Cotton mask with "cupped" satin liner for increased breathability.

- **Using cloth masks does <u>not</u> reduce the supply of <u>surgical masks</u> available to medical professionals**
- Cloth masks are **not at all as good as** surgical, N95, or FFP1/2/3 masks for filtering anything out of the air the wearer would breathe in.
- Satin has "low porosity" which *may* be good for filtering (or may not)
- Making this mask took 60 mins.
- Some satin, a 400 thread count cotton (sheets?), scissors, sharpie, plastic placemat, sewing machine, 1mm wire, pliers, 2mm elastic

Plastic retainer holding satin liner inside the cotton outer and ready to wear

The retainer gives a cupping effect to increase breathability

As viewed from the front. Elastic can be shortened until it is snug on the wearers face

First: print two templates pages for the fabric

Print this A4 template - https://cv-masks.github.io/cv-mask-template-6.1.pdf

This is slightly too big for US "Letter" and may work on US "Legal" but you'll have to judge for yourself whether the printer for you Mac/Windows PC mangled the proportions and measurements.

Two pieces of fabric only: cotton outer, and satin liner.

Video clip of this facemask

https://youtu.be/a__f1-msCCo

Satin disclaimer

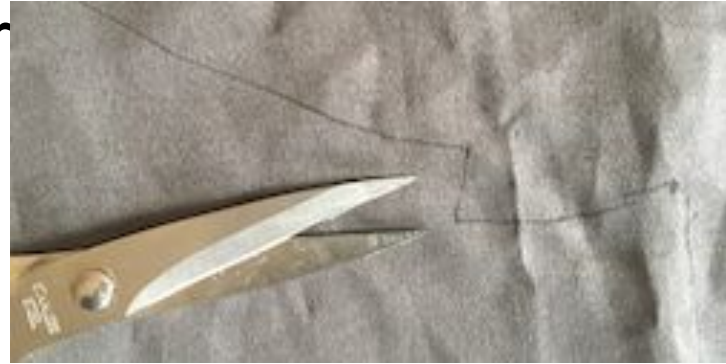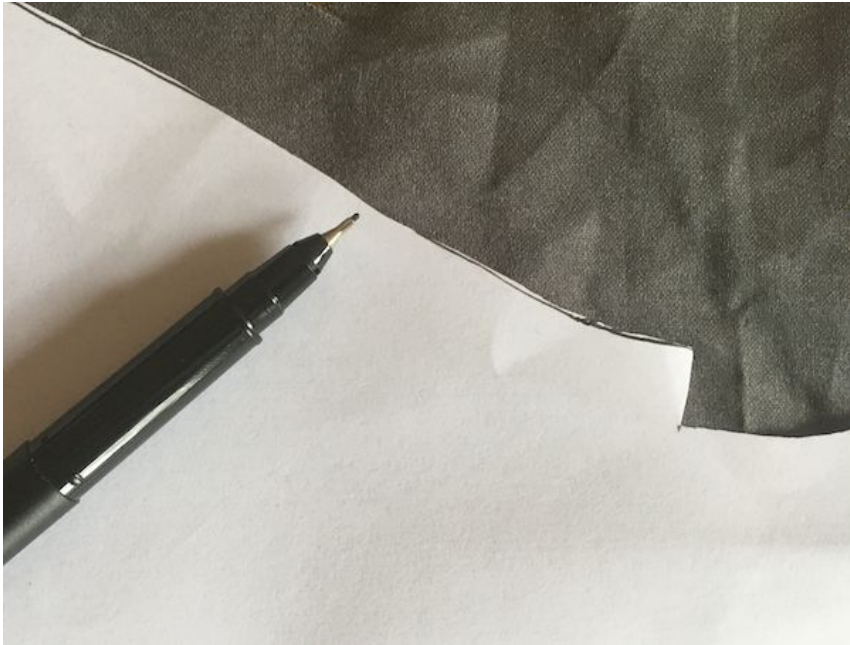https://smartairfilters.com/en/blog/best-materials-make-diy-face-mask-virus/
doesn't list **satin** as a choice, and therefore can't grade it.

I do not know how good it is as a filter and where this mask is on a scale of 1-10 (where 10 is classic surgical mask).

You can swap the satin fabric for anything else you may prefer to use. The reasons you're using this design is the cupping of the retainer which holds the fabric away from your nostrils/mouth as you breathe in - and thereby keep a larger surface area of fabric to do the filtering meaning "breathability" isn't trashed as you increase filtering. Just a theory.

Cut the paper template for the cotton outer, and use it to mark the fabric. You can use a narrow black sharpie for the cotton outer

Fold it in half vertically, and pin it.

Pins should only be used at the two ends as anywhere else will cause a leak in the mask when in use

Fold the cotton outer in half (left to right) and sew lines like so. One at the top and one at the bottom. This doesn't have to be too precise.

Then cut off the excess.

After cutting, do a second stitch to reinforce the edge (much less air leakage through the sewn line)

Sew the top hem, but leave room to thread wire through from one end.

Leave a 1cm (⅜ inch) un-sewn gap (note red arrow)

Sew the bottom hem, with no need to leave room for a wire.

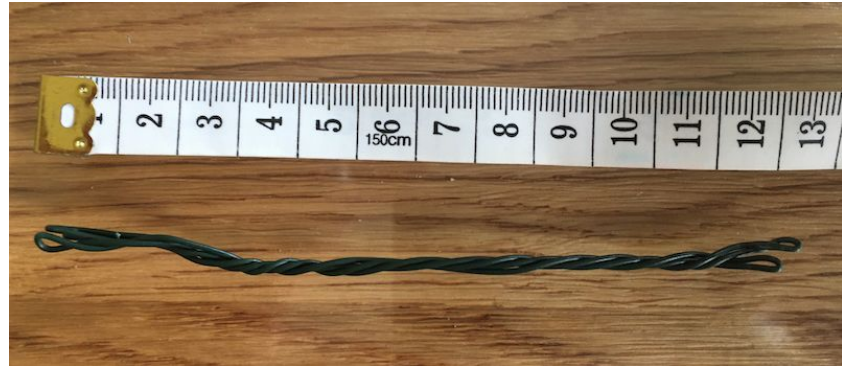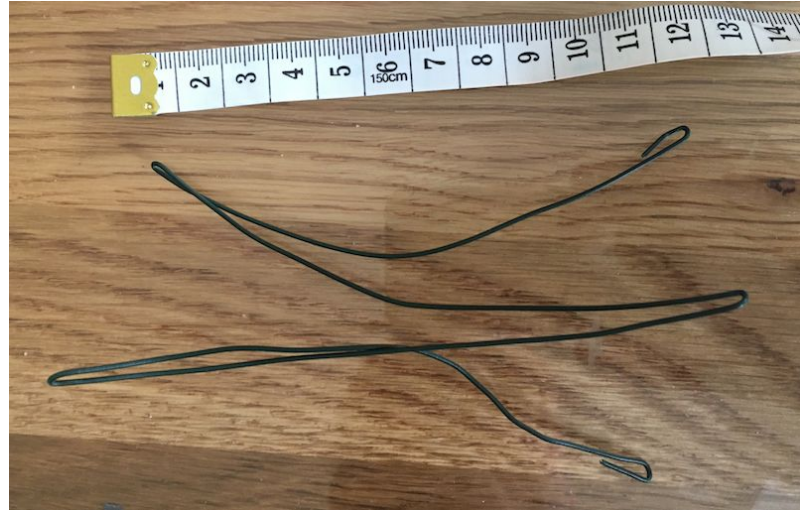Again, leave a 1cm (⅜ inch) un-sewn gap (note red arrow)

With 1mm plastic coated "garden wire" (or twisty-ties) make a 13cm (5 ¼ inch) **twisted** fatter wire.

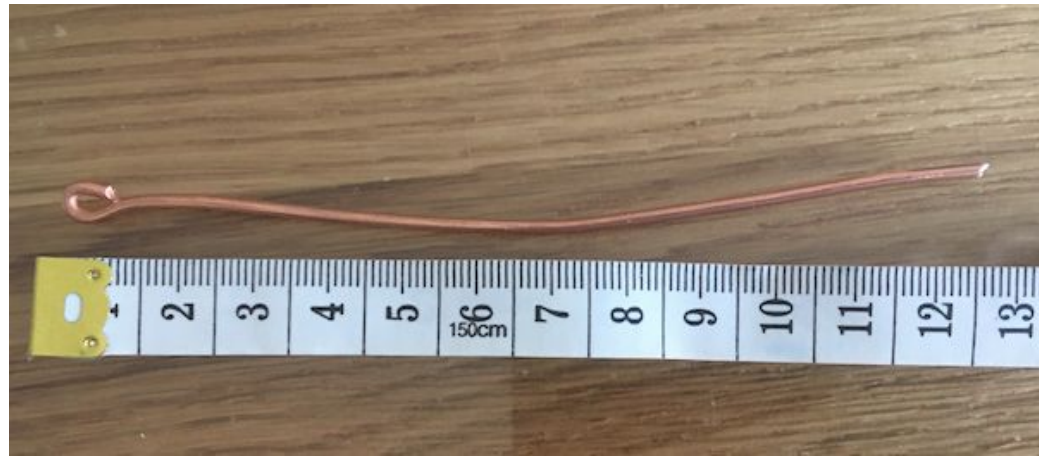With small pliers, bend the ends over to protect the wearer's eyes (just in case).

Feed that into the top hem, making sure to

Or use a single piece of 2mm copper wire.

With small pliers, bend the ends over to protect the wearer's eyes (just in case).

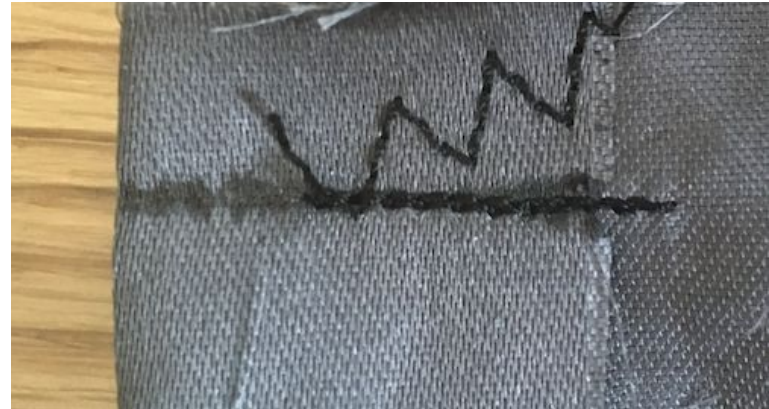Feed that into the top hem, making sure to center it.

Fold over the pocket, and iron it to that position then sew it into position leaving room for the

Sew four lines to form a guide to the plastic retainer.

You will put the retainer in place and fiddle with it a little until it feels right then mark the lines with a fine-tipped sharpie

Remember to leave space for the elastic/string/cord - do not sew to the edge.

Cut a piece of elastic 80cm (31") long and use some of the 1mm wire to pull it through end of the pockets.

Tie a knot to make the two ends into a loop.

Cut paper template for satin liner, and mark the satin with dots as satin "pulls" quite easily when on a flat surface

Then cut that out with scissors

Cut a rectangle off the plastic placemat - 22cm by 6cm (8.5 by 2.5 inches). After making that rectangle, trim it down like so (inexact):

Use scissors for this and be careful not to cut yourself

Just six velcro dots each side for the cotton outer, initially

Velcro dots on the satin liner too

Later on, you may want to add some more - shown in orange

The edges of the satin liner can be sealed to prevent fraying - with a candle flame. Just in case, do this outside so you do not accidentally burn your home down:

Putting it together

1. Put the liner into the outer.
2. Using the velcro dots either side of the nostrils first, fix the liner into position.
3. Now insert the plastic retainer making sure the that it's taking the ends of the liner into the pockets of the outer.

Next steps

1. Make a second liner, so you can wash and dry one while wearing the other.
2. Maybe sew the velcro dots into position as washing can dislodge them. Not to many stitches just enough to hold them.

Options

1. Copper wire (does not rust when repeatedly washed and dried) instead of plastic coated steel, as shown previously.
2. Different designed for the plastic retainer to increase breathability...