18, allowing the corner protruding beyond the diagonal to flip behind.

21.

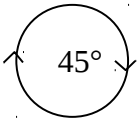


Mountain fold using the pre-creases to narrow the stem.

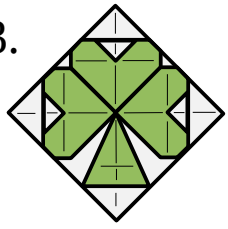
22.



Round the sides of the leaves using tiny mountain folds.



23.



Done!

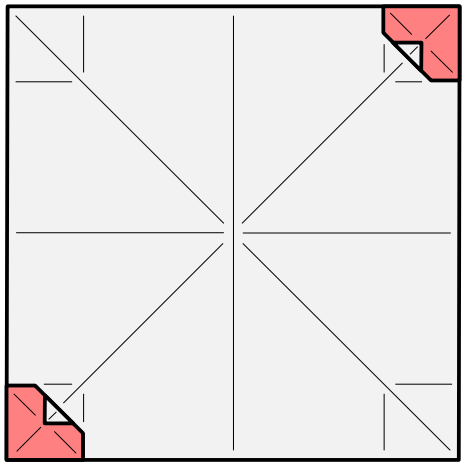
Masu With Two Hearts

By Wensdy Whitehead

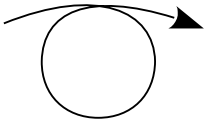
Recommended Paper: kami or other thin, two-sided paper 6” (15cm) square or larger.

This example puts hearts on just two opposite corners, using squares one-eighth the size of the starting square and therefore one-sixth the size of the final square. This is the same size heart as in the first Heart Start and the first four steps are the same. Step 5 is the significant difference; the remaining differences flow automatically from there. This particular start is good for modifying the traditional Crane and Flapping Bird models. Two or three corners may be chosen at will; they need not be opposite. For just one corner, see the Heart Starts specifically for a single corner, however for the traditional Cicada, use this version with just one heart in order to eliminate unwanted color change.

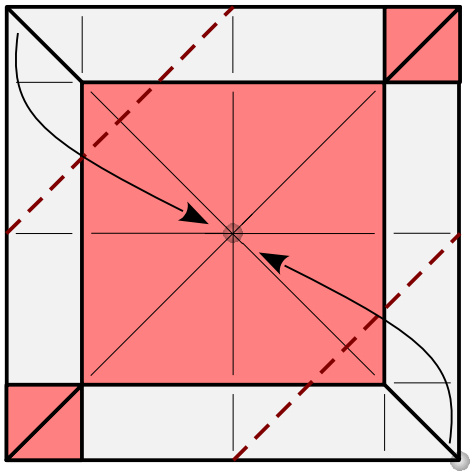
1.



Begin with Heart Start 2.

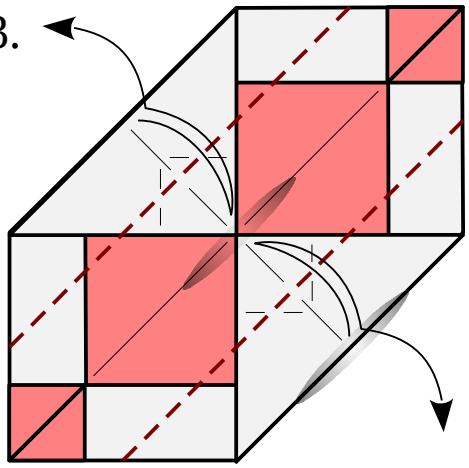


2.



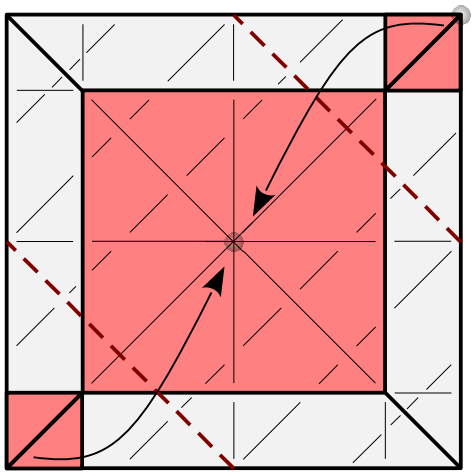
Just like the traditional masu from here on out.

3.



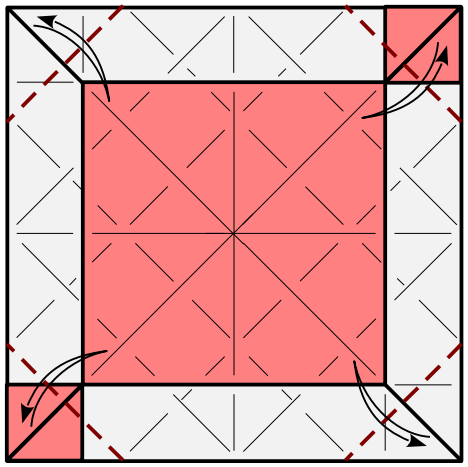
Fold the new edges to the center diagonal, then unfold to square.

4.



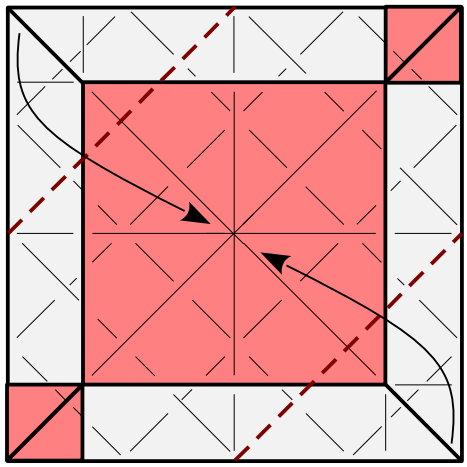
Repeat steps 15-16 the other way.

5.



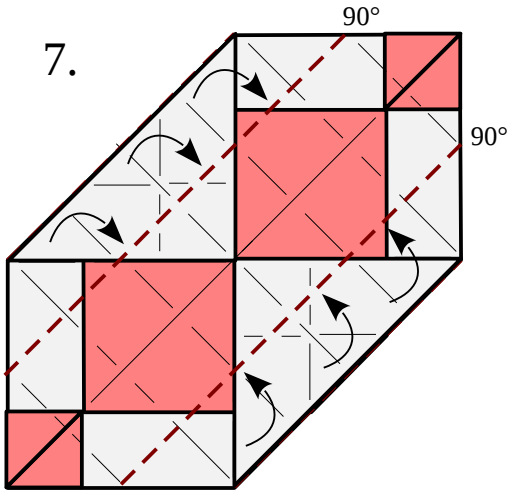
Hinge the outermost diagonals so the central corners won't tend to spring upward so much.

6.



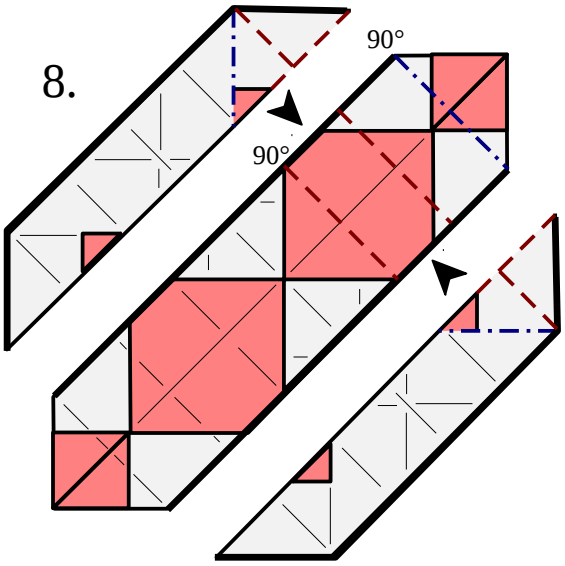
Refold.

7.



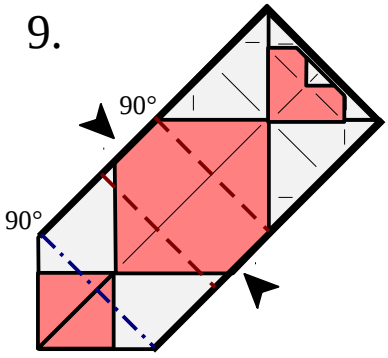
Stand two sides of the box upright.

8.



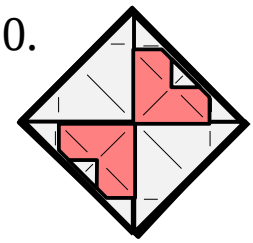
Exploded view. (Do *not* detach anything.) Stand a third side upright while pushing the adjacent upright sides in, then fold the corner down to form an inside wall and a fourth of the bottom. NO NEW CREASES.

9.



Repeat step 21 on the fourth side.

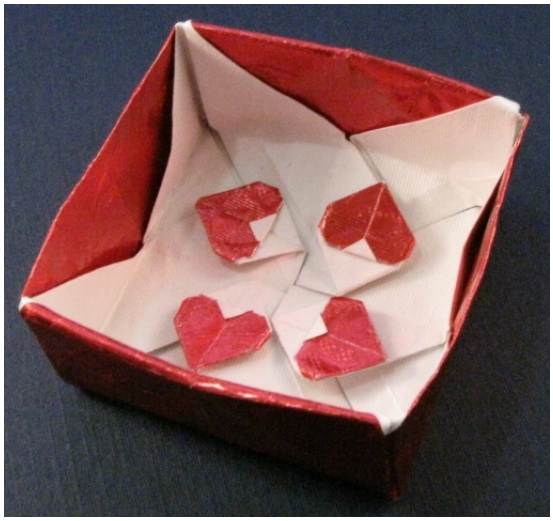
10.



Done!

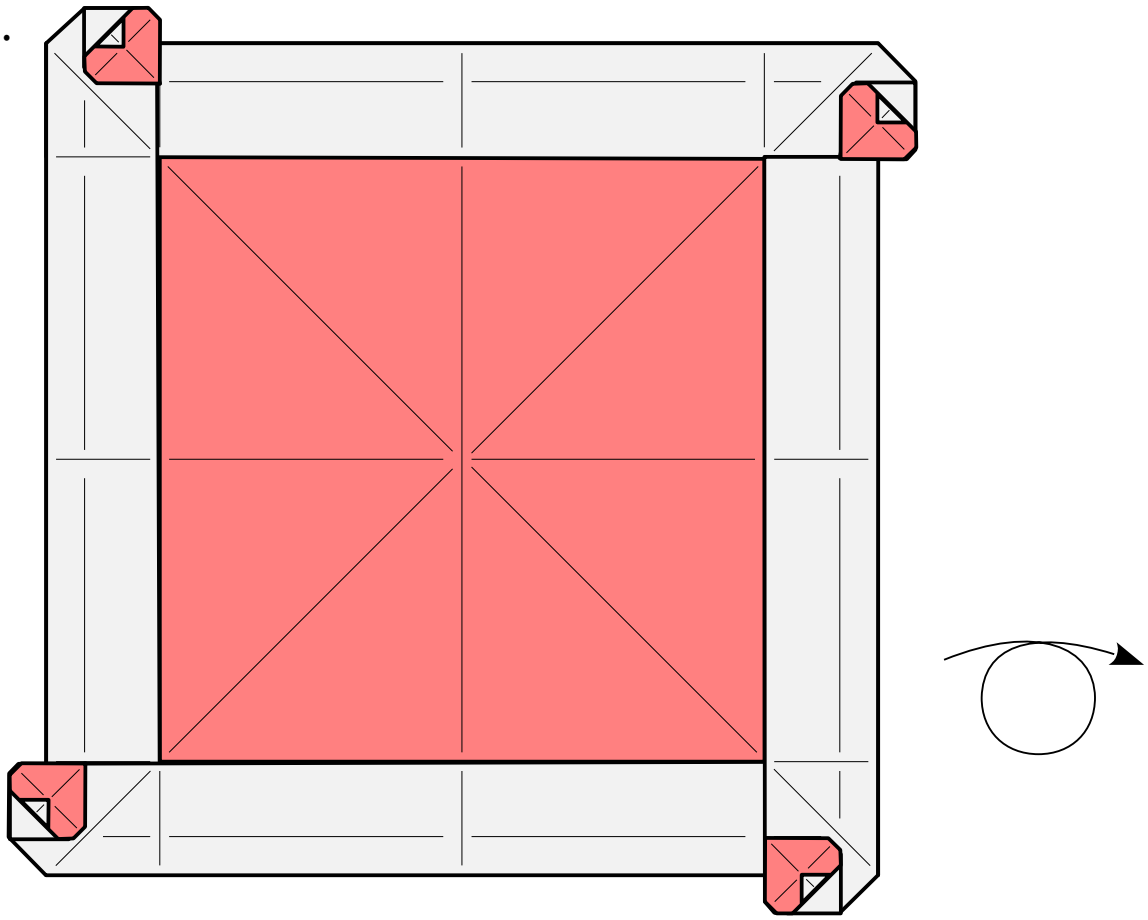
Masu With Four Hearts Inside

By Wensdy Whitehead



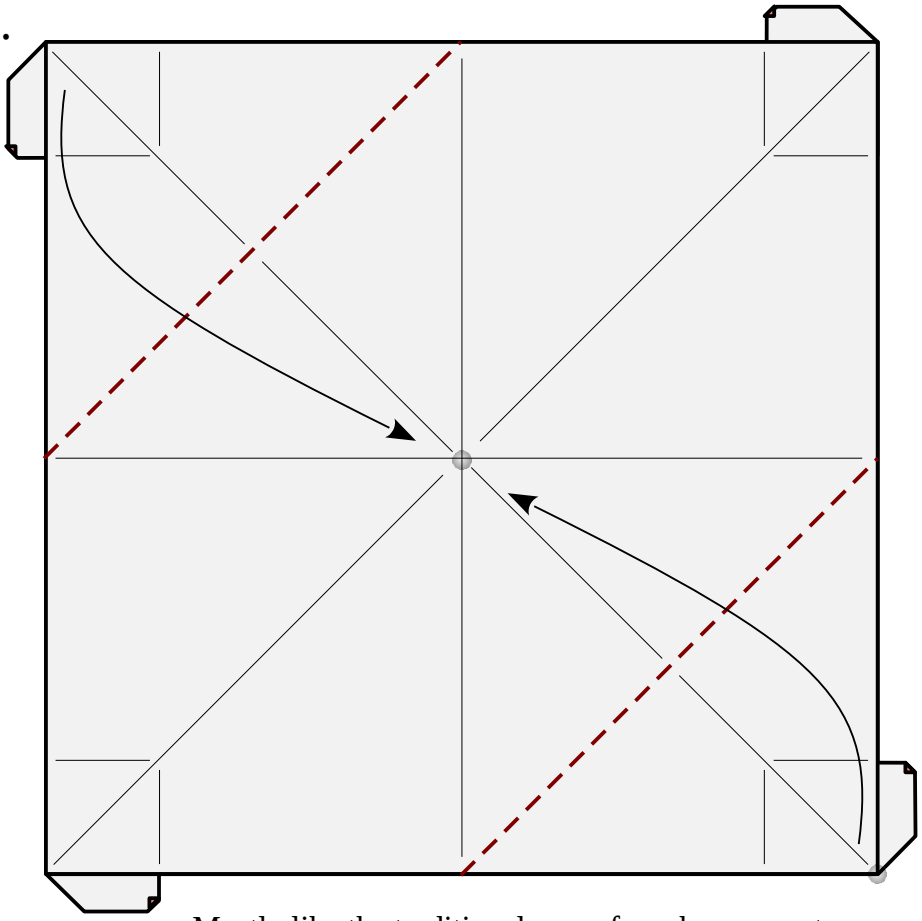
Recommended Paper: two (2) squares of kami or other thin, two-sided paper 8” (20cm) or larger. 6” (15cm) is a bit small but not impossibly so.

1.



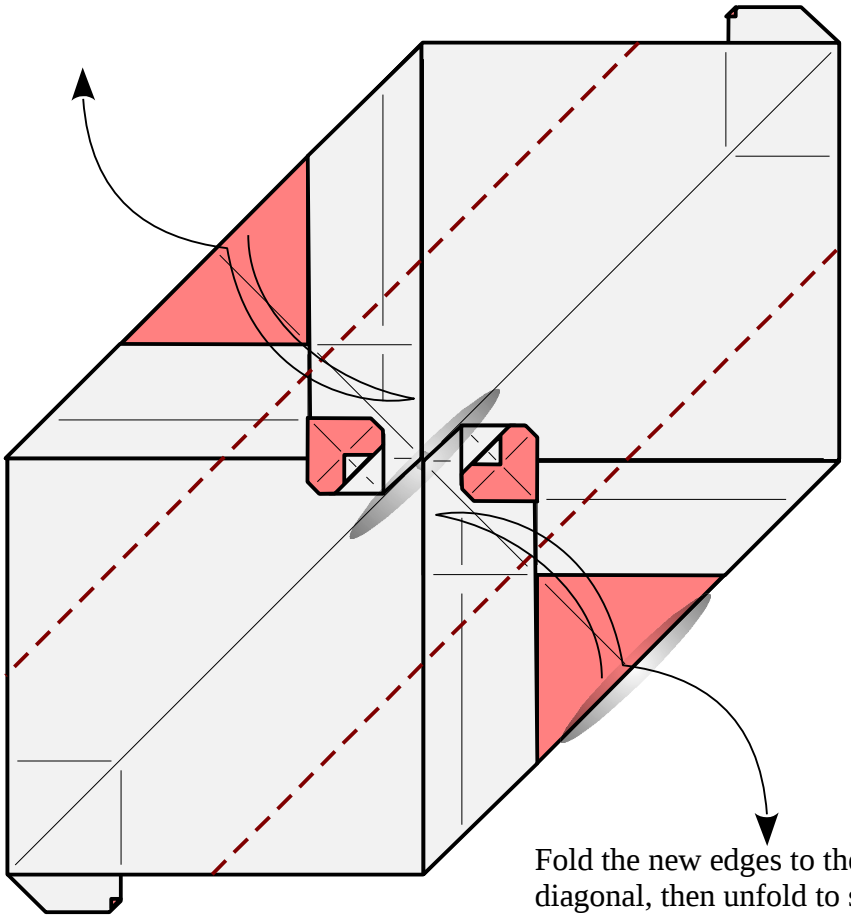
Begin with Heart Start 8 (Articulated Hearts).

2.



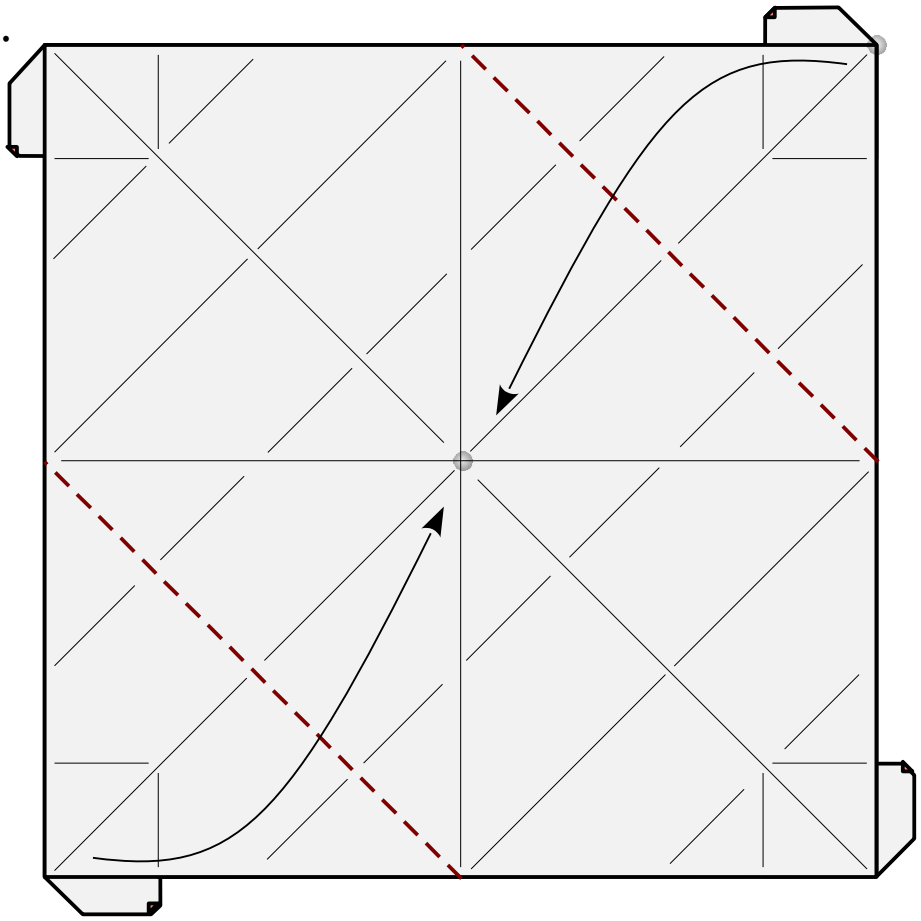
Mostly like the traditional masu from here on out.

3.

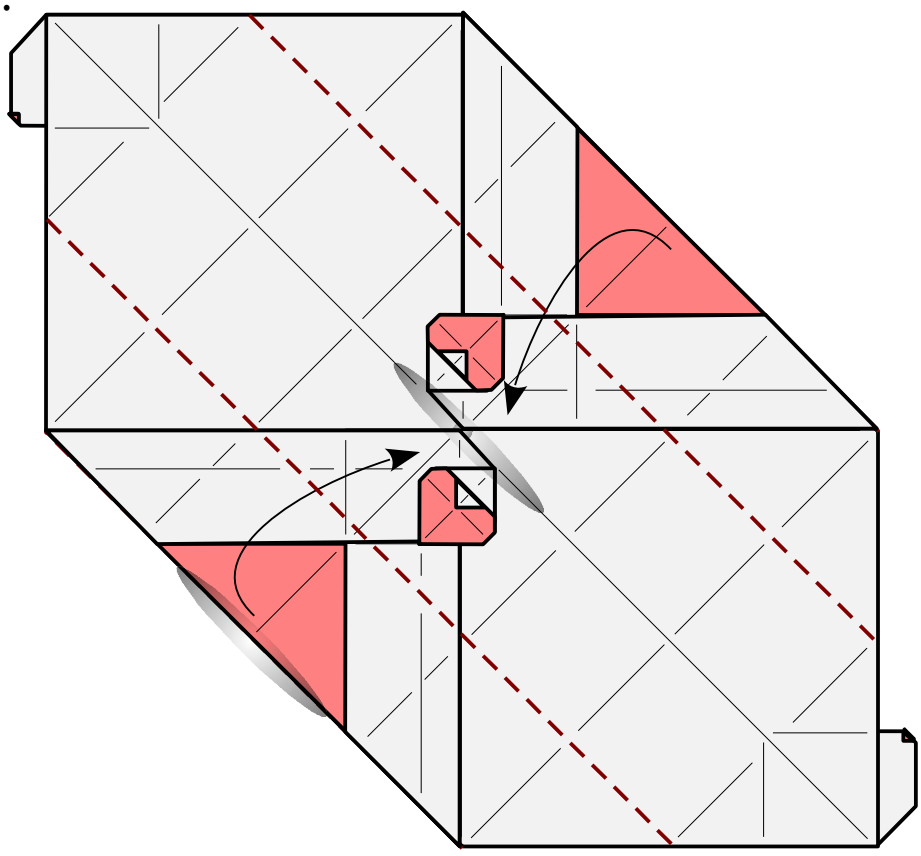


Fold the new edges to the center diagonal, then unfold to square.

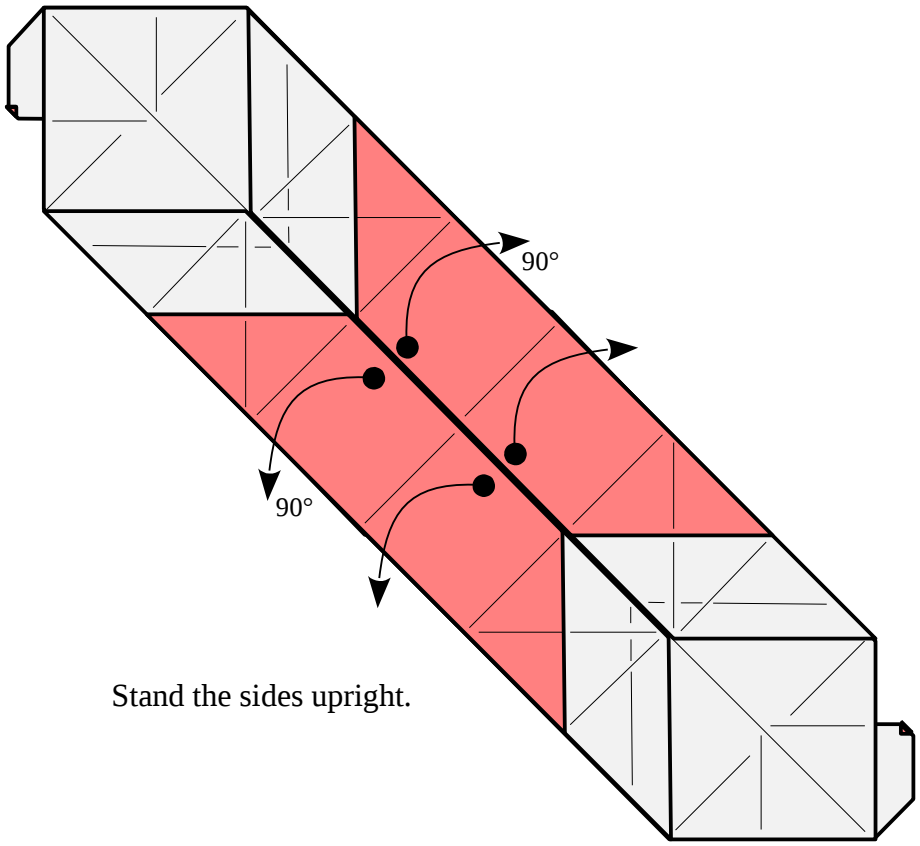
4.



5.

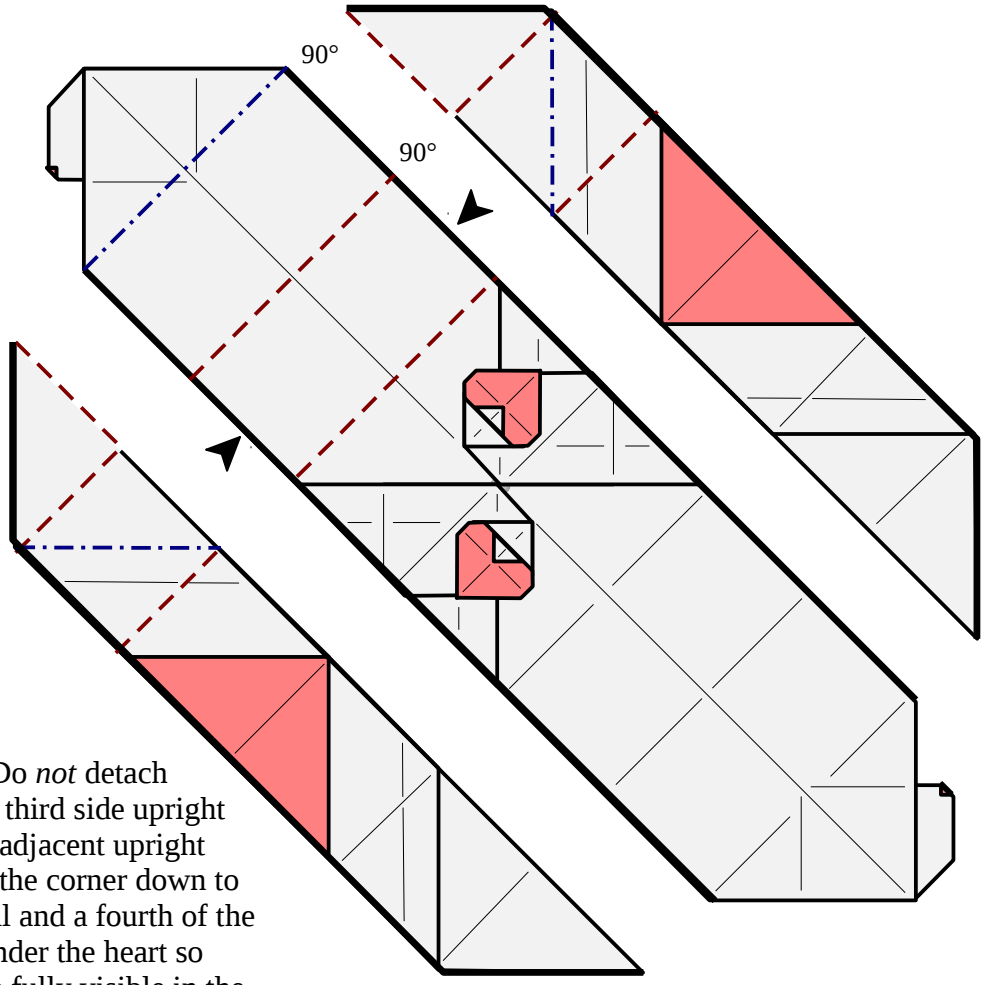


6.



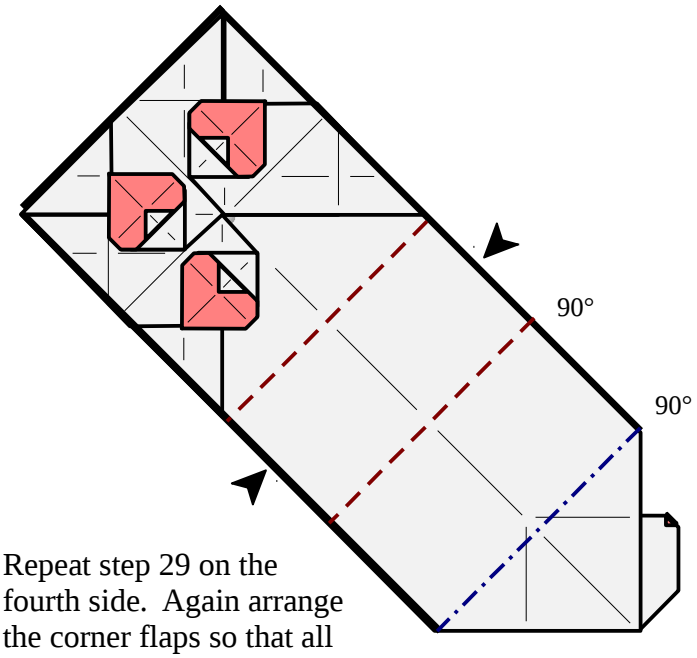
Stand the sides upright.

7.



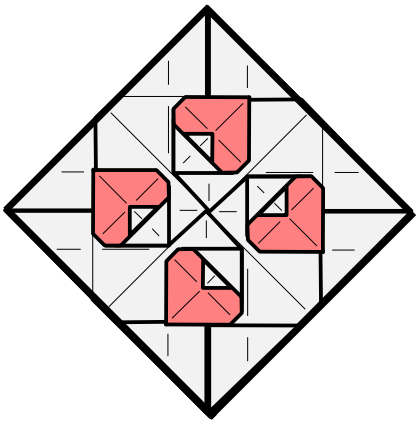
Exploded view. (Do *not* detach anything.) Stand a third side upright while pushing the adjacent upright sides in, then fold the corner down to form an inside wall and a fourth of the bottom. Tuck it under the heart so three (3) hearts are fully visible in the bottom. NO NEW CREASES.

8.



Repeat step 29 on the fourth side. Again arrange the corner flaps so that all the hearts are completely visible. This will also hold the corners down.

9.



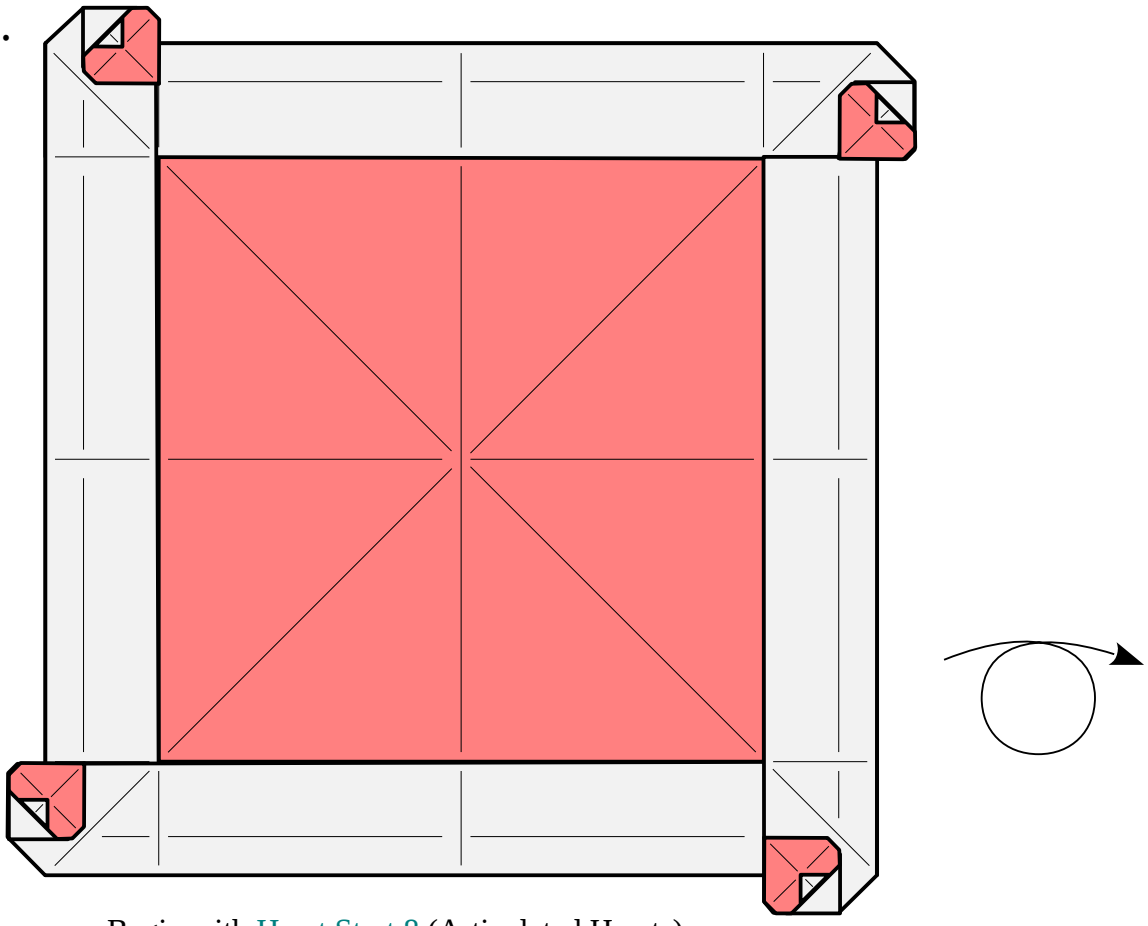
Done!

Masu With Four Hearts Outside

By Wensdy Whitehead

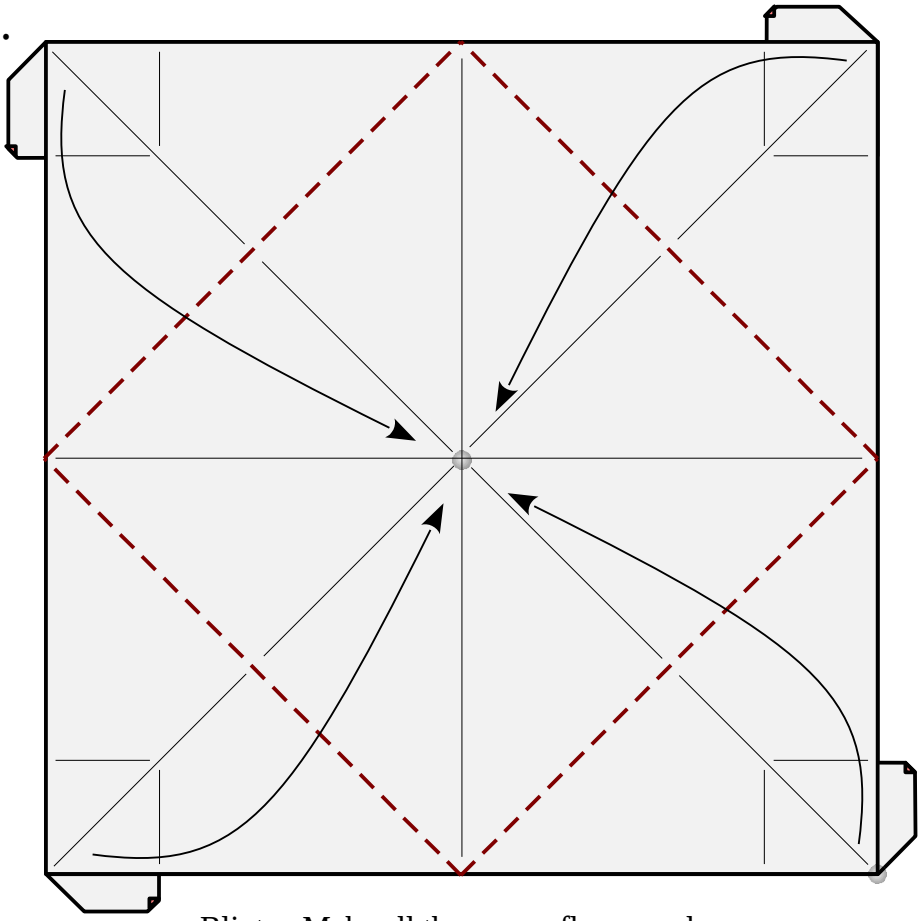
Recommended Paper: two (2) squares of kami or other thin, two-sided paper 8” (20cm) or larger. 6” (15cm) is a bit small but not impossibly so.

1.



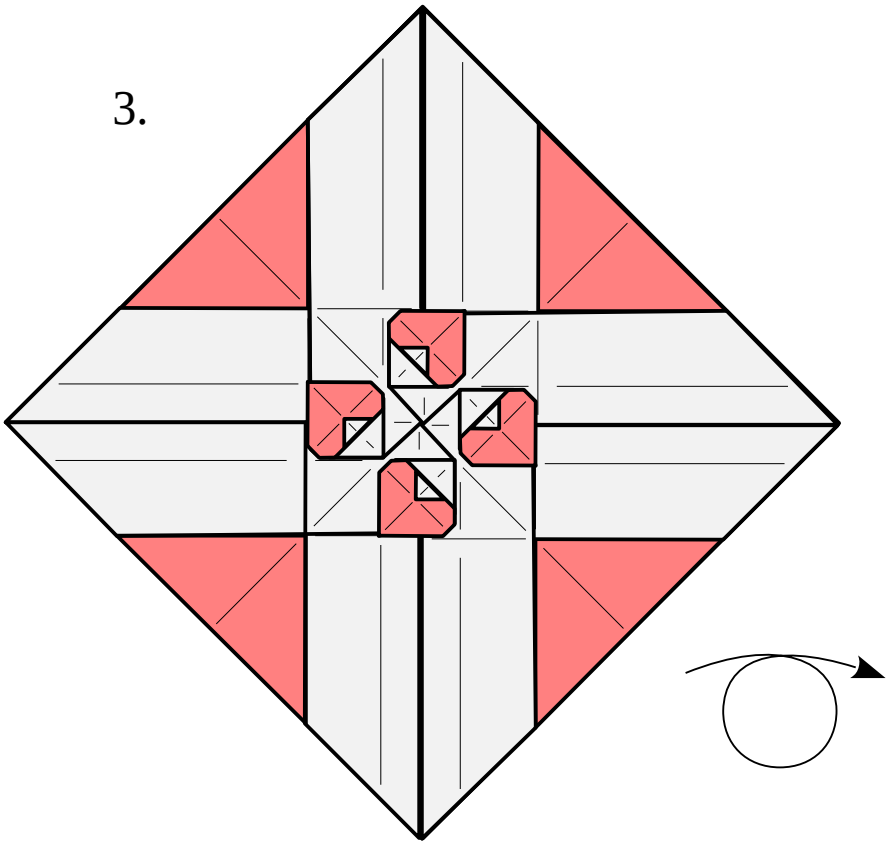
Begin with Heart Start 8 (Articulated Hearts).

2.

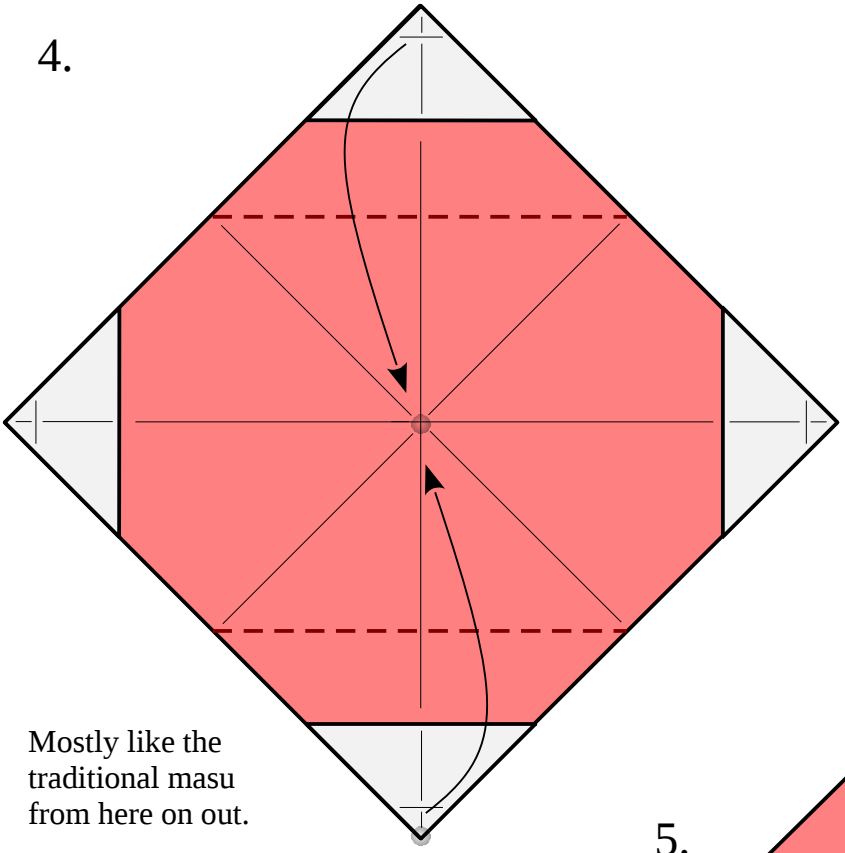


Blintz. Make all the corner flaps overlap the neighboring corner so all four (4) hearts are completely visible.

3.

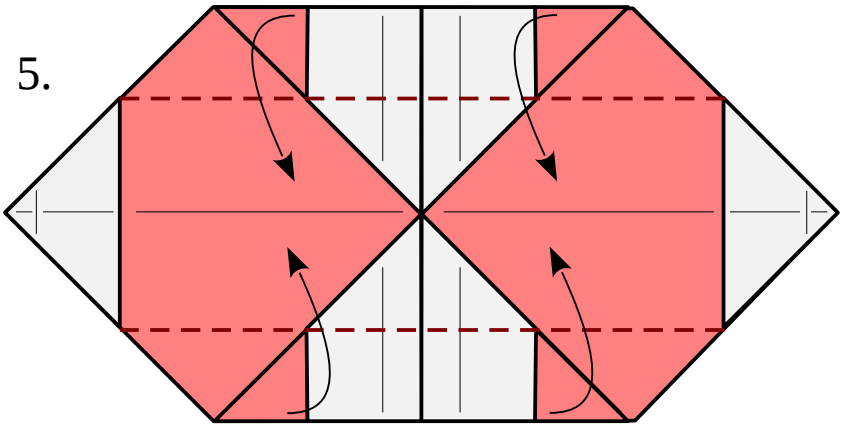


4.



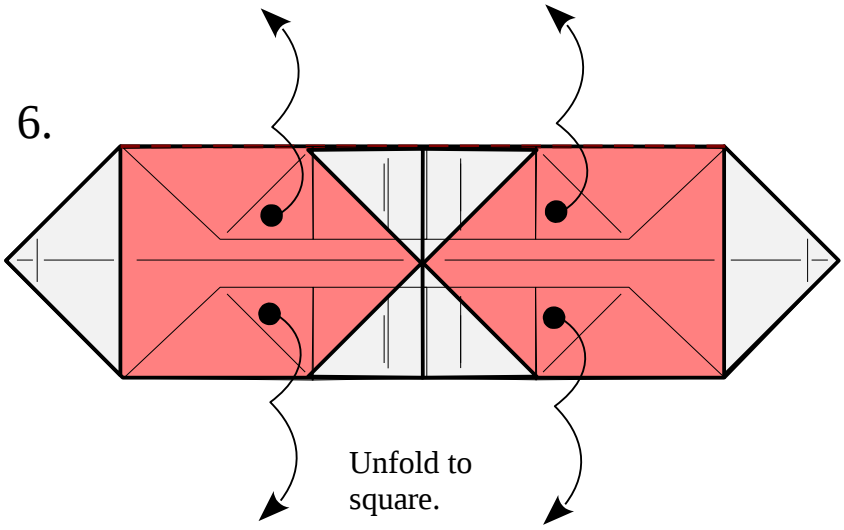
Mostly like the traditional masu from here on out.

5.



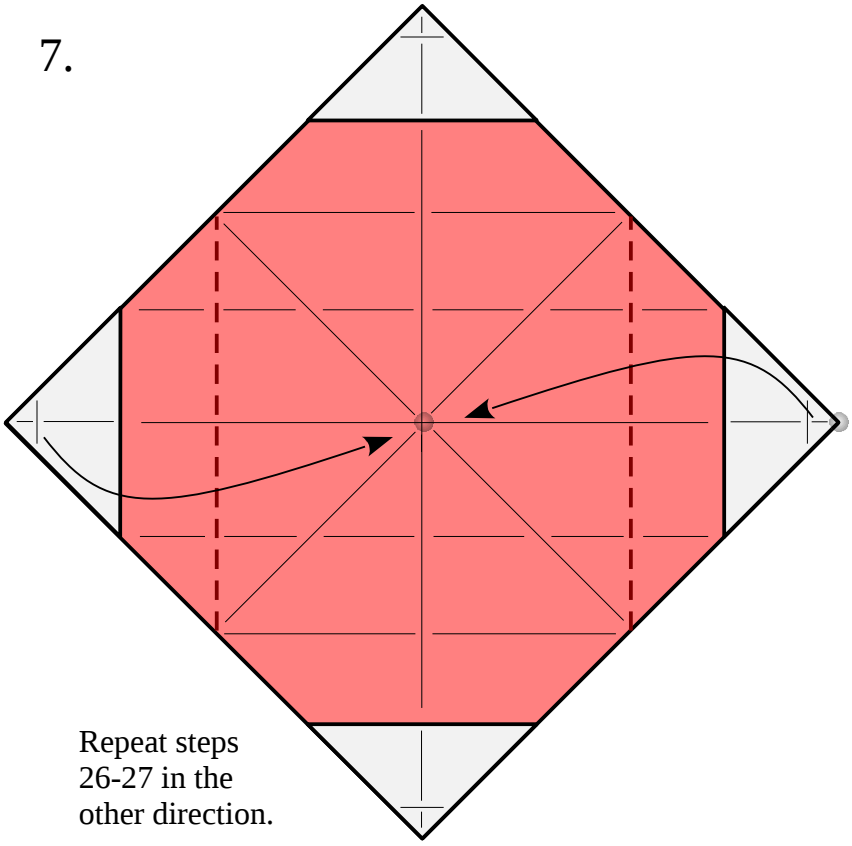
Going to the center isn't *impossible*, but make it easier on yourself and just follow the underlying transition to thickness. This is also handy to make this a lid for a traditional masu from a square the size of the square in step 26.

6.



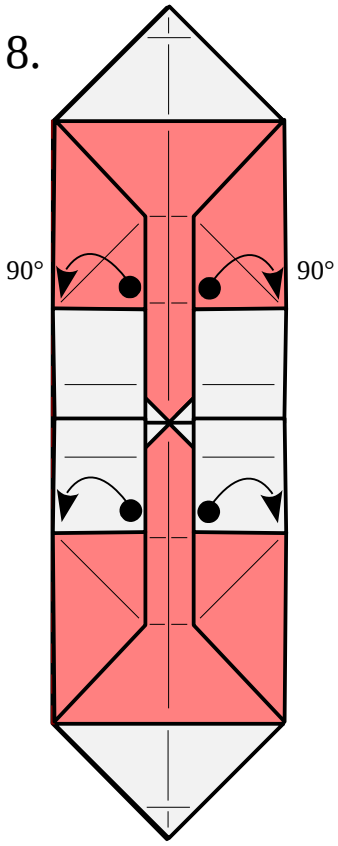
Unfold to square.

7.



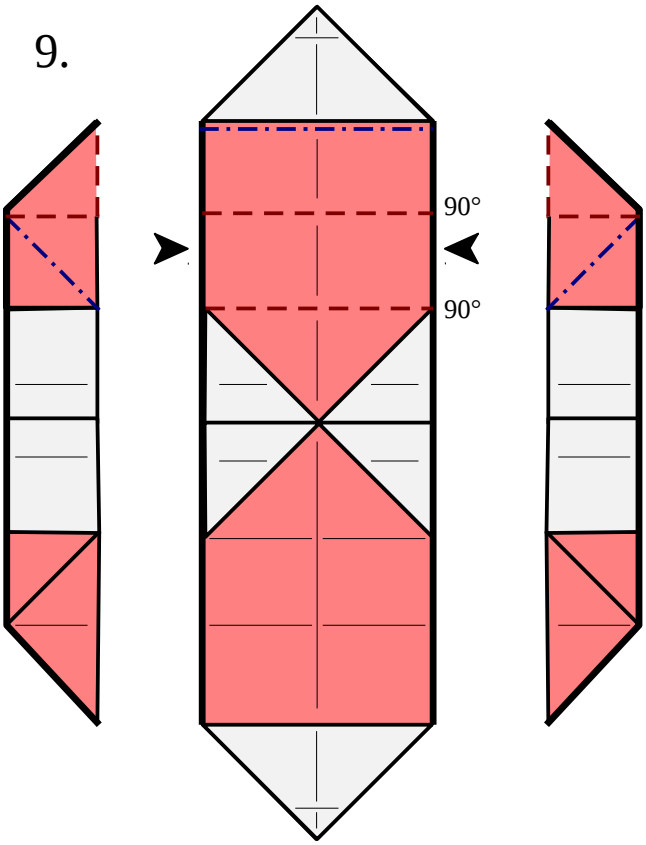
Repeat steps 26-27 in the other direction.

8.



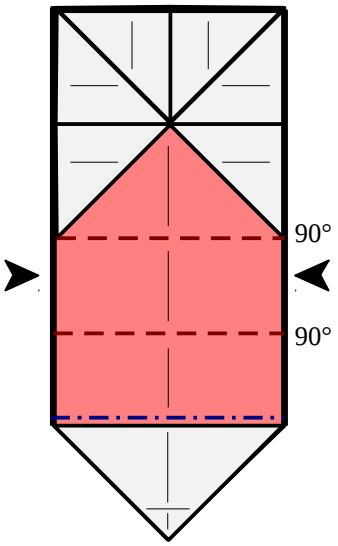
Stand the sides upright.

9.



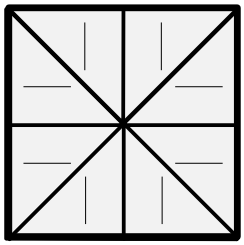
Exploded view. (Do *not* detach anything.) Stand a third side upright while pushing the adjacent upright sides in, then fold the corner down to form an inside wall and a fourth of the bottom. NO NEW CREASES.

10.

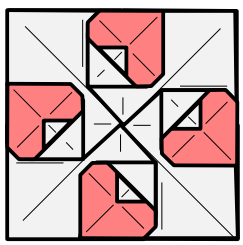


Repeat step 31 on the fourth side.

11.



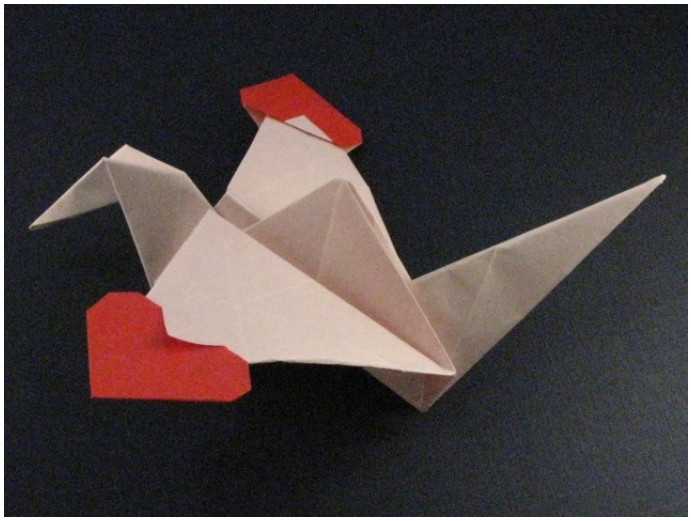
12.



Done!

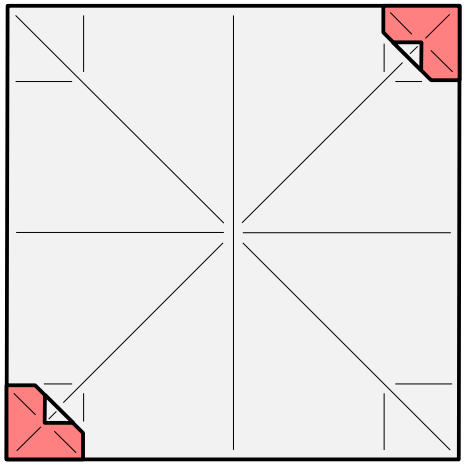
Hearts All A-Flutter

By Wensdy Whitehead



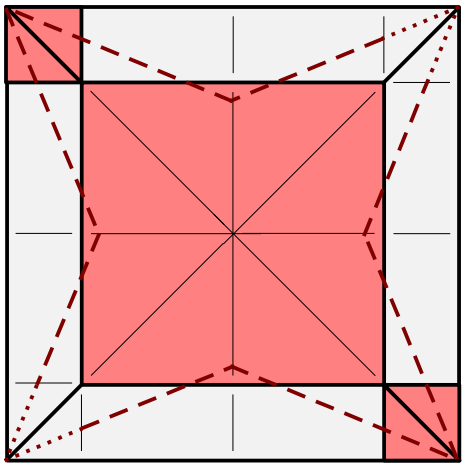
Recommended Paper: very thin two-sided 6” (15cm) square or larger.

1.



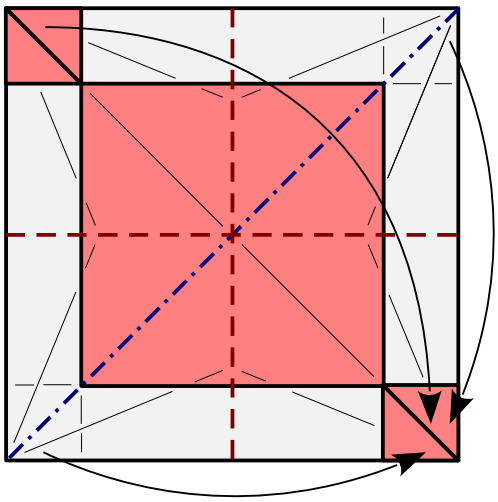
Begin with Heart Start 2.

2.



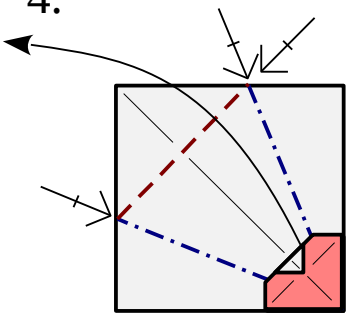
Pre-crease. On the colorful corners, fold only the inner white layer to avoid extra crease lines on the heart.

3.



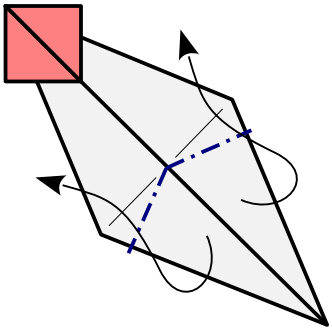
Collapse as a preliminary base.

4.



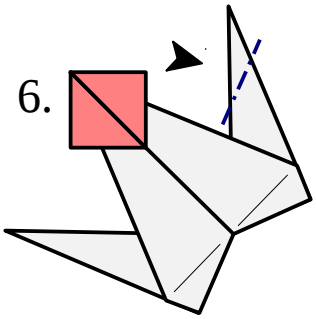
Petal fold the white layer. Repeat behind.

5.



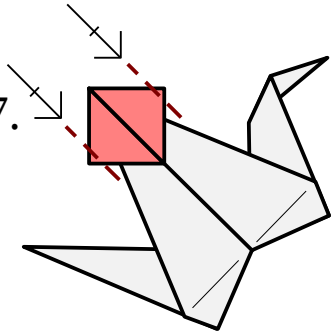
Inside-reverse the neck and tail. Because the tips are very thick, it is best to form the head in the next step without setting this crease all the way to the tip. Use the more cooperative flap for the tail.

6.



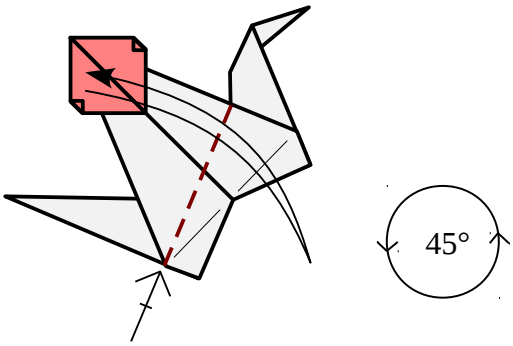
Inside-reverse to form the head.

7.



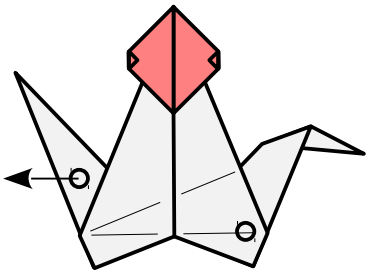
Round the sides of the heart (as seen from underneath, so currently a square) using tiny valley folds. Repeat behind.

8.



Fold and unfold the wing down at an angle through the white obtuse corner by the base of the tail. The angle may be RAT (**r**ight **a**bout **t**here), but if the new crease is perpendicular to the far white edge, the angle will certainly be good. Repeat behind, matching the angle precisely by folding wingtip to wingtip before unfolding both new creases.

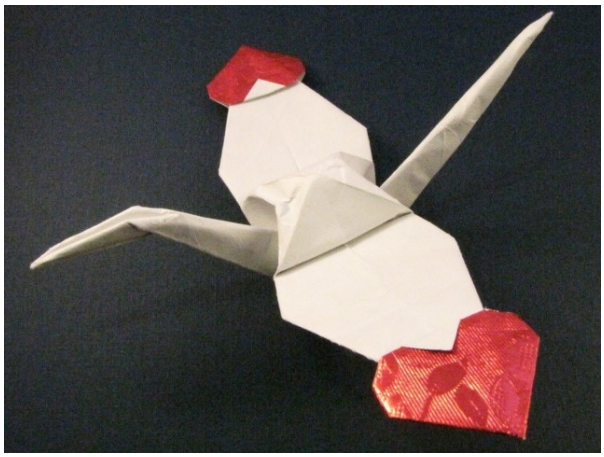
9.



Done! To flap the wings, hold the lower front of the bird and pull the tail straight back.

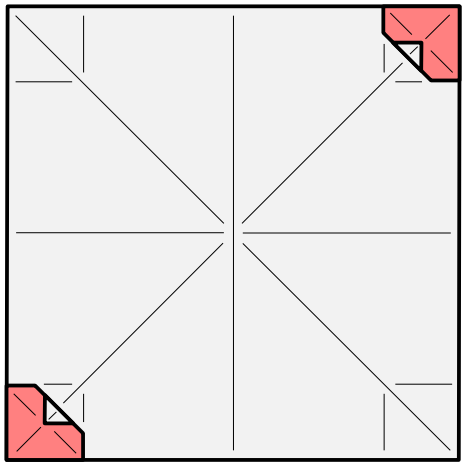
Wings of Love

By Wensdy Whitehead

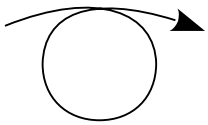


Recommended Paper: very thin two-sided 6” (15cm) square or larger.

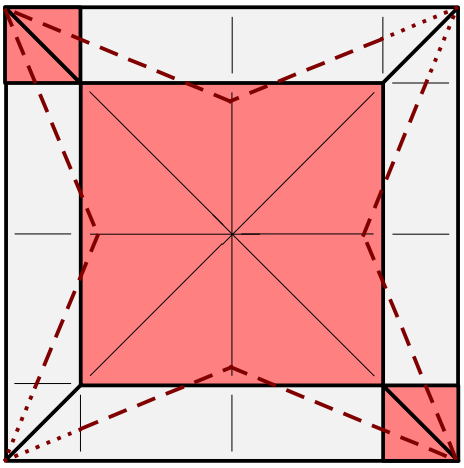
1.



Begin with Heart Start 2.

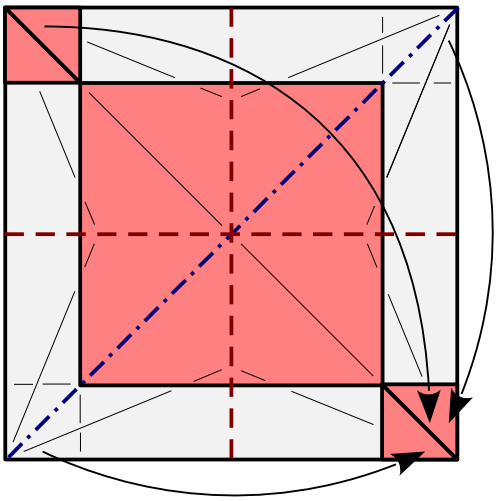


2.



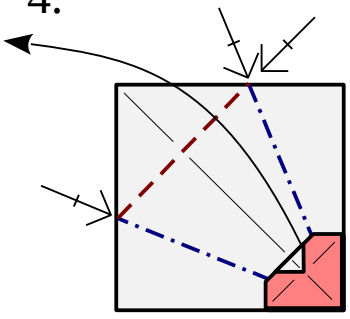
Pre-crease. On the colorful corners, fold only the inner white layer to avoid extra crease lines on the heart.

3.



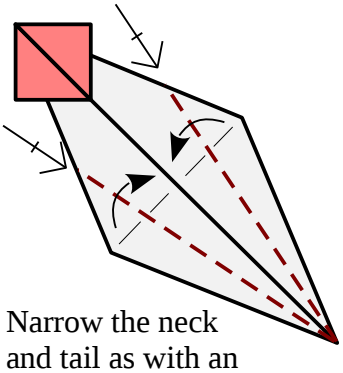
Collapse as a preliminary base.

4.



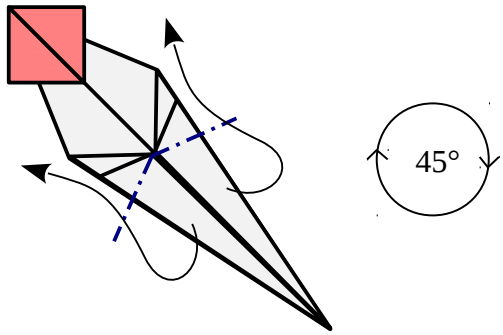
Petal fold the white layer. Repeat behind.

5.



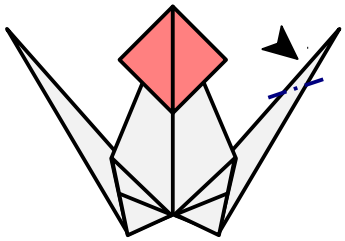
Narrow the neck and tail as with an unmodified traditional crane.

6.



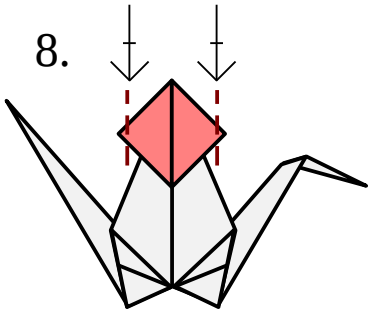
Inside-reverse the neck and tail, again as with an unmodified traditional crane. Because the tips are very thick now, it is best to form the head in the next step without setting this crease all the way to the tip. Use the more cooperative flap for the tail.

7.



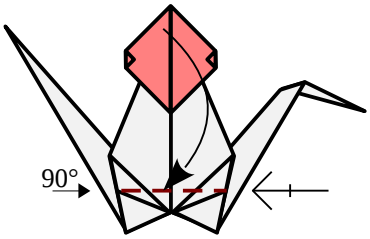
Inside-reverse to form the head.

8.



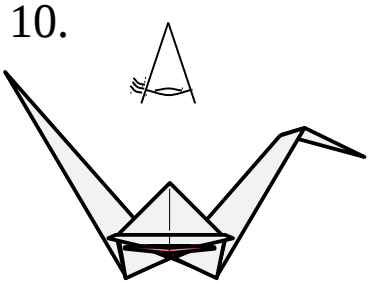
Round the sides of the heart (as seen from underneath, so currently a square) using tiny valley folds. Repeat behind.

9.



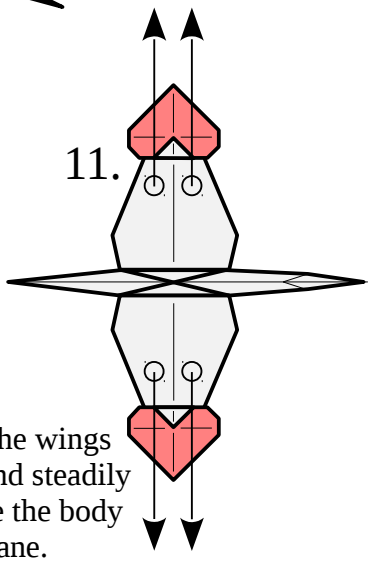
Fold the wings down and crease moderately sharply so that they will remain more horizontal after inflating the crane. Raise the wings back to 90°.

10.



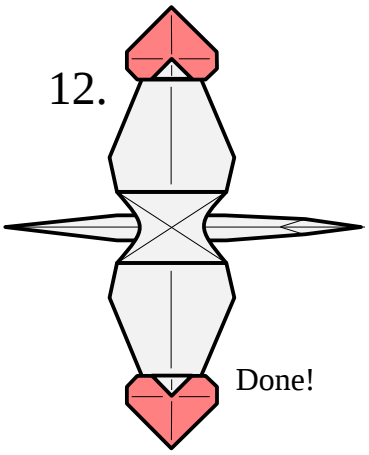
New view.

11.



Tug on the wings gently and steadily to inflate the body of the crane.

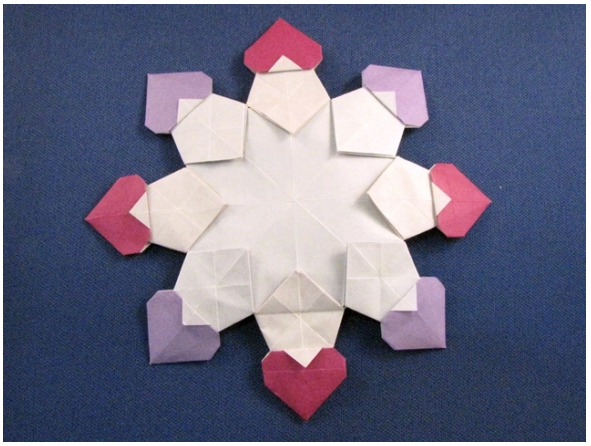
12.



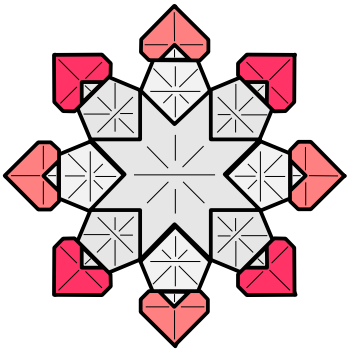
Done!

Heart Shuriken

By Wensdy Whitehead

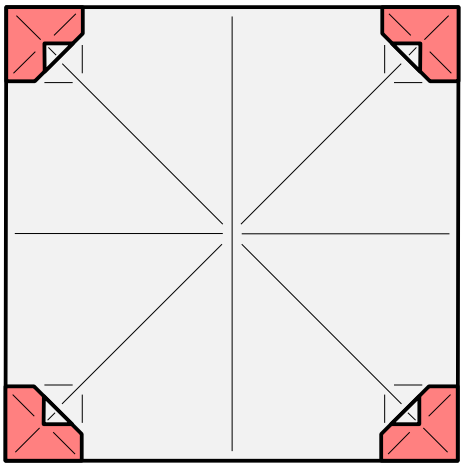


Recommended Paper: two (2) squares of kami or other two-sided paper 6” (15cm) or larger.



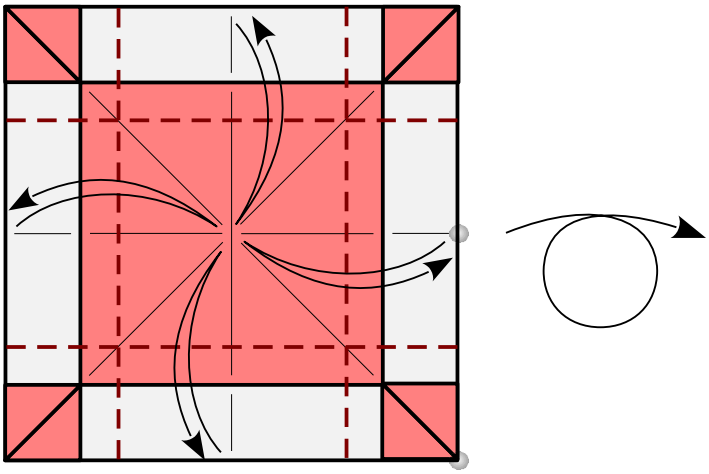
2x

1.



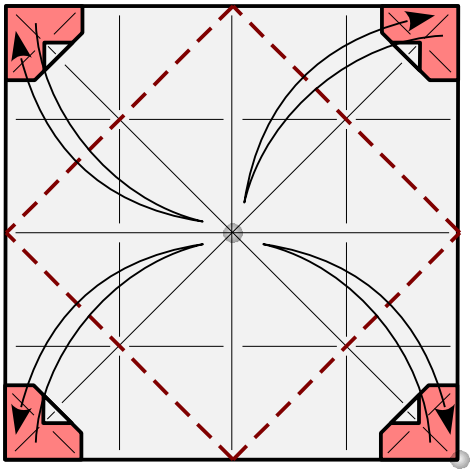
Begin with Heart Start 1.

2.



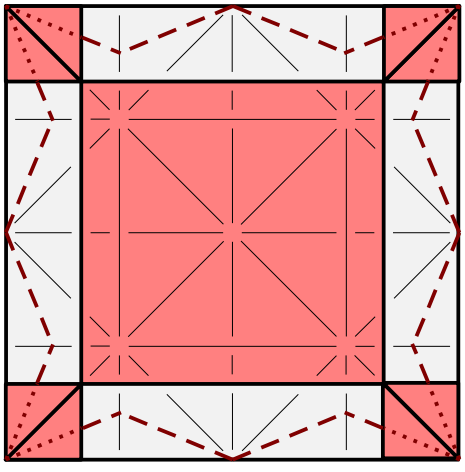
Fold and unfold both pairs of cupboard doors.

3.



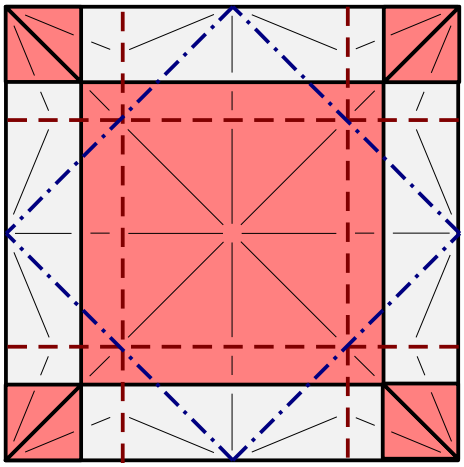
Blintz and unblintz.

4.



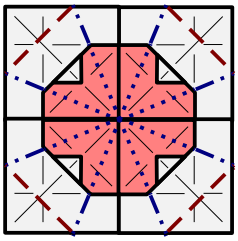
Pre-crease. On the corners, carefully fold only the inner white layer and not the outer colorful paper.

5.



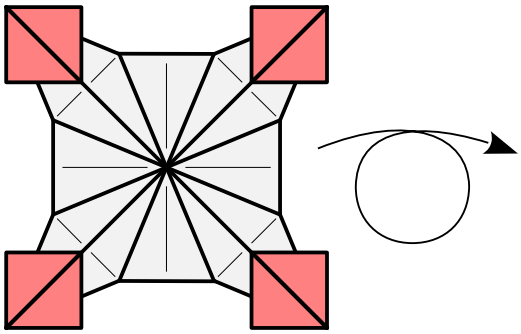
Simultaneously collapse a preliminary base on each corner.

6.

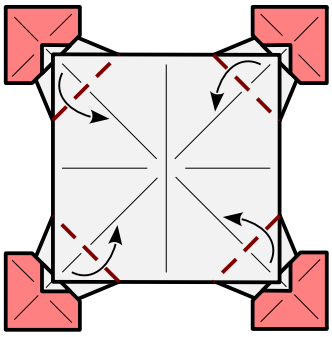


Petal fold each corner, carefully folding only the inner white layer and not the outer colorful layer.

7.

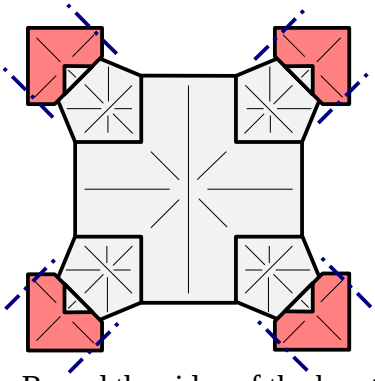


8.



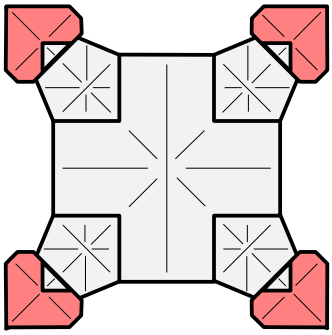
On one unit, fold. On the other, fold and unfold.

9.



Round the sides of the hearts using tiny mountain folds.

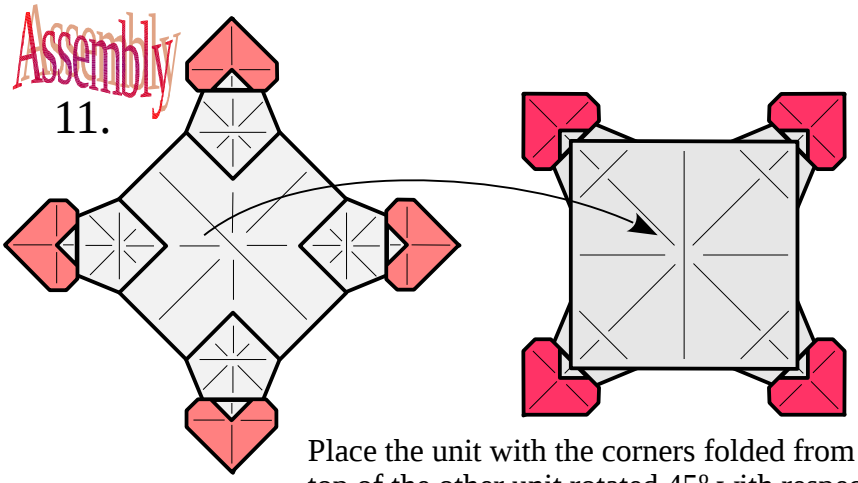
10.



Fold a second one of these.

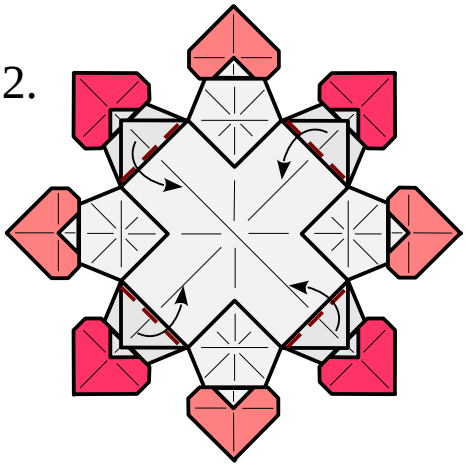
Assembly

11.



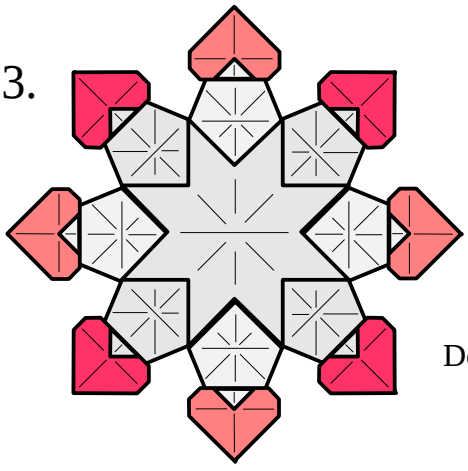
Place the unit with the corners folded from step 19 on top of the other unit rotated 45° with respect to it.

12.



Refold step 19 on the rear unit.

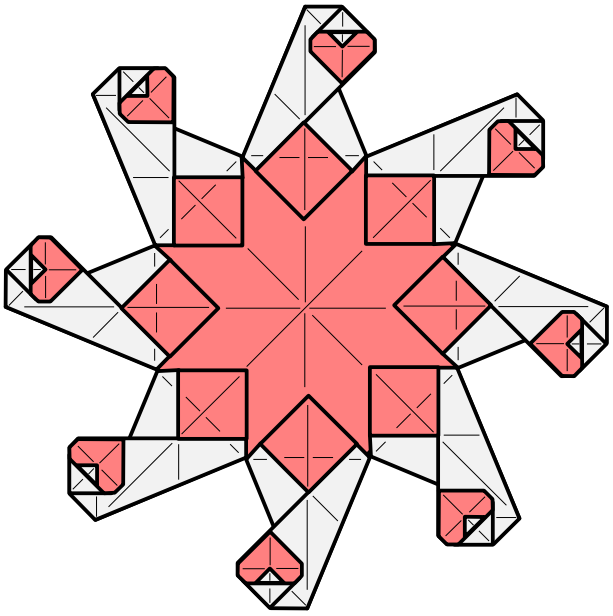
13.



Done!

Heart Wheel

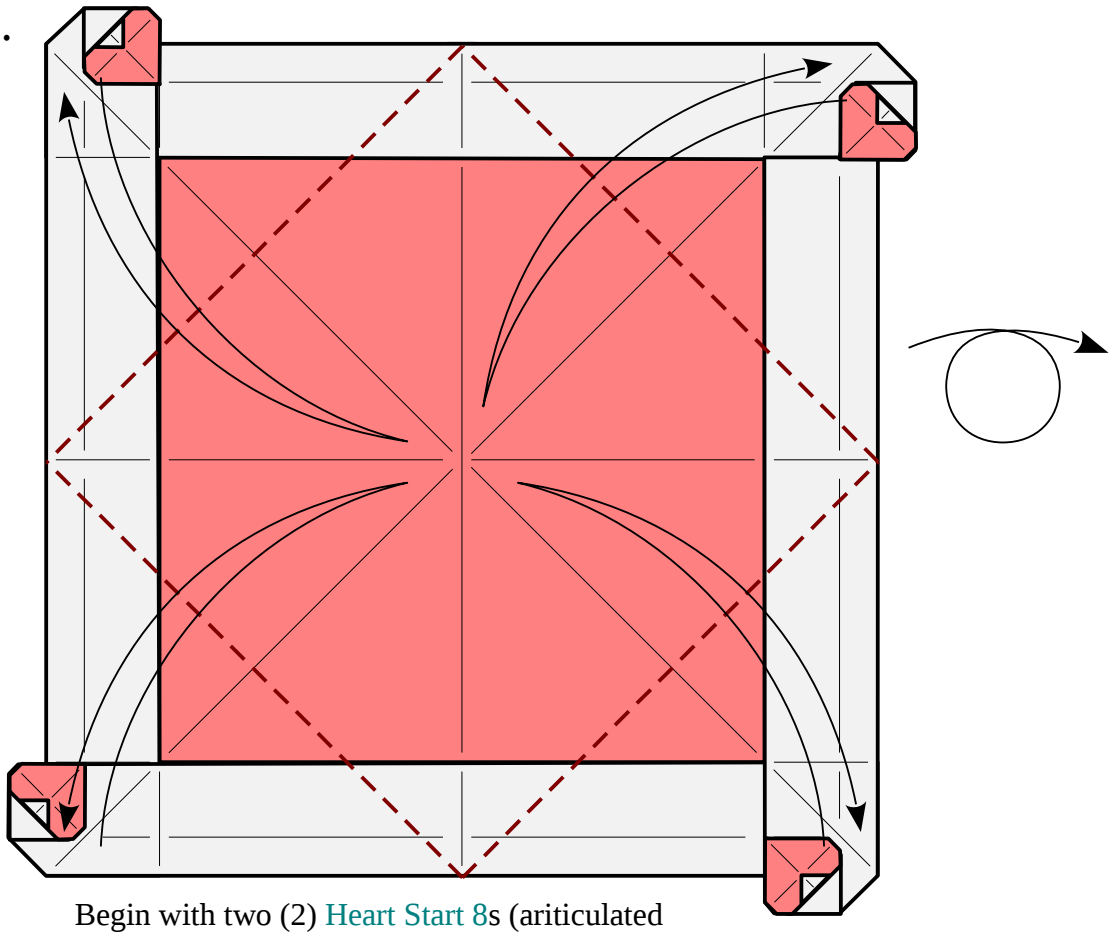
By Wensdy Whitehead



Recommended Paper: two (2) squares of kami or other thin, two-sided paper 8” (20cm) or larger. 6” (15cm) is a bit small but not impossibly so. From kami, the model will puff enough to spin; from thin paper-backed foil it won't.

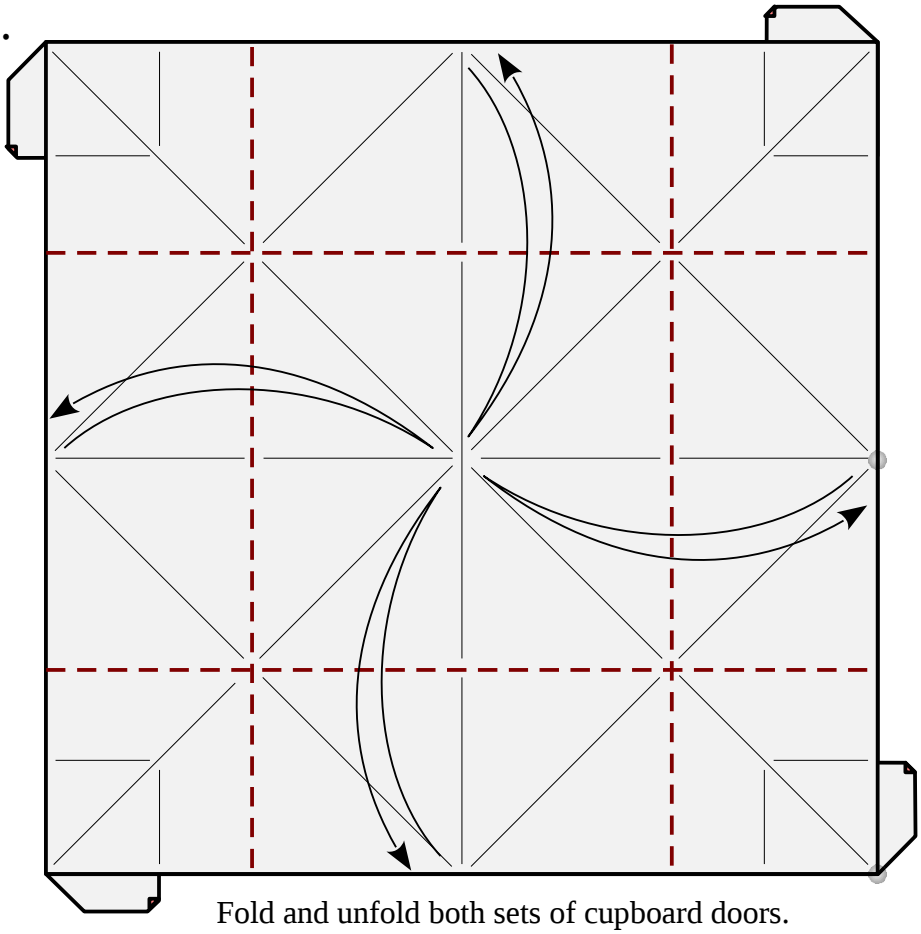
2x

1.



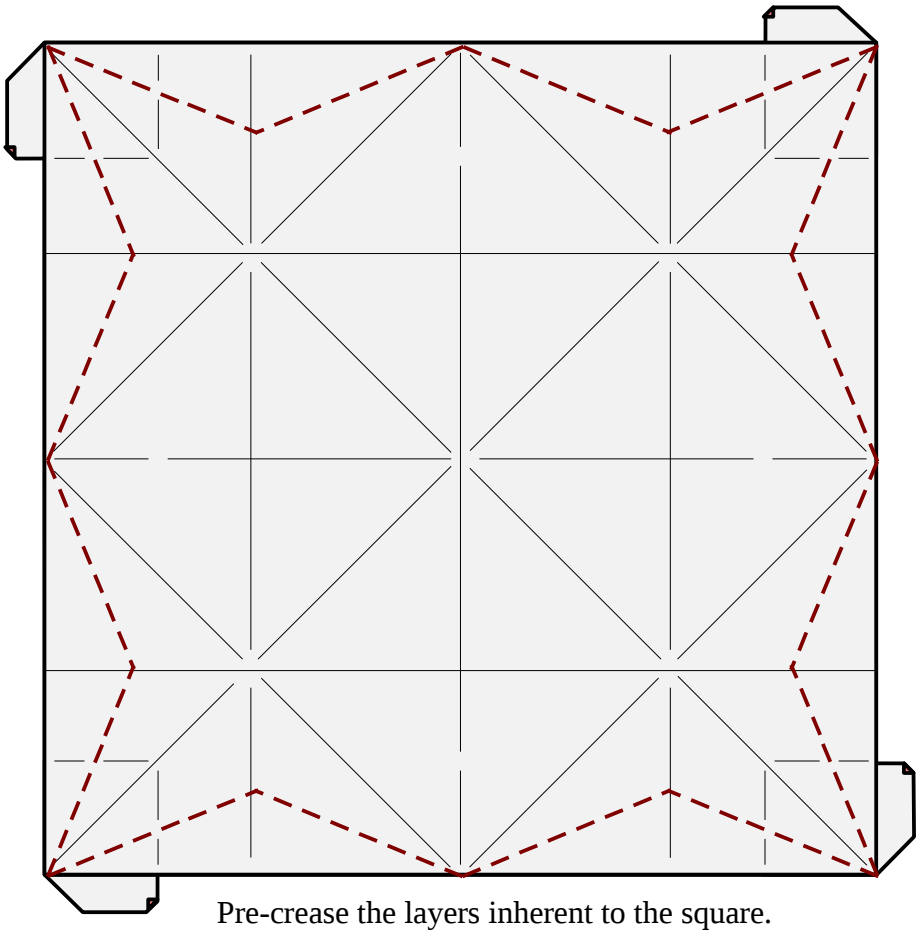
Begin with two (2) Heart Start 8s (ariticulated hearts). Blintz and unblintz.

3.



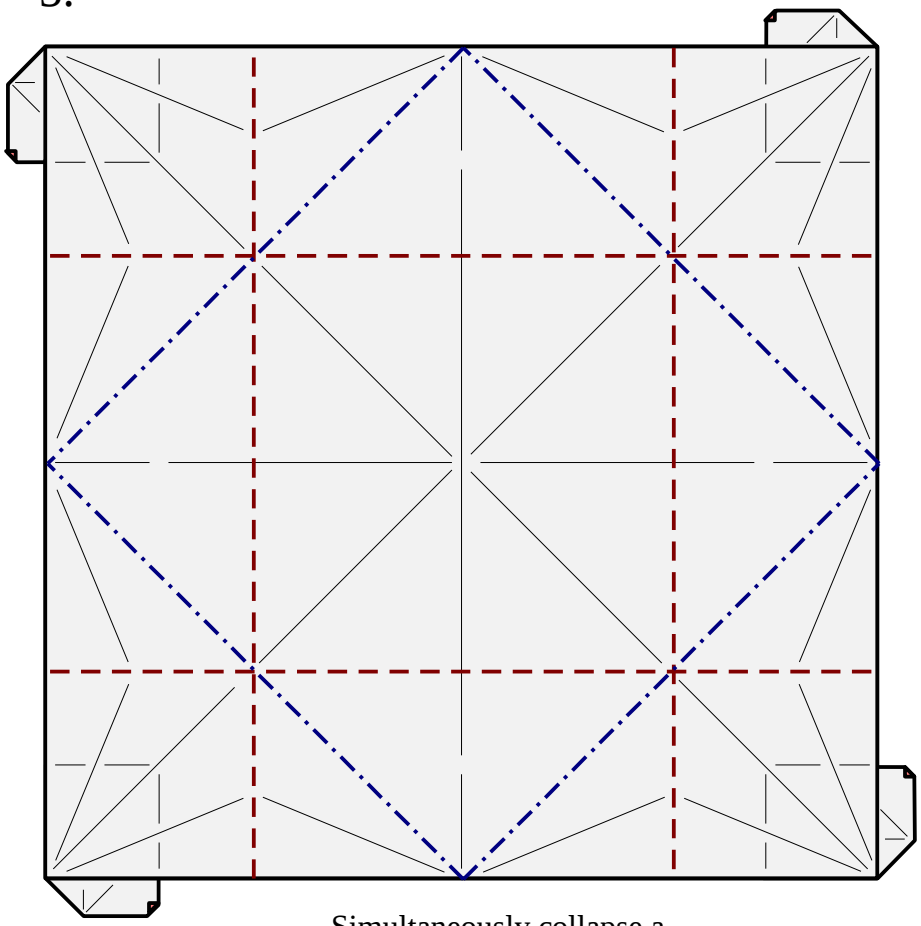
Fold and unfold both sets of cupboard doors.

4.



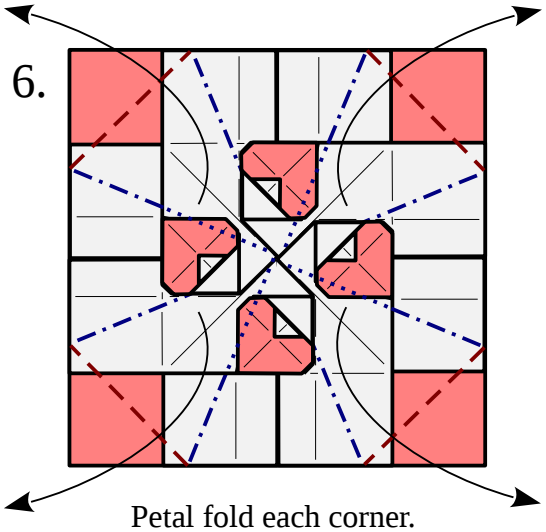
Pre-crease the layers inherent to the square.
Do *not* crease the flaps with the hearts.

5.



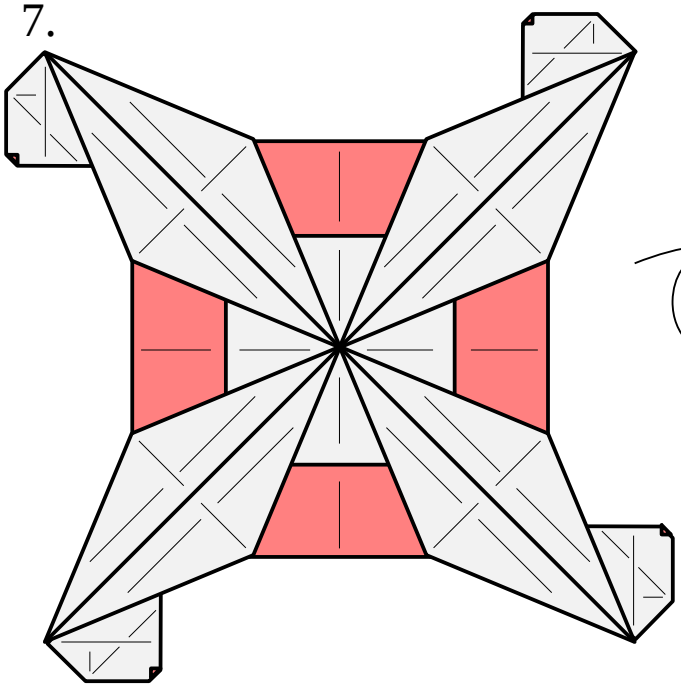
Simultaneously collapse a preliminary base on each corner.

6.

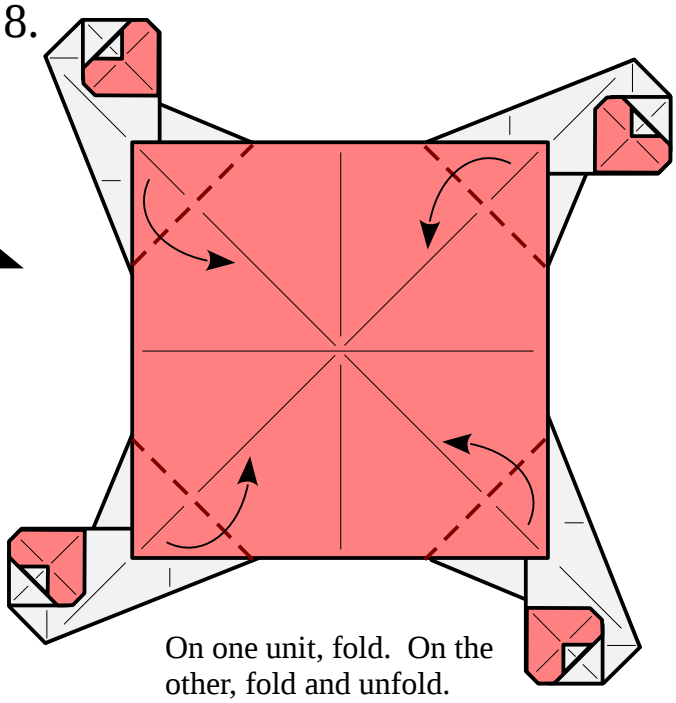


Petal fold each corner.

7.



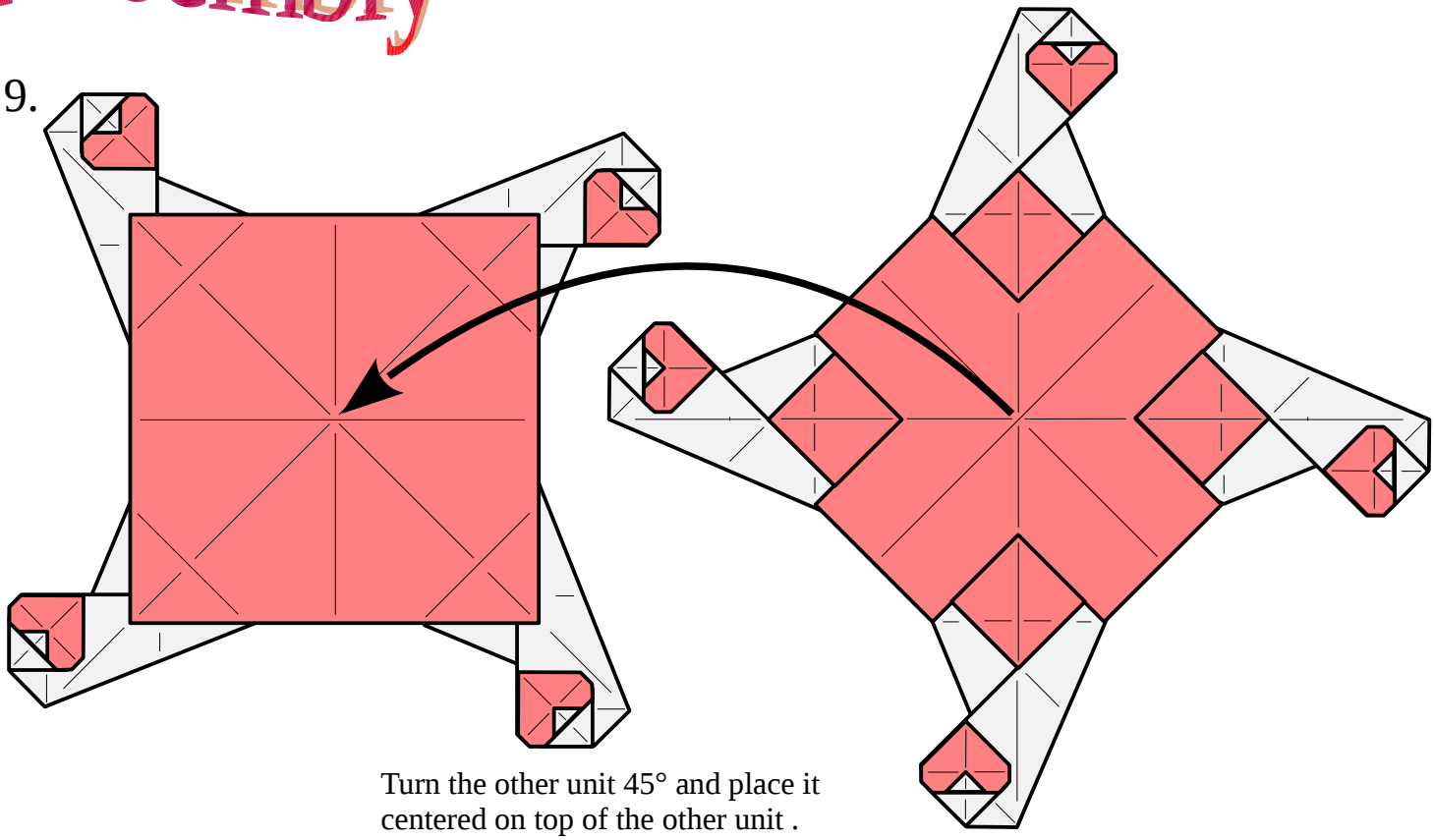
8.



On one unit, fold. On the other, fold and unfold.

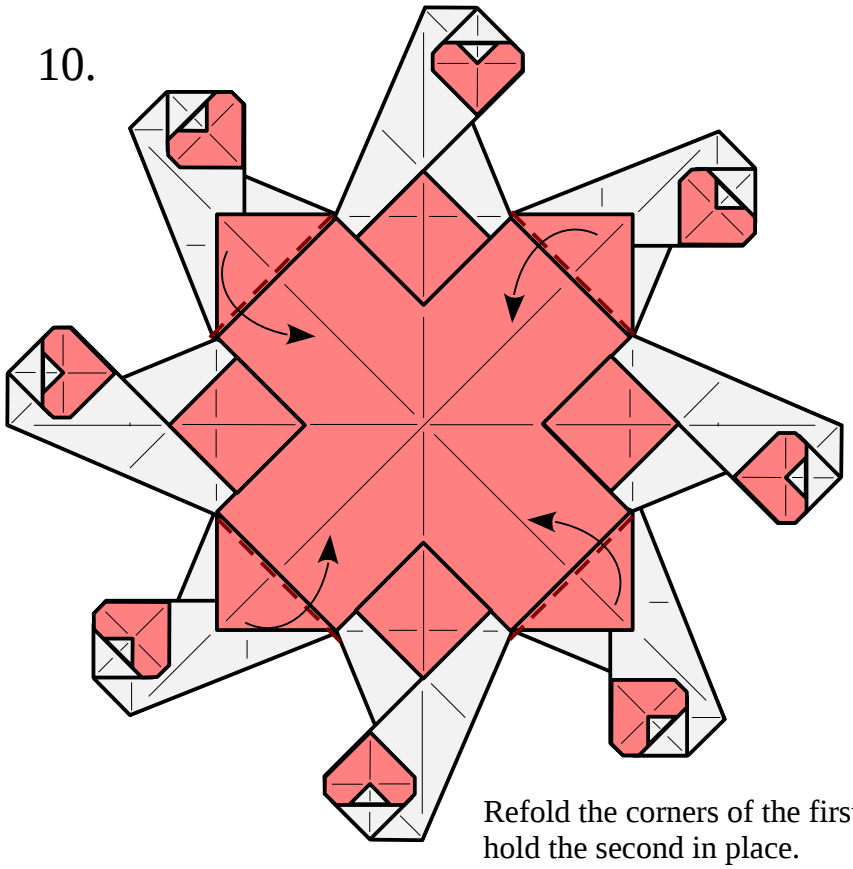
Assembly

9.



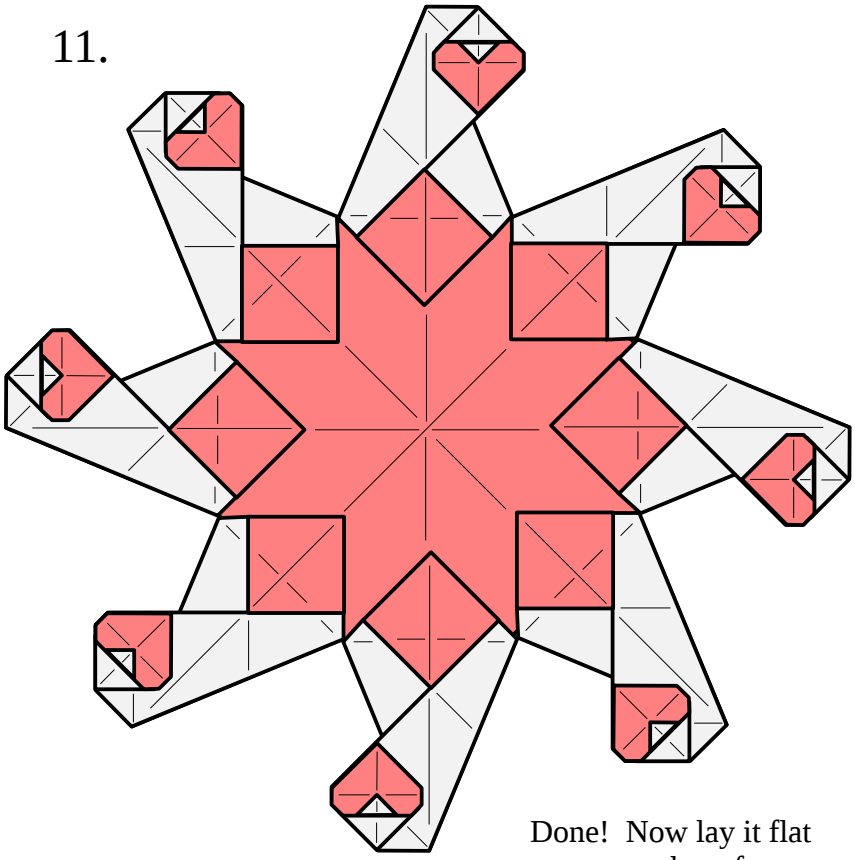
Turn the other unit 45° and place it centered on top of the other unit .

10.



Refold the corners of the first unit to hold the second in place.

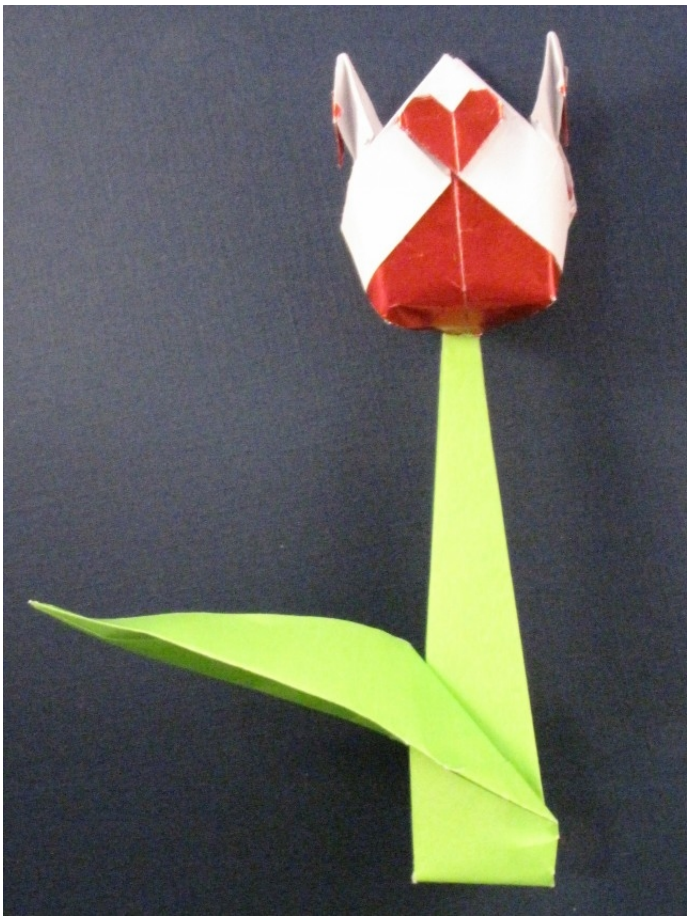
11.



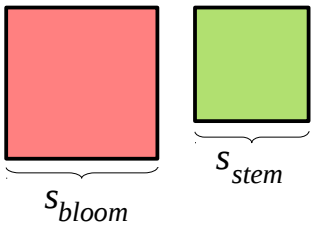
Done! Now lay it flat on a smooth surface and give it a spin!

Lovely Tulip

By Wensdy Whitehead



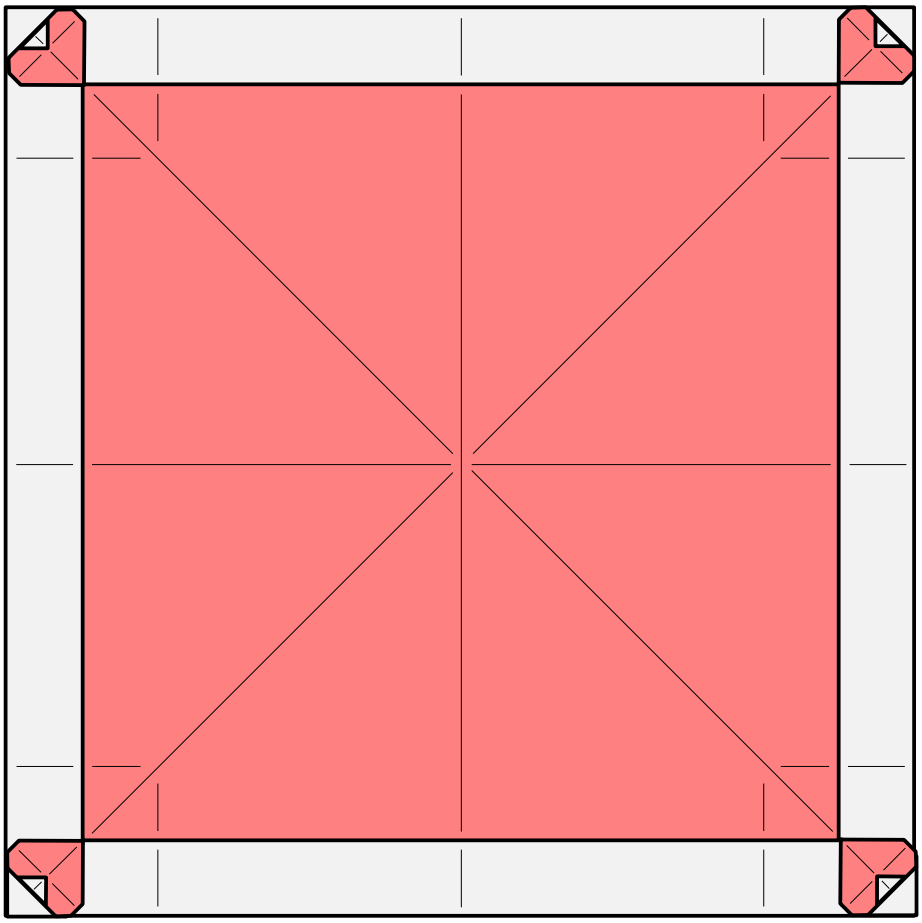
Recommended Paper: thin, paper-backed foil 8” (20cm) square for the bloom kami or copy paper 6” (15cm) square for the stem. The model is top-heavy, so minimize the weight and thickness above and maximize weight and strength below.

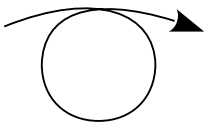


$$s_{bloom} \approx \frac{4\,s_{stem}}{3}$$

$$s_{stem} \approx \frac{3\,s_{bloom}}{4}$$

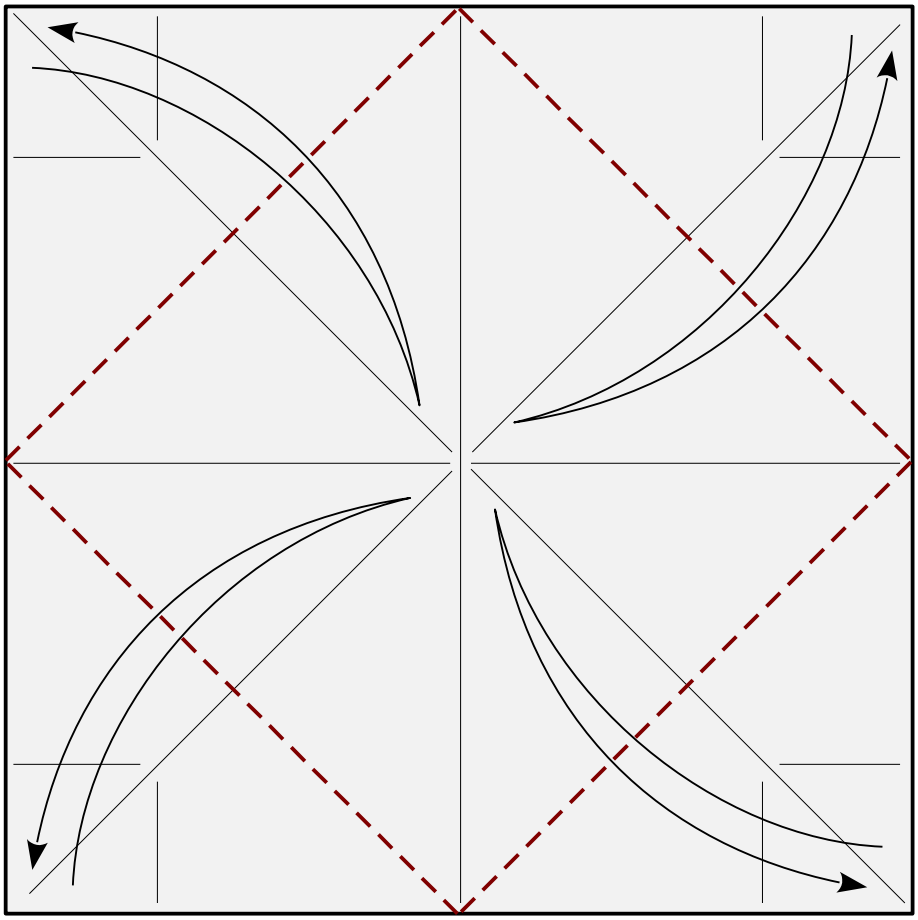
1.





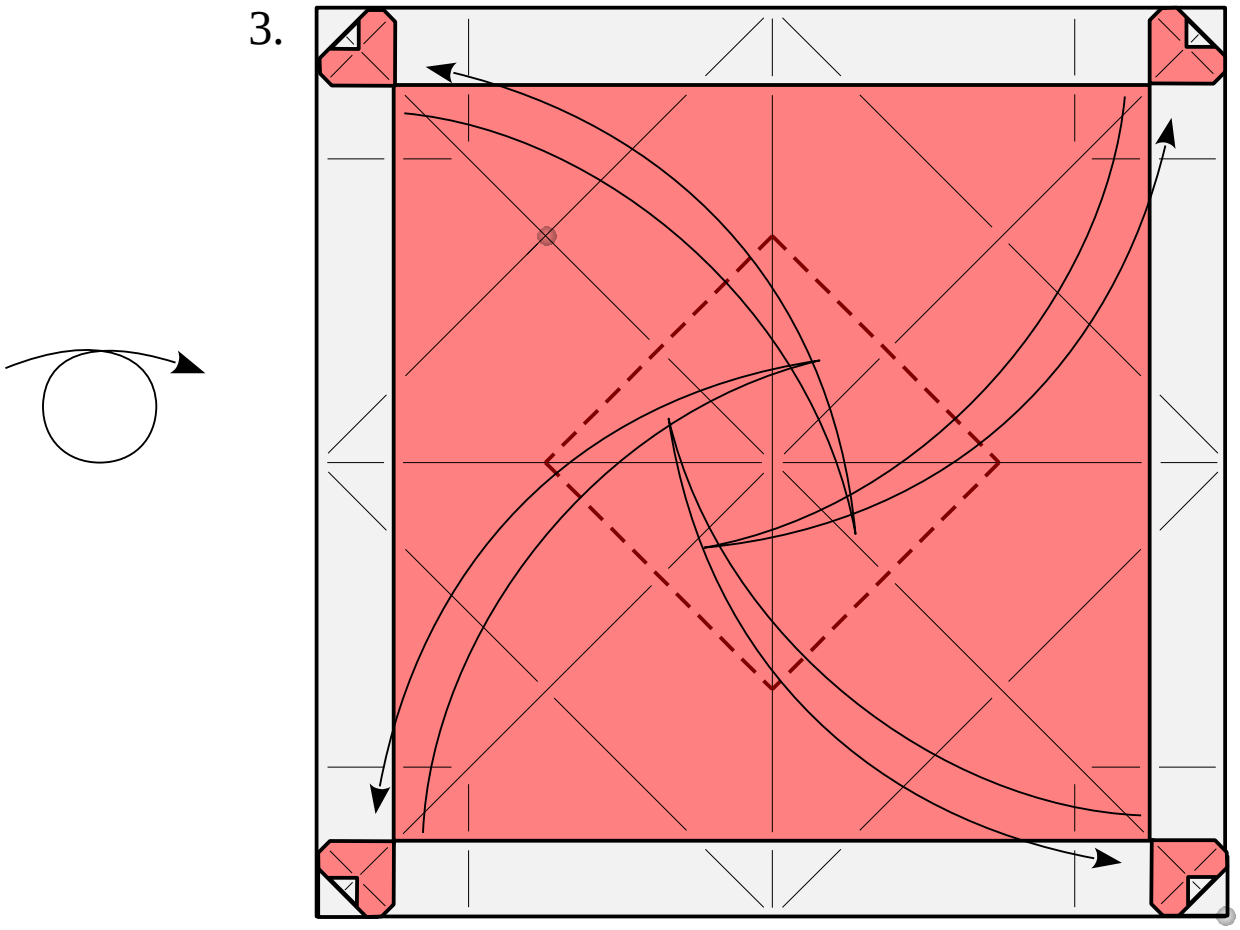
Begin with Heart Start 6 (inverted hearts).

2.



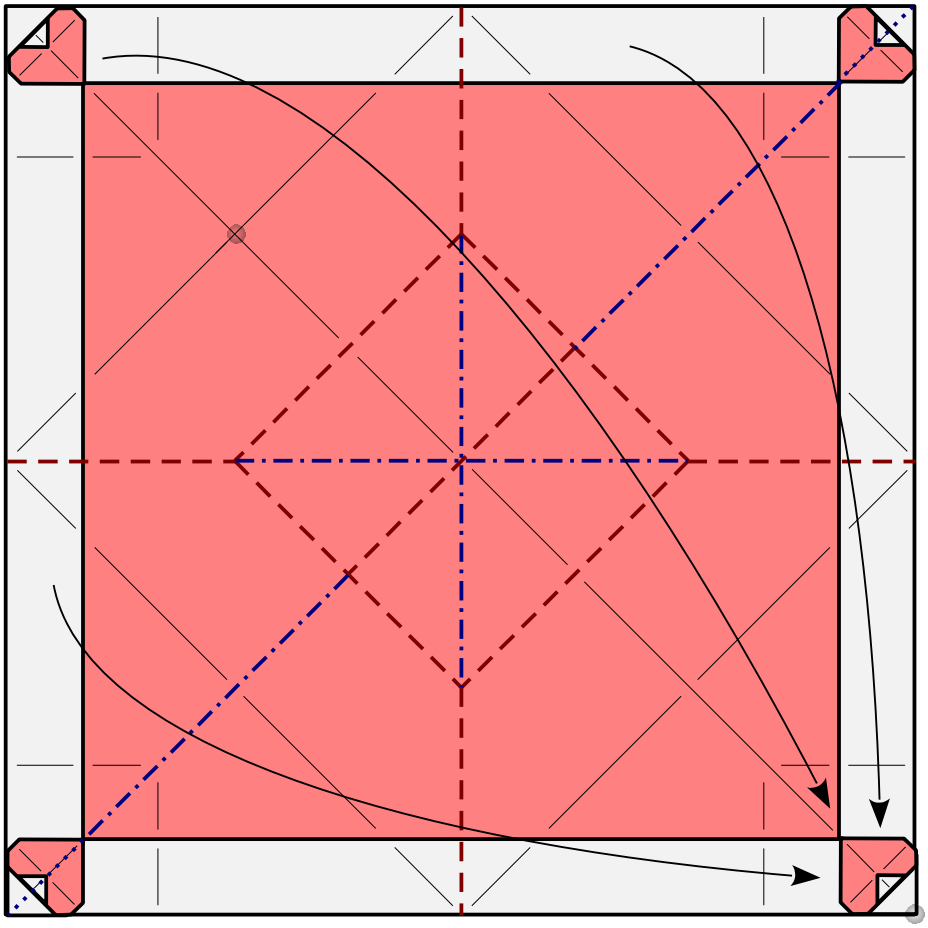
Blintz and unblintz.

3.



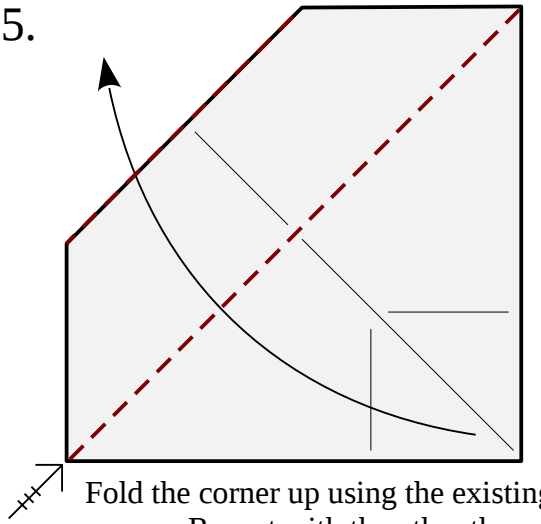
Pre-crease.

4.



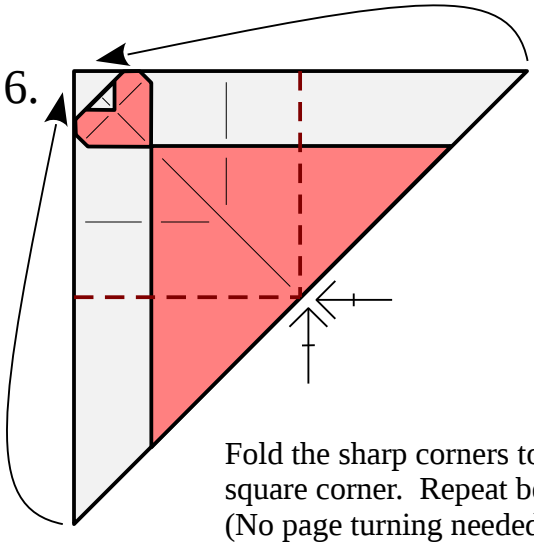
Collapse a sunken preliminary base. Allow the hearts to flip to the side rather than force them to fold in half with the layers behind.

5.



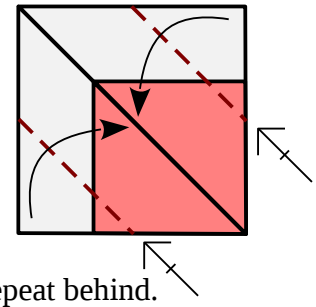
Fold the corner up using the existing crease. Repeat with the other three corners. Page turn front and back to access the second pair of corners. The result is a blintzed, sunken waterbomb base.

6.



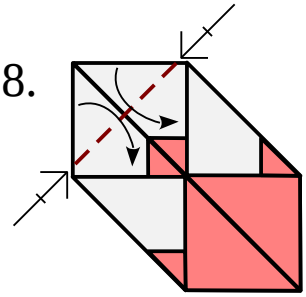
Fold the sharp corners to the square corner. Repeat behind. (No page turning needed.)

7.



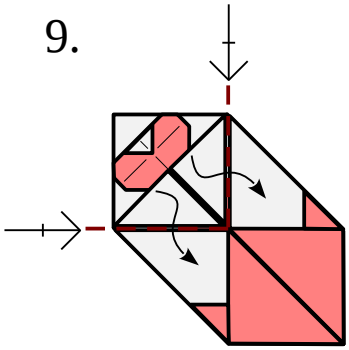
Repeat behind.

8.



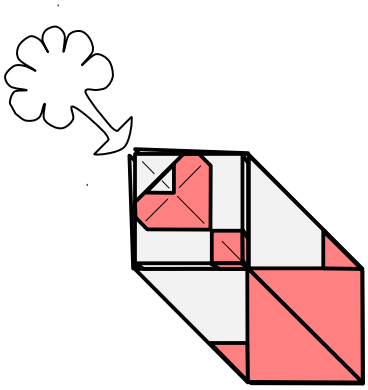
Leave a fudge-factor. Repeat behind.

9.



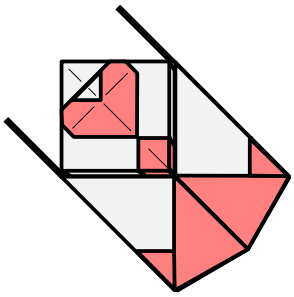
Tuck the thick flaps into some middle layer of pocket. Repeat behind.

10.



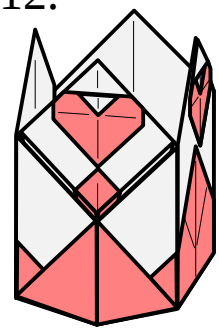
Open from the top, turning the flat bloom 3D. Round it nicely as a bloom; don't square it up as a box (unless you want to try to use it as a box, of course).

11.



Another view…

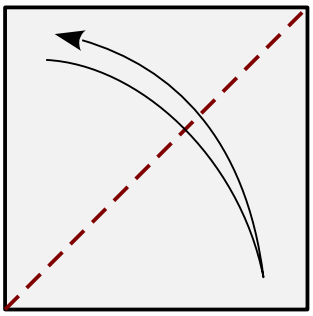
12.



But the flower still needs a stem…

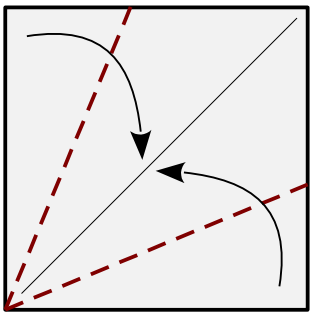
Stem for the Tulip

1.



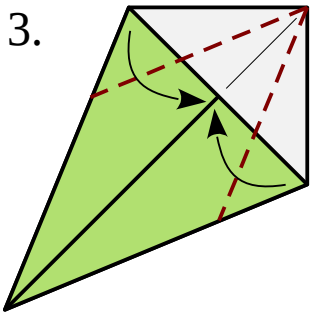
Fold and unfold.

2.



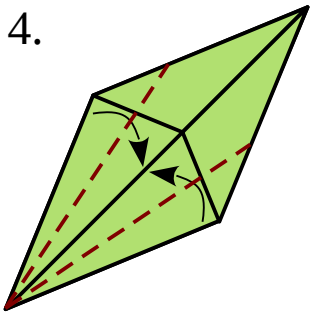
Kite fold.

3.



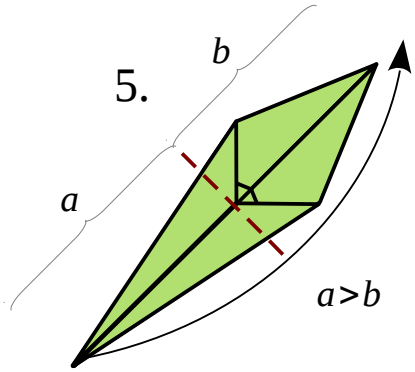
Kite fold.

4.



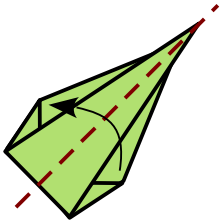
Narrow one point again.

5.



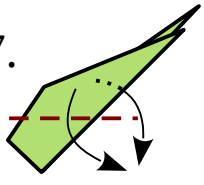
Not point-to-point, but still perpendicular to the diagonal at the center and through or just a hair below where the edges intersect.

6.



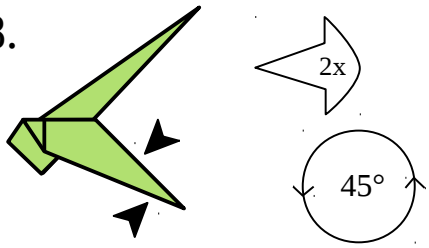
Valley fold in half.

7.



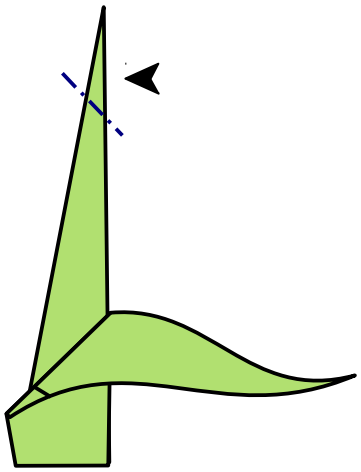
Outside-reverse fold the leaf, RAT.

8.



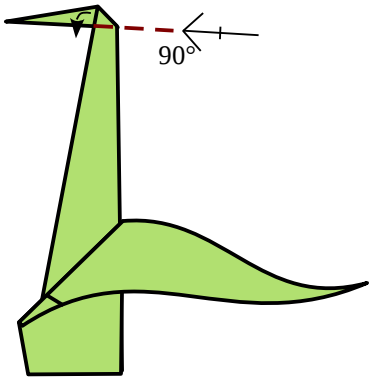
Flatten and shape the leaf, allowing the recent outside-reverse creases to unfold to about 90°.

9.



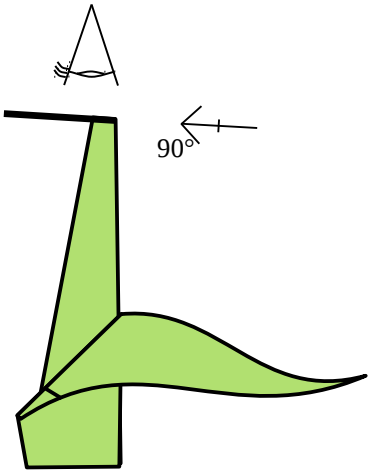
Inside-reverse fold the tip of the stem. Position is RAT, but the inside edge of the new flap should be about parallel to the base of the stem.

10.



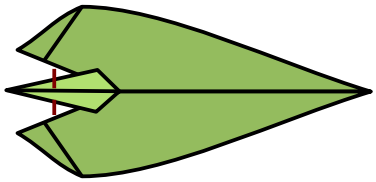
Stand the flaps perpendicular to the stem. Repeat behind.

11.



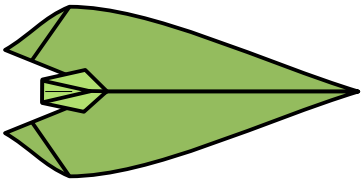
New view.

12.



With one or two little valley folds, shorten the blunt the end of the stem.

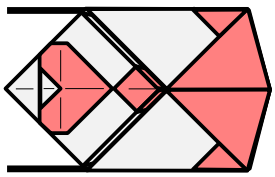
13.



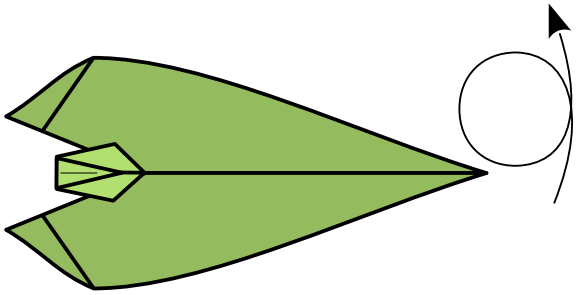
That little flat section at the top of the stem is actually a pair of tabs to fit into the bottom of the bloom.

Assembly

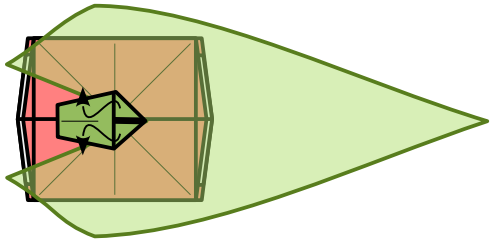
1.



New view.

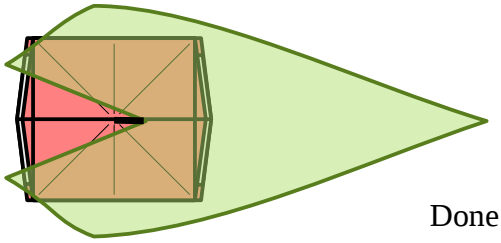


2.



Inert the pair of tabs which compose the *entire* flat top of the stem into the two pockets facing each other on the bottom of the bloom for a lock that should not easily shake free.

3.



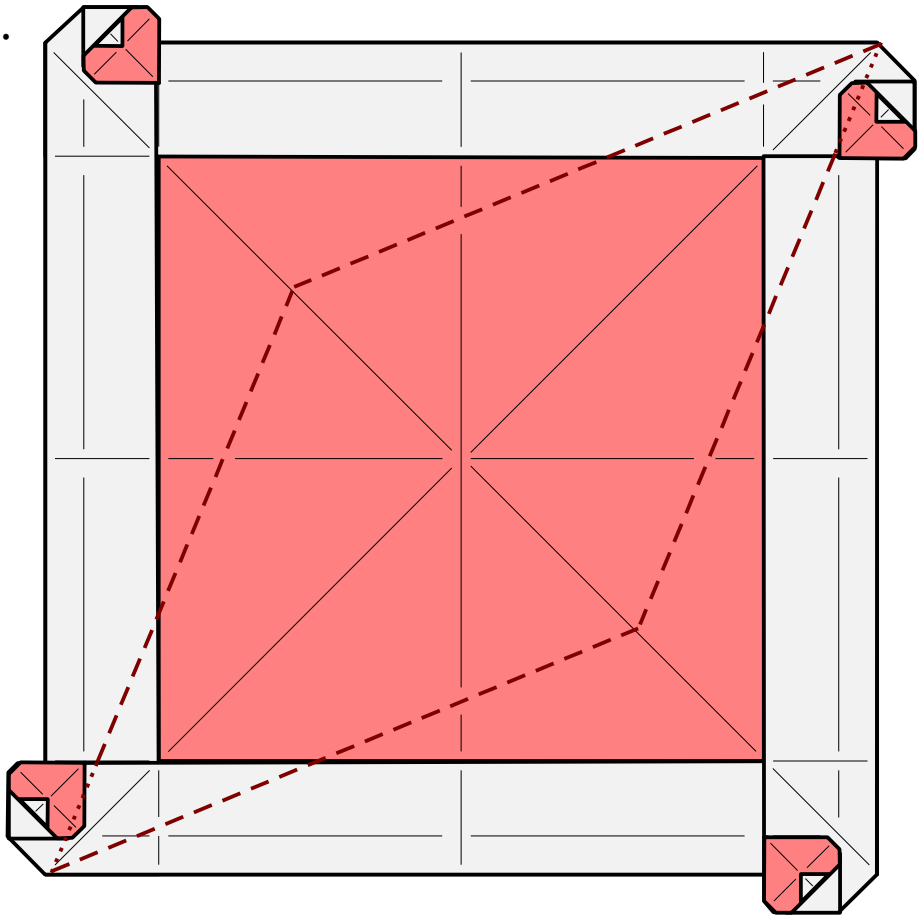
Done!

Crazy Tato

By Wensdy Whitehead

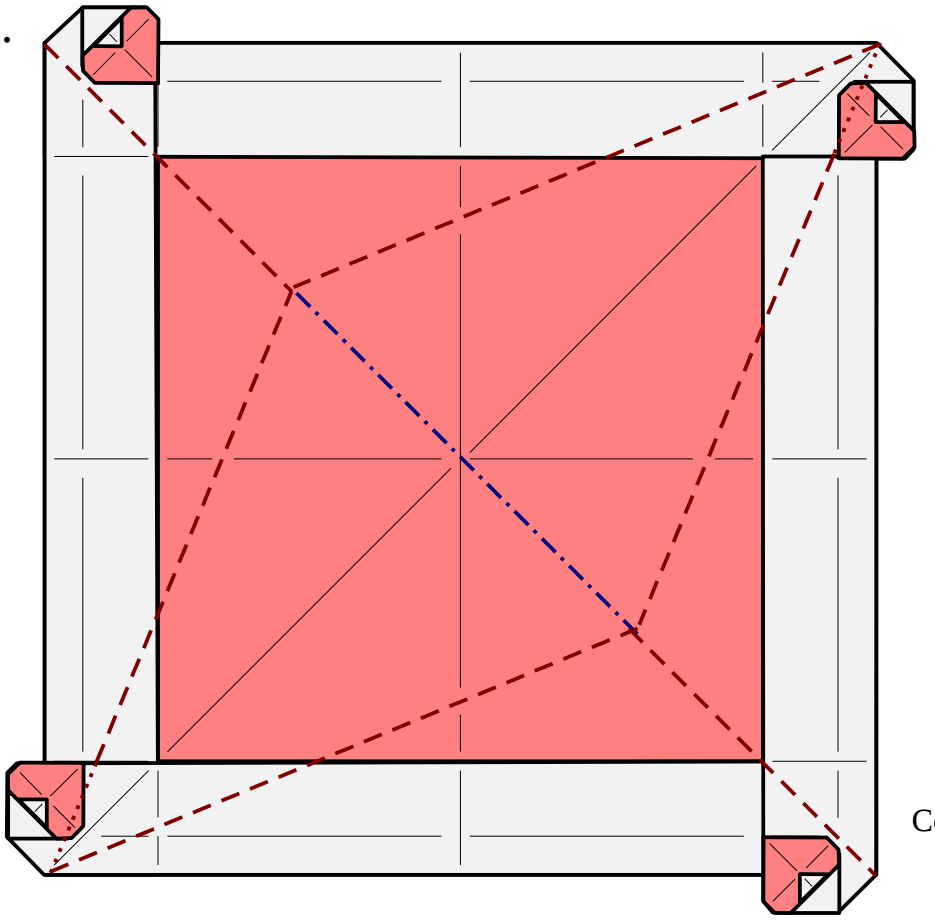
Recommended Paper: kami, paper-backed foil or other thin, two-sided paper 8” (20cm) or larger. 6” (15cm) is a bit small but not impossibly so.

1.



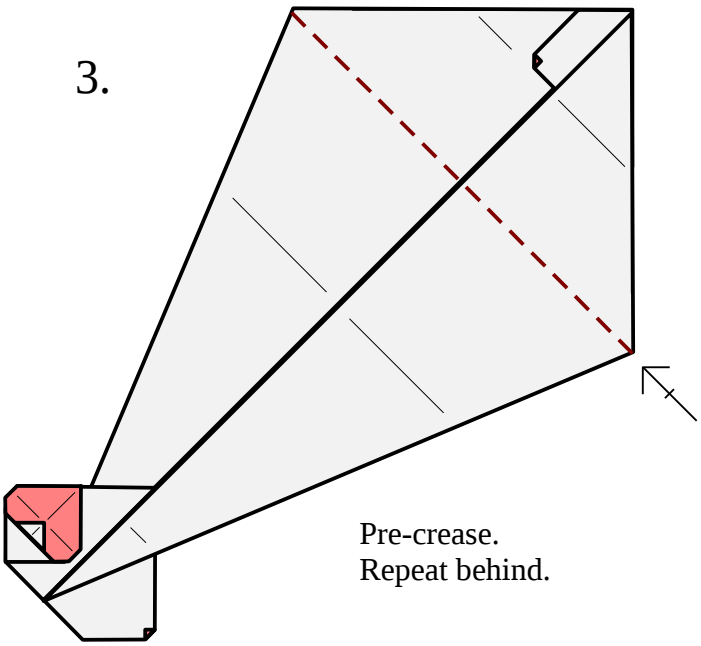
Begin with Heart Start 8 (Articulated Hearts). Pre-crease the underlying square for a white fish base, page-turning as necessary to keep the hearts out of the way and return them to their original positions.

2.



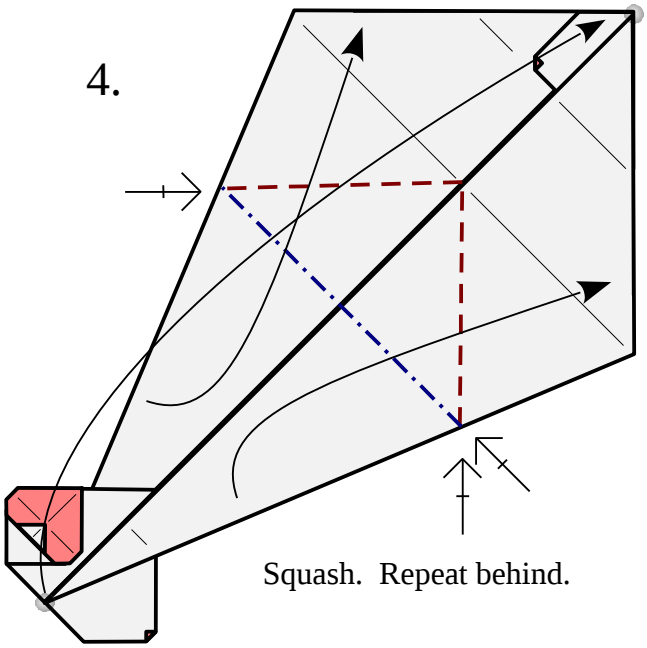
Collapse the fish base.

3.



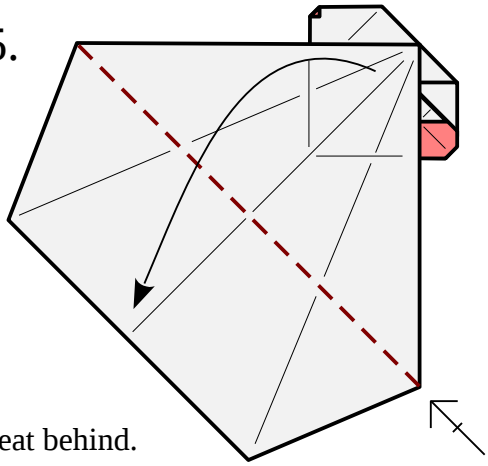
Pre-crease.
Repeat behind.

4.



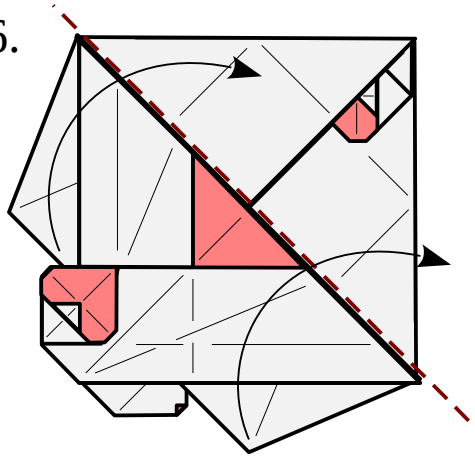
Squash. Repeat behind.

5.



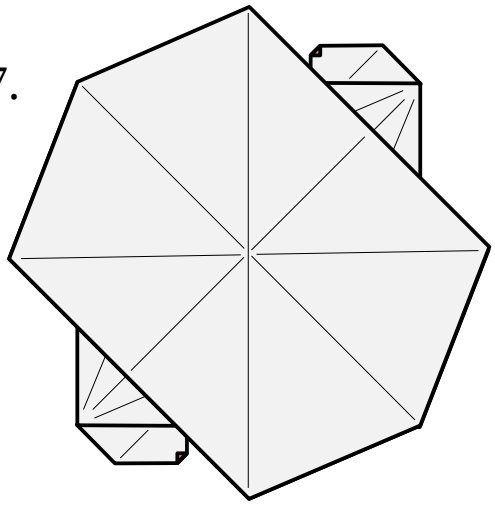
Repeat behind.

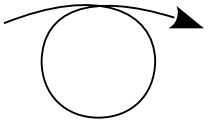
6.



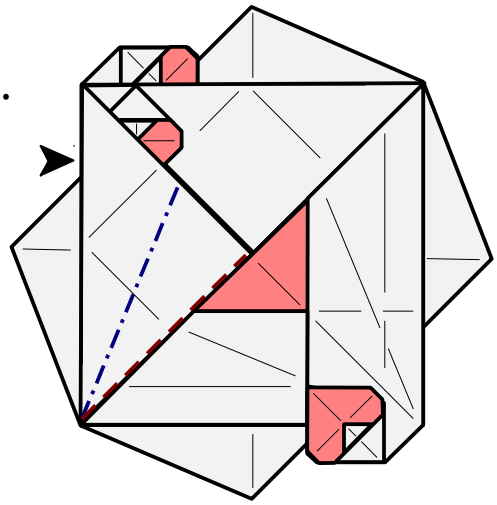
Page-turn two (2) flaps.

7.



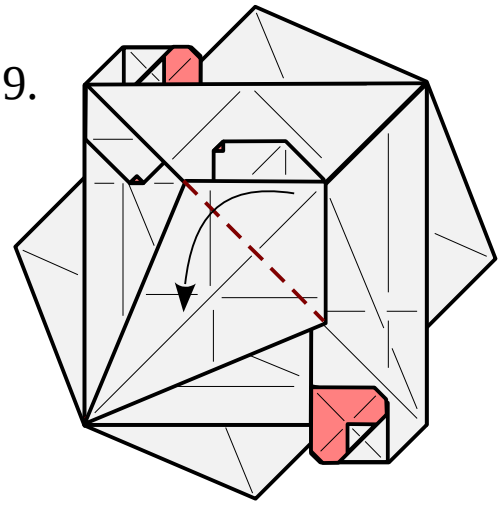


8.

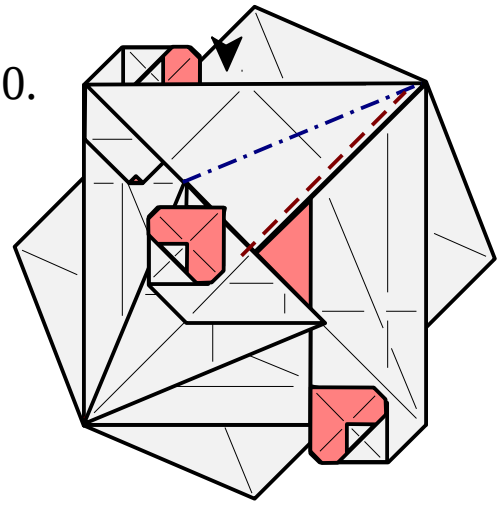


Squash.

9.

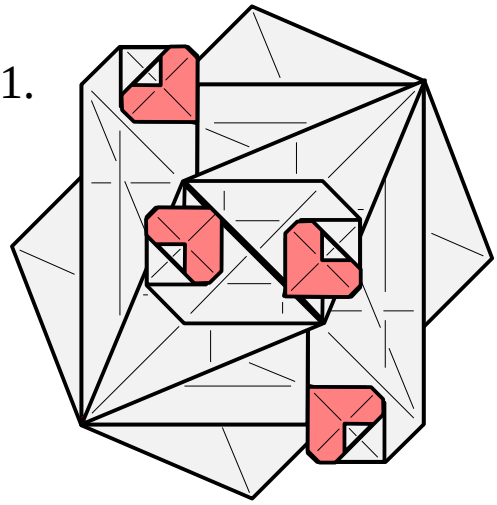


10.



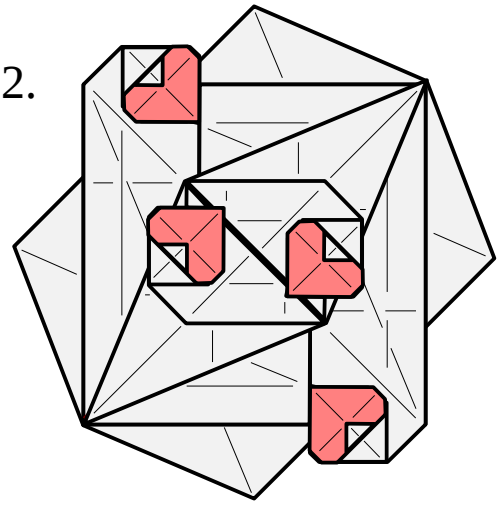
Repeat the previous two steps
(30-31) on the similar flap.

11.



Bring the tiny tip of the inner heart out from under the other squash.

12.



Done! The Crazy Tato opens and closes just the same as the traditional version without the hearts. Just pull on the flaps with the hearts further from the center.