

MakerMask: Origami

(Beta Version 0.2b)

The “**MakerMask: Origami (Beta)**” is designed as a stand-alone fitted mask with a number of features to improve accessibility. This mask is constructed without any seams in the central mask area and creates a 3-D shape around the face that gives extra space around the mouth and nose.

Materials:

- **Two or Three Fabric Squares – 9” x 9” each.** See “Variations” (p. 10) for details.
- **One Flexible Nose Piece :** Coffee Tin Tie (preferred); other options include pipe cleaners, twist ties, paper clips etc.
- **One Head Band/Strap :** One silicone kitchen band to create a 18” strap for mask (source: 9” silicone kitchen band cut open to provide an 18” strip)
- **Attachment Loops:** Small loops can be made out of grosgrain ribbon, or strips of fabric (e.g., cotton or NWPP)

Equipment:

- Sewing Machine, thread, jeans needle (size 16), ruler, scissors, clips

Before you get started:

- Consider practicing the origami folds with a piece of paper before creating the sewn mask.
- If using thick material(s) consider the pattern simplification with 1 waterfall pleat instead of 2 in Step 3 (this simplification may also increase the space around the mouth and nose).

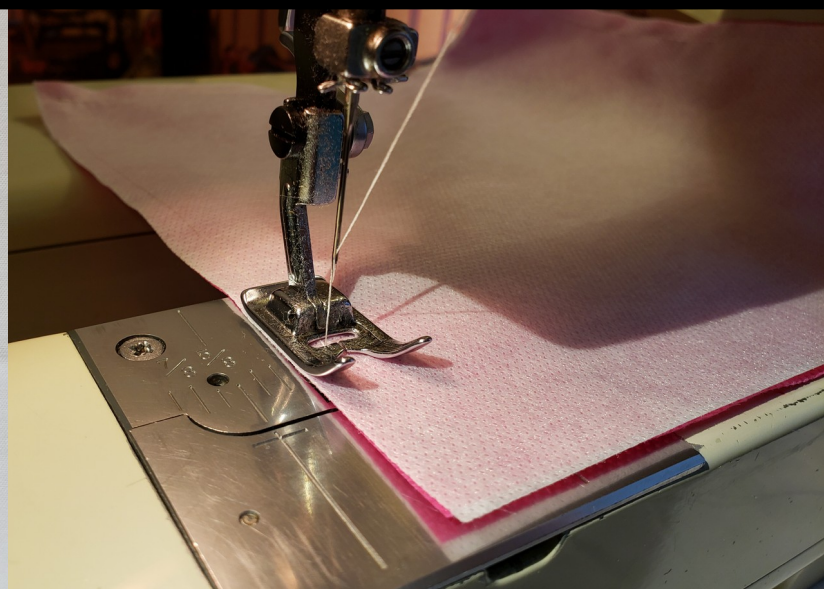
Step 1: Sew Layers Together

- A. Sew the desired layers together, leaving a 2" section unsewn ($\frac{1}{4}$ " seam allowances used throughout)
- B. Trim excess fabric, especially at the corners
- C. Turn the square inside out through the 2" unsewn section

3 Fabric Squares: 9" x 9" Each



Stitch Layers Together ($\frac{1}{4}$ " Allowance)



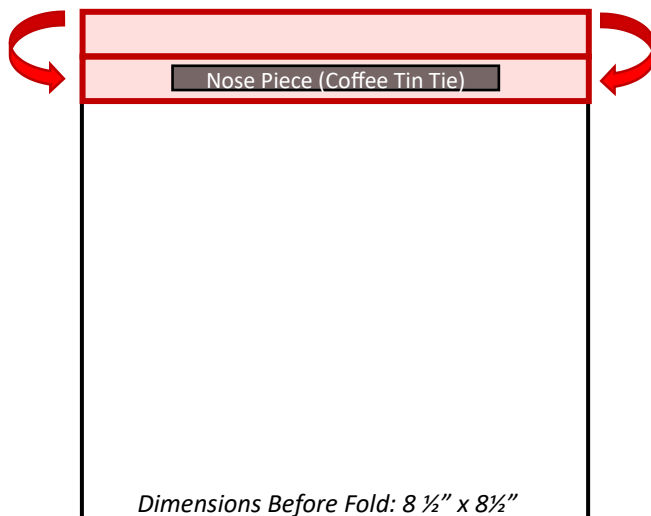
Trim Excess and Turn Inside Out



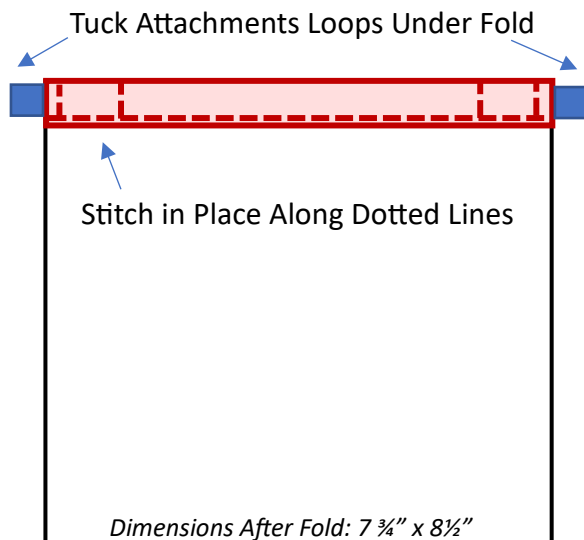
Completed Square: 8.5" x 8.5"

Step 2: Add Flexible Nose Piece & Attachment Loops

- A. Fold down the top $\frac{3}{4}$ " of fabric to cover the nose piece. Clip in place.



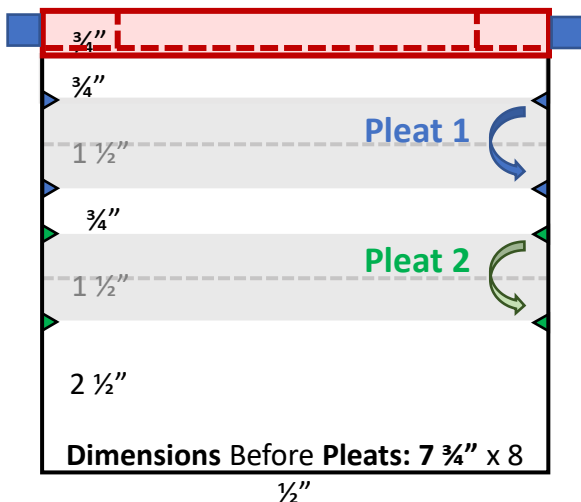
- B. Tuck attachment loops under fold. Stitch the nose piece and attachment loops into place



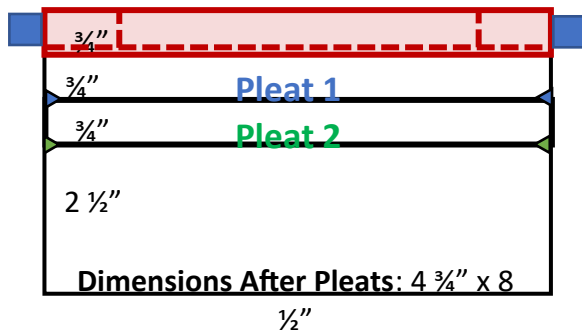
Step 3: Add “Waterfall” Pleats

A. Add two pleats, each $\frac{3}{4}$ ” wide and $\frac{3}{4}$ ” deep

- Measure $\frac{3}{4}$ ” down from the bottom of the fold for the nose piece. To create a pleat $\frac{3}{4}$ ” deep, the fabric should be folded so this point is held to the point $1\frac{1}{2}$ ” down. Repeat for the second $\frac{3}{4}$ ” pleat.

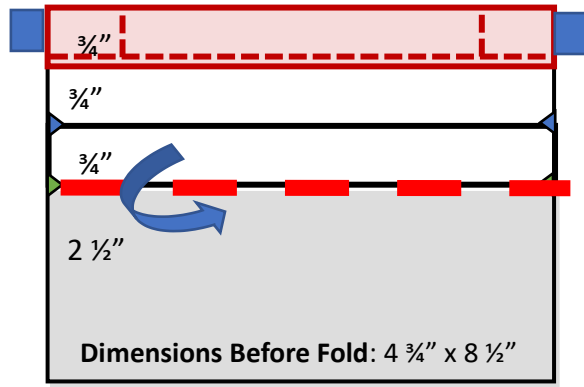


B. Hold the two pleats in place with clips (or stitch in place).

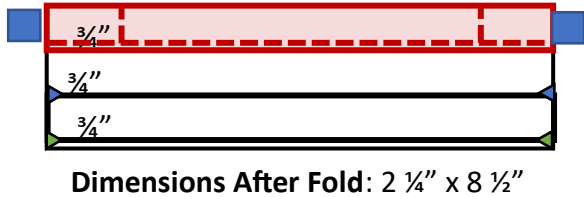


Step 4: Fold Bottom Under

A. Fold the bottom $2\frac{1}{2}$ " under (to the back)



Front

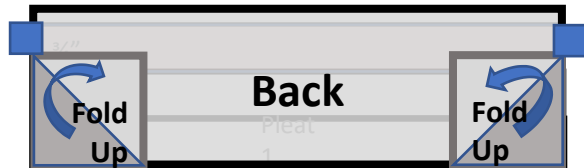


B. Turn fabric over so the back is facing up

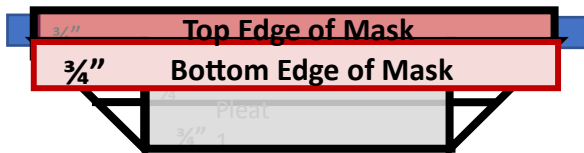


Step 5: Do the Origami folds

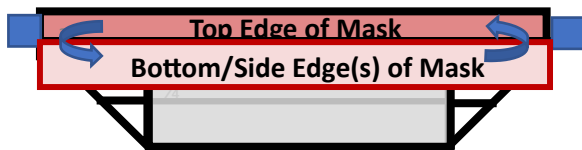
- A. Fold both corners up, including all layers of the pleats



- B. Fold $\frac{3}{4}$ " of the back down over triangular folds to reveal top edge of mask.



- C. Open up mask (Separate top edge from bottom edge by pushing in the sides)



Step 6: Sew Along Edge to Finish

- A. Sew along bottom edge of mask to provide finished edge to mask, making sure to sew across the attachment loops for added security.



Step 7: Add Silicone Ties

- A. Tie silicone strap through each of the two loops.



Expand Pleats & Enjoy!



These instructions do not guarantee protection against transmission of any diseases. Commercially available masks meet regulatory guidelines, but homemade masks may not. Mask designs have not been FDA approved or cleared. Homemade masks are to be used at your own risk. Due to variability of materials and construction, the mask's safety or effectiveness is not proven and cannot be assumed. Information and instructions are not guaranteed to be complete and accurate. Manufacturers and distributors are responsible for ensuring compliance with all applicable laws and regulations. Desperate times call for desperate measures. Stay safe.

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Jocelyn E. Songer, cc 3.0
Makermask.org
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Variations

For Small/Kids Mask: Start with an 8" x 8" square. Use ½" pleats instead of ¾" pleats. NOTE: Coffee tin nose ties may be too large/stiff for children's mask. See notes in directions for improving fit to the face in absence of nose bridge in the instructions. For smaller masks consider starting with a 7" x 7" square and two layers of lighter weight material.

Size Adjustments: Size can be adjusted by using ½" pleats instead of ¾" pleats or changing the fold at Step 4 from folding 2 ½" back to folding 2 ¼" or 2" back instead. The length of the silicone tie can be shifted to improve the fit.

Layering: Standard layering combinations include 3 layers per the WHO guidance on masks. For increased particle filtration, additional layers may be added as long as the mask remains breathable. For increased comfort, especially during summer months, the number of layers can be decreased to two layers. Note: Decreasing layers decreases filtration, but increased comfort increases the duration of time that masks can comfortably be used correctly.

- **Summer-weight – 2 Layers** (less filtration, higher breathability). Either 2 layers of spunbond NWPP (e.g., one heavyweight [80 – 100 GSM] and one lightweight [40 – 50 GSM]) **OR** 2 layers: an outermost layer of spunbond NWPP (80 – 100 GSM) and an innermost layer (closest to the face) of cotton.
- **Standard - 3 Layers.** Either 3 Layers of spunbond nonwoven polypropylene (NWPP) **OR** 3 Layers (e.g., 2 Layers of spunbond NWPP as the outermost layers and one layer of cotton as the innermost layer - closest to the face)

Folds: To create a roomier mask and/or to decrease the number of layers sewn through when using thicker materials, use one pleat instead of two (Step 3), and otherwise follow directions as written. This is similar to the folding used in the MakerMask: Expression. Other folding variations include changing the depth and angle of the pouch-like breathing area by changing the amount of material folded over in Step 4, and altering the angles of the folds (steps 4 and 5)

See the “MakerMask: Expression” for the NO-SEW adaptation of this pattern, which includes a window.