The **MakerMask: Fit (Beta)** is being developed as a fitted mask design. While we await feedback from the lab on optimal layering configurations, we would appreciate your feedback on the design. Please send comments on fit, sewability, and clarity of instructions to fit@makermask.org. Refer to [makermask.org/research](http://makermask.org/research) for the most up-to-date information about NWPP as a water-resistant alternative to cotton, as well as for material substitutions and available testing data.

For experienced/advanced sewists. Consider testing with scrap material first.

### Materials & Tools

- **3 pieces of non-woven polypropylene (NWPP)** sourced from pre-washed shopping bags. Check for tag in bag indicating ‘100% Polypropylene’. If ironing use lowest possible setting and test on sample. Number of layers may be adapted to account for variable bag thickness and breathability. Check our materials page for additional information.
- **1 Nose Piece** made from 3 pipe cleaners twisted together for rigidity. Common substitutions include paperclips or 16 gauge wire (verify suitability for boiling/autoclaving if using insulated or coated materials)
- **2 Cloth Ties, each 48 – 58” long** such as strips of cotton, bias tape, grosgrain ribbon or similar (materials should be latex-free and heat tolerant for disinfection/sterilization).
- **Thread**
- **Printed pattern** (see final page)
- **Sewing machine** and extra needles (size 14 or 16)
- **Scissors, pins, etc.**

### Instructions

**Step 1: Assemble Materials and Tools**

Assemble materials and tools. Print out the mask pattern on Letter-sized (8.5” x 11”) or A4 paper. Check that the measurements shown on the reference square of the printed page are accurate.

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.
Step 2: Cut out Pattern and Materials
Cut the pattern out. Use the pattern to cut three pieces of NWPP on the fold.

Caution: do not use pins in the body of the mask; pinholes may reduce mask functionality.

Step 3: Top-Stitch NWPP layers together
Topstitch the 3 layers of NWPP to hold them together (1/8” from the edge all the way around).

Step 4: Sew darts (bilateral) for fit
Make the darts on the inside of the mask as indicated on the pattern using your preferred technique (e.g. pin, fabric pencil, or chalk). Sew darts (bilaterally).

Note: Default dart size on pattern is for a ‘medium’; dart size can be adjusted to individualize fit. Warning: do not iron

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.
Step 5: Sew ‘chin line’ from A to B (see pattern)
Fold along the fold line, with right sides together. (You want the outside of the mask on the inside when you sew the chin line.) Sew the chin line, starting from the fold (A) to the edge (B), see pattern.

Step 6: Attach ‘top strap’ to mask (inside, top)
Open the mask, and center the top strap on the inside top edge of the mask (so that the ‘right side’ of the strap is facing the inside edge of the mask). Sew the strap to the mask from one attachment point (C, left) to the other attachment point (C, right). Then, turn the mask over so that the outside of the mask is facing up.

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.
Step 7: Create ‘nose piece’ for mask
Twist three pipe-cleaners together to increase rigidity. Cut pipe-cleaners to length of mask to create the ‘nose piece’.

Note: In some cases, using half-length pipe cleaner centered at the nose may improve fit.

Step 8: Secure ‘nose piece’ to mask (outside, top)
Place nose piece on mask (outside, top). Fold top strap over nose piece, ensuring that it remains on top of the NWPP material. Top-stitch strap to the front of the mask to fully enclose the nose piece and secure it in place.
Step 9: Attach ‘bottom strap’
Center the bottom strap on the mask (bottom, inside), as in Step 6. Fold material across the bottom edge to the outside of the mask and topstitch to secure from D (left) to D (right) to create a finished bottom edge.

Step 10: Finish straps
Top-stitch the straps to finish (see images below).

Step 11: Disinfect/Sterilize before use
Masks should be disinfected/sterilized before use. While autoclaving is ideal, home users can submerge masks in boiling water for 10 minutes for disinfection.

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.
MakerMask: Fit

If you need assistance distributing your masks, we are partnering with the community to provide the best information as it becomes available. Check our website makermask.org for the latest information.

- Note: The FDA has released new guidance about labeling, manufacturing, and distributing face masks: [FDA Face Mask Letter (April 24, 2020)](https://www.fda.gov/medical-devices/face-masks)

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.
Print on A4 or Letter-sized paper and cut out template

Maker Mask: Fit v1.2
www.makermask.org
© Jocelyn Songer, Ph.D. & Lucille Songer, R.N
drawing by Burhan Qaddoumi

#makermask