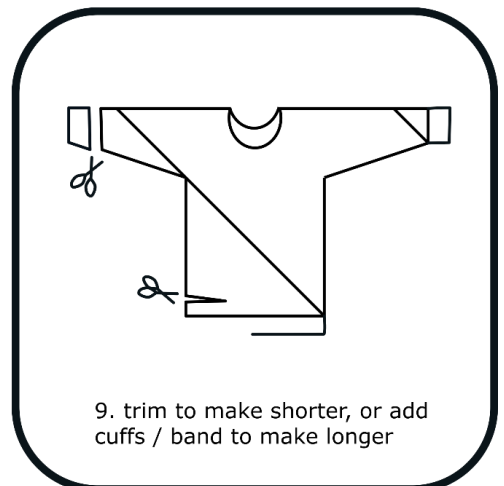
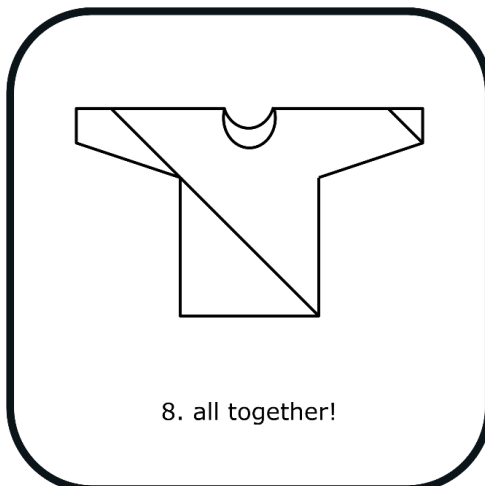
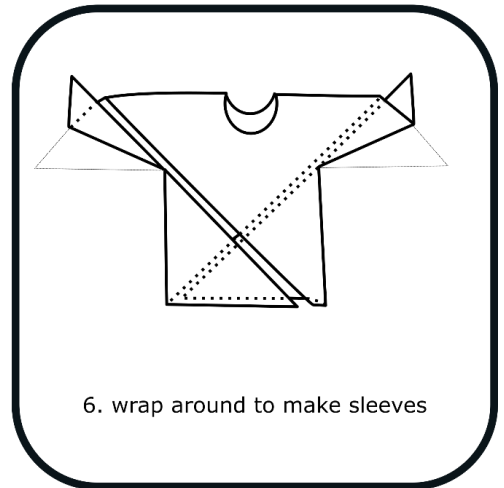
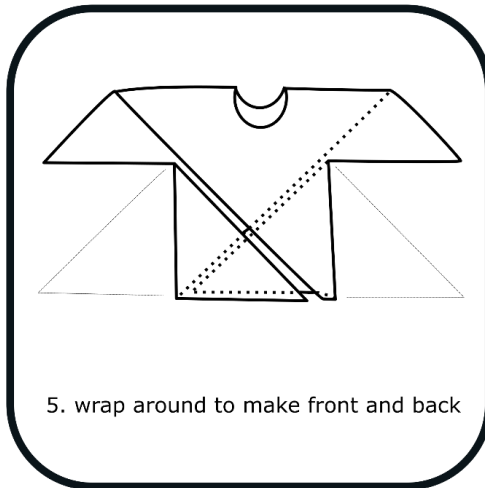
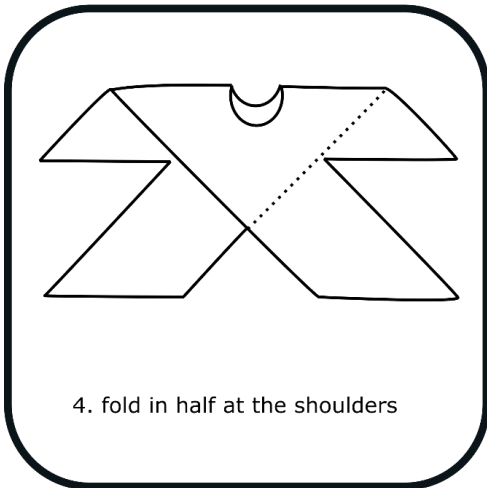
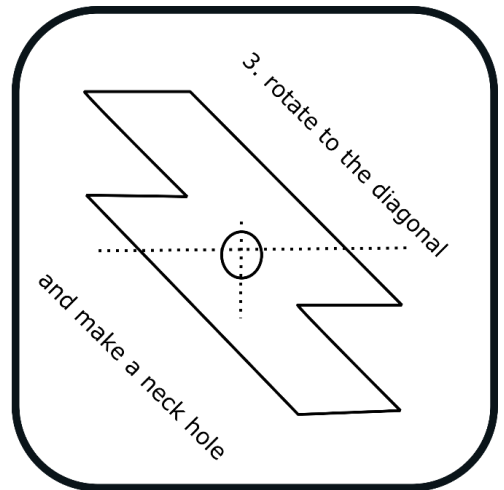
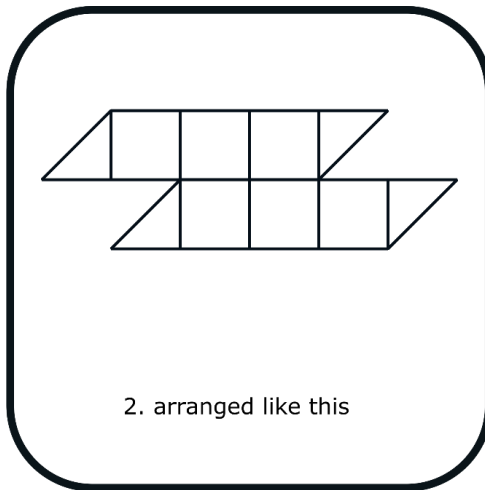
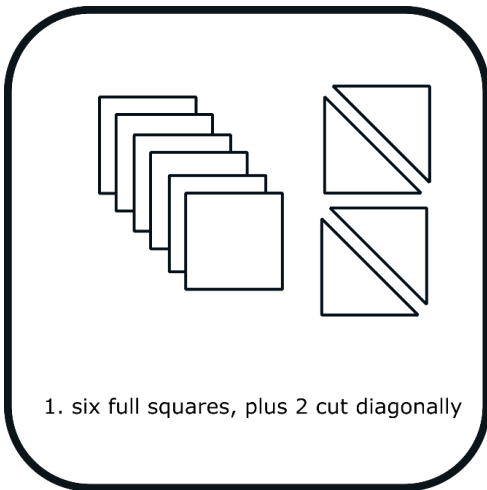


EMPTY
HANGER

64 shirt

(64 because it's 8^2 , eight squared, eight squares, eh)



Description

Take 8 squares, slice 'em dice 'em sew them back together, and hey presto a sweatshirt!

This is NOT my original idea, many other designers have done similar things:

- [Liz Haywood's Xanthea T-Shirt](#) uses a similar concept for the body, although her sleeves are more finessed and more easily adjustable.
- Liz of Thread Faction Theory (a designer of some great [zero-waste childrens patterns](#)) experimented with a similar concept - [hers had short sleeves and a hood!](#)
- [Mira Musank blogged here](#) about making a 6-square shirt, which is predictably more cropped than the 8-square version. She links an article from a 1996 issue of Handwoven magazine, which was my main inspiration.

What I've added is to work out a measurements chart, illustrated the cutting and sewing process, and collected ideas for customizing your garment!

This is more of a tutorial than a pattern - for example, things like how to finish the neckhole are left up to you. I strongly recommend reading the whole thing before starting!

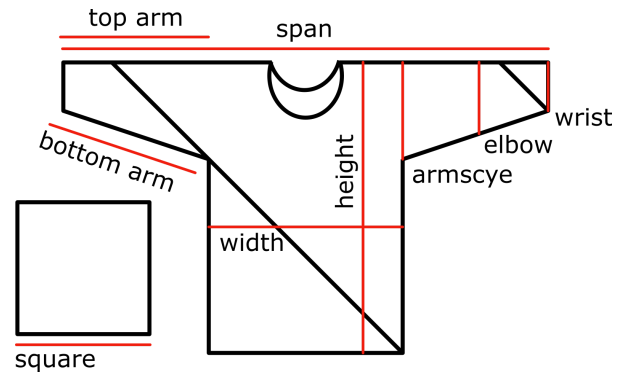
Fabrics

This garment is designed for knit fabric, although in theory you could make it in woven. This is a tutorial, not a pattern; feel free to experiment! The perfect fabric (in my opinion) is a knit with a good amount of stretch for comfort, but also as stable as possible so it doesn't sag, and to make sewing easier.

Fitting / Sizing

The sizing chart below shows the **finished measurements** of the garment. Because of the fixed proportions, this pattern does NOT work well in all sizes. In many sizes the wrists are too narrow. In larger sizes the arms are comically long. The chart below is a starting point only.

Measure an existing garment with similar fit to get an idea of the measurements you need, and choose your size based on the **width measurement**; the width is the only measurement that is difficult to change later - the hem and cuffs can be made shorter by taking a deeper hem, or made longer by adding cuffs or bands.



square	10	12.5	15	17.5	20	22.5	25	27.5	30	32.5	35	37.5	40	42.5	45	47.5	50	52.5	55	57.5	60
width	14.1	17.7	21.2	24.7	28.3	31.8	35.4	38.9	42.4	46.0	49.5	53.0	56.6	60.1	63.6	67.2	70.7	74.2	77.8	81.3	84.9
height	21.2	26.5	31.8	37.1	42.4	47.7	53.0	58.3	63.6	68.9	74.2	79.5	84.9	90.2	95.5	100.8	106.1	111.4	116.7	122.0	127.3
span	34.1	42.7	51.2	59.7	68.3	76.8	85.4	93.9	102.4	111.0	119.5	128.0	136.6	145.1	153.6	162.2	170.7	179.2	187.8	196.3	204.9
top arm	10.0	12.5	15.0	17.5	20.0	22.5	25.0	27.5	30.0	32.5	35.0	37.5	40.0	42.5	45.0	47.5	50.0	52.5	55.0	57.5	60.0
bottom arm	10.8	13.5	16.2	18.9	21.6	24.4	27.1	29.8	32.5	35.2	37.9	40.6	43.3	46.0	48.7	51.4	54.1	56.8	59.5	62.2	64.9
armscye	7.1	8.8	10.6	12.4	14.1	15.9	17.7	19.4	21.2	23.0	24.7	26.5	28.3	30.1	31.8	33.6	35.4	37.1	38.9	40.7	42.4
elbow	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0	16.3	17.5	18.8	20.0	21.3	22.5	23.8	25.0	26.3	27.5	28.8	30.0
wrist	2.9	3.7	4.4	5.1	5.9	6.6	7.3	8.1	8.8	9.5	10.3	11.0	11.7	12.4	13.2	13.9	14.6	15.4	16.1	16.8	17.6

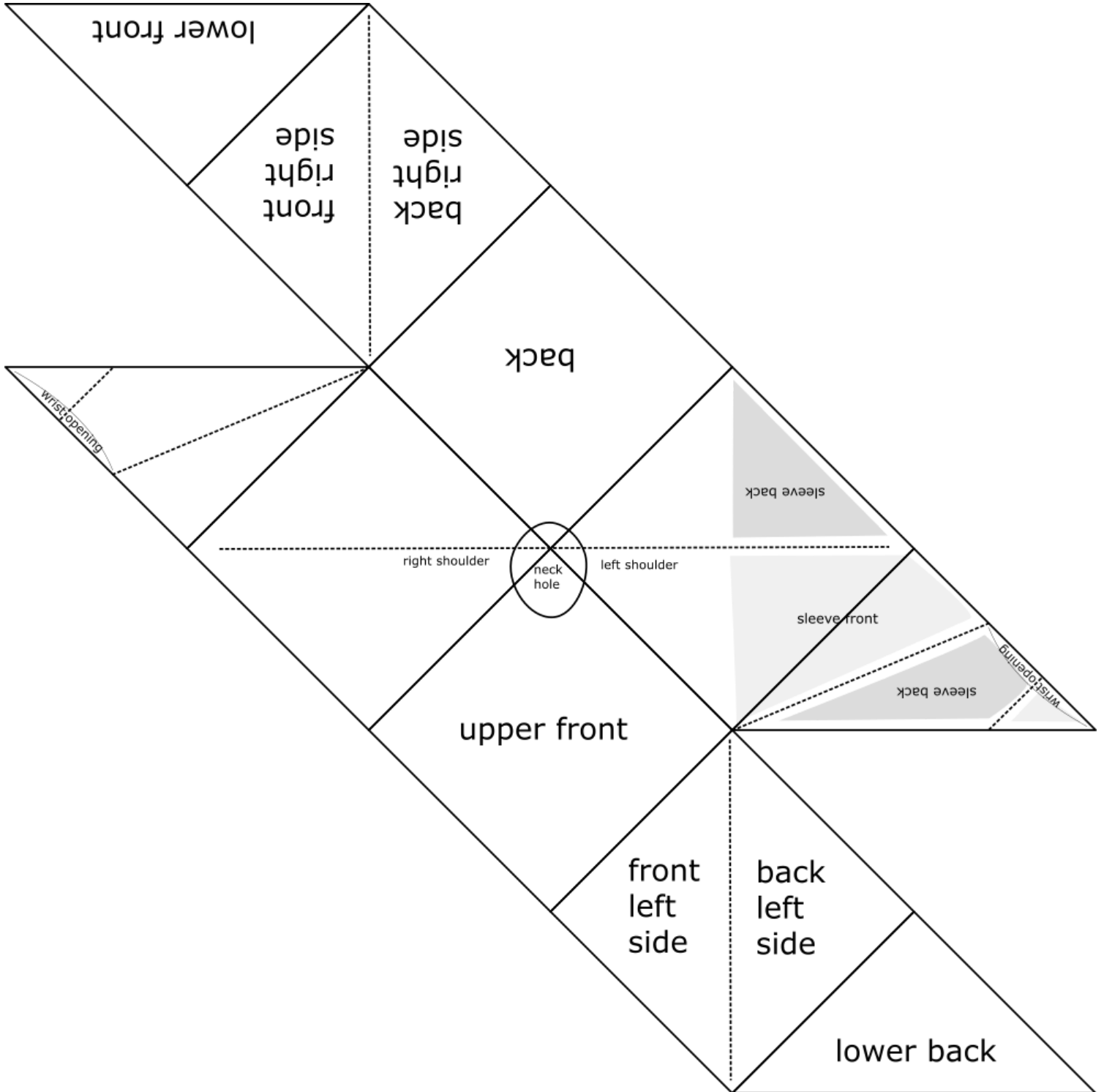
the numbers in the chart are cm, although you can also read them as inches; the math works the same

if you need a different size, [try using my calculator here](#)

Printing

There is no pattern to print. If you choose to print out these instructions, please use recycled or scrap paper.

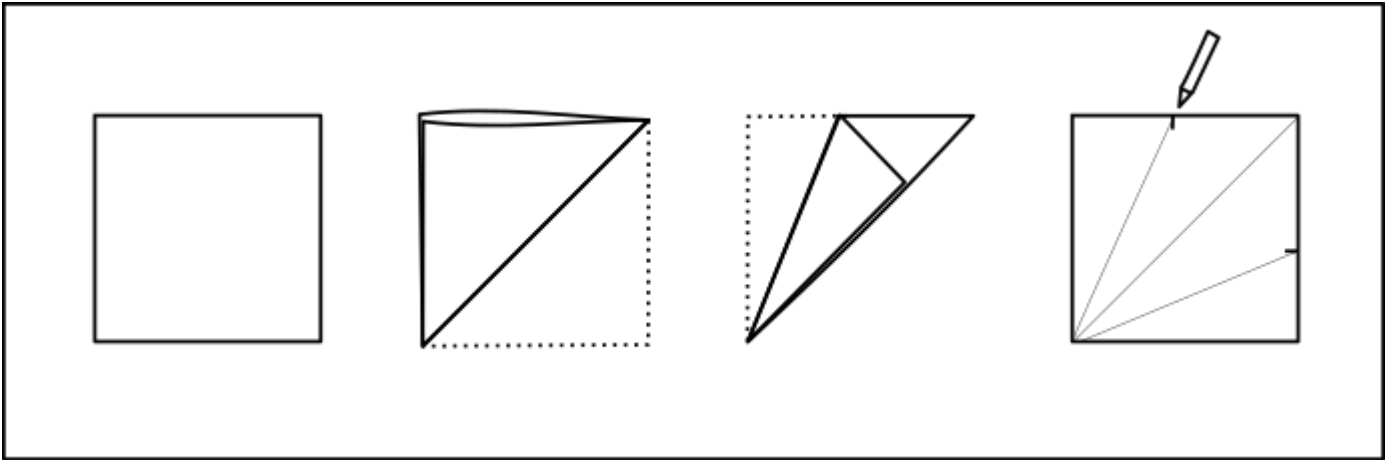
I recommend printing just this single page to cut out the paper model, fold it, and tape it together.



Cutting

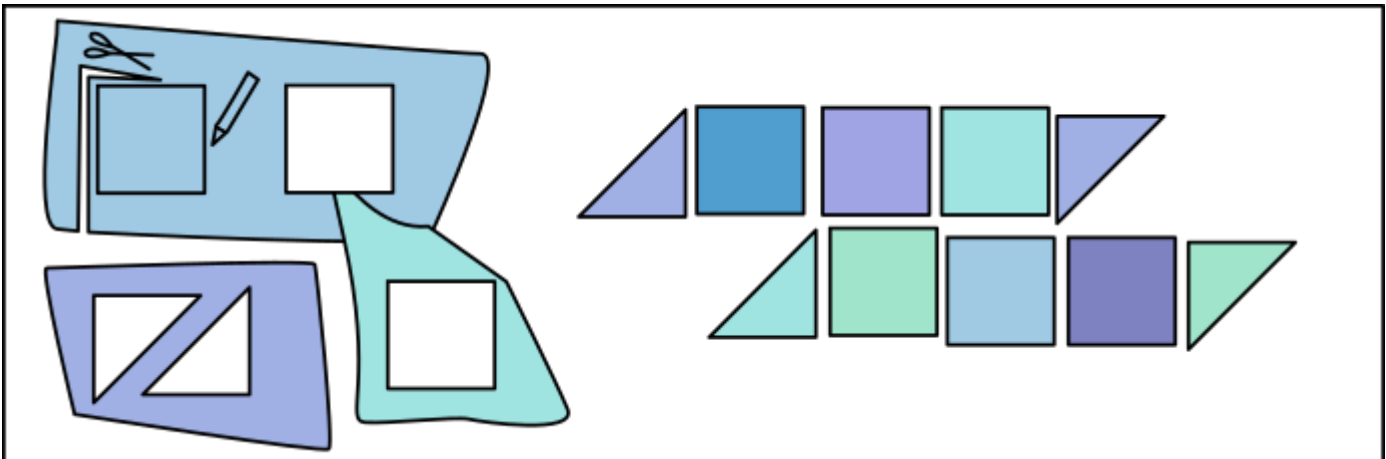
There are several ways to cut out your pattern. You need to cut 6 complete squares and 2 squares cut diagonally into triangles. You can do this from either **multiple fabrics or one fabric, in one piece or in multiple pieces.**

Make yourself a pattern from a scrap of paper or fabric, the size of your square. Fold it twice on the diagonal and make a match mark. Your pattern is ready!

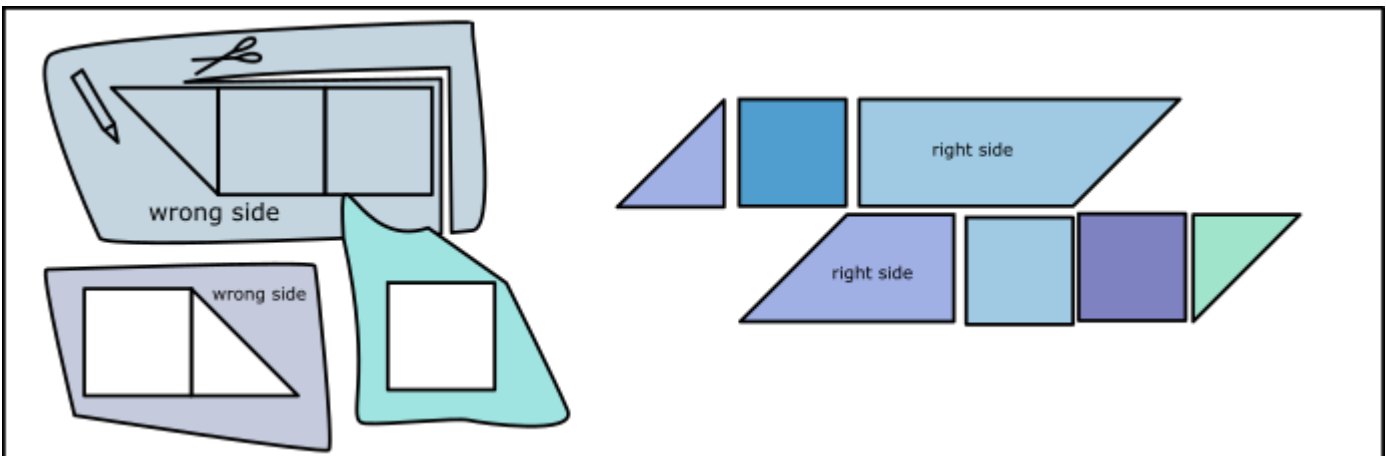


Remember that you need to add seam allowances to your square size. This means when cutting your triangles that you can NOT just take one of your squares and cut it in half, because it won't have the right seam allowances.

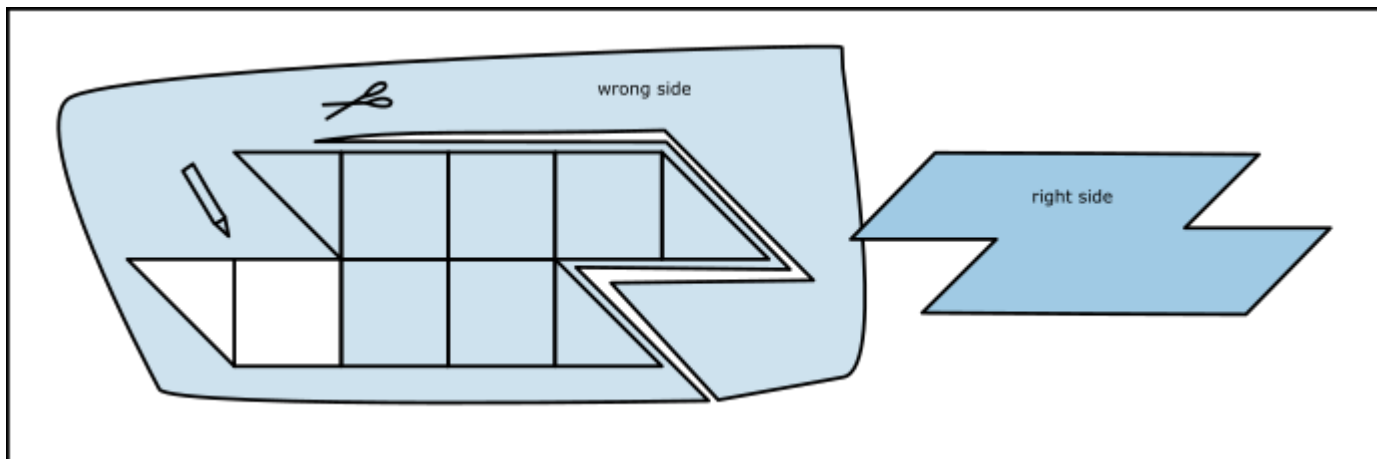
Option 1: Use a different fabric for each piece. Great for using up scraps!



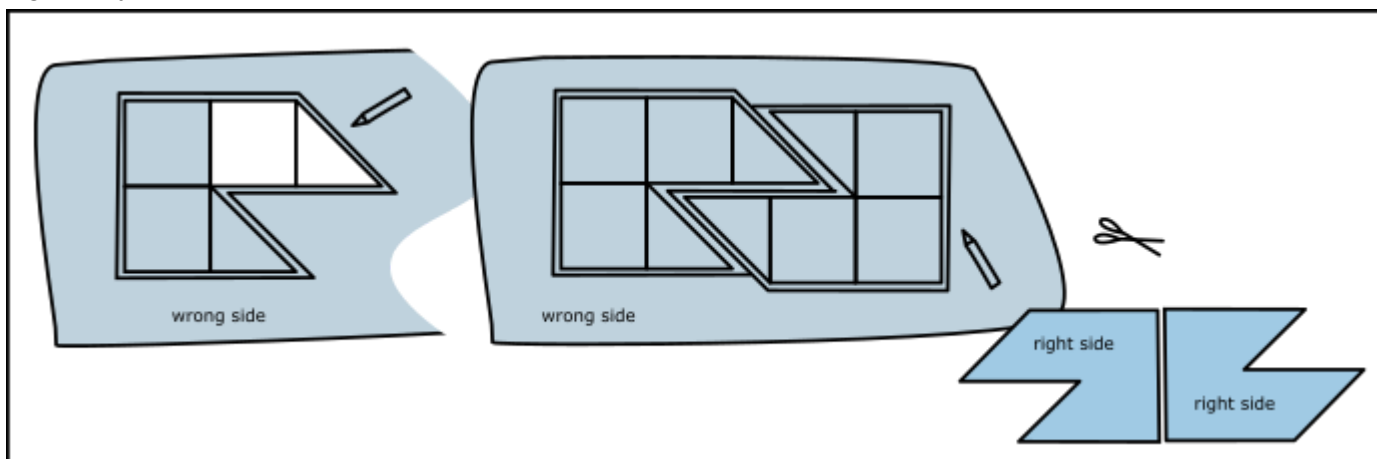
Option 1.5: Use some different fabrics. Trace some of the squares / triangles together and cut them as one. Remember that what you trace and cut on the wrong side of the fabric will be reversed. It's kind of like tetris! Cut everything out and arrange it in the right way, but don't sew together yet.



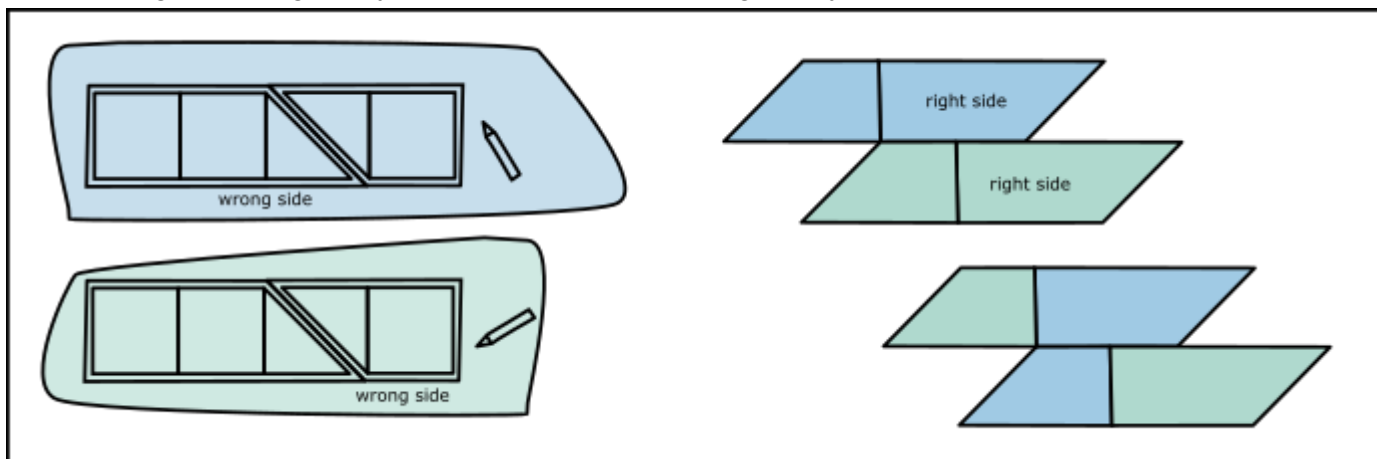
Option 2: Cut as one piece. Draw out your squares and triangles as shown, add a seam allowance all around, and cut out. Since you're drawing on the wrong side of the fabric, the shape will be reversed when you turn it right side up.



Option 3: Low-waste cutting as a block. Draw out half the design as shown, add seam allowance, then add the other half of the design including seam allowances. Cut out and arrange them in the right way, but don't sew together yet.

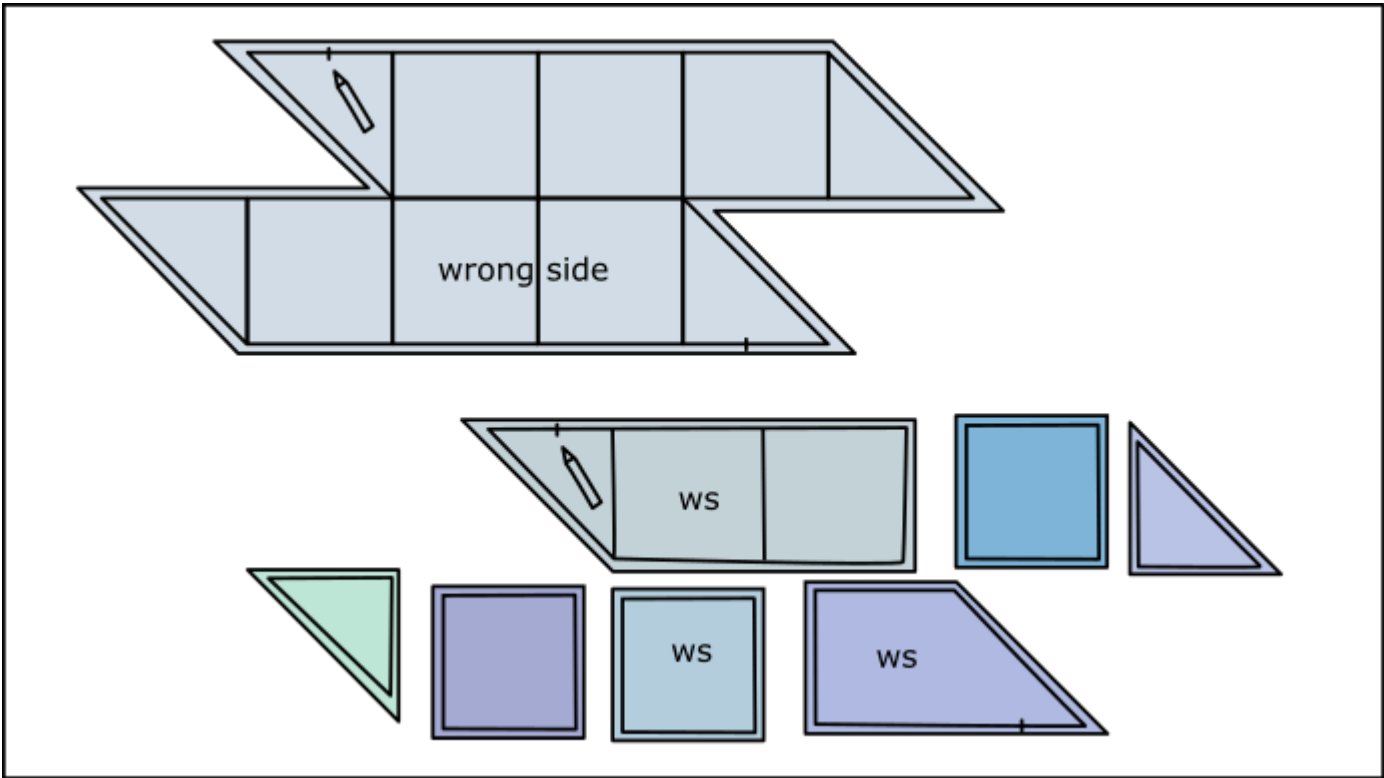


Option 4: Zero-waste cutting in strips. Draw out the pattern as shown, including seam allowances, then cut apart, arrange in the right way as shown but don't sew together yet. You can cut the strips from 1 or 2 fabrics.



! No matter how you cut it out, mark everything! It will help you visualize it, as well as sew it accurately. I recommend drawing all the squares fully. Mark all the seam allowances, especially at the corners. On the sleeve triangles (the two that stick out less) mark the match mark as shown.

(image on next page)

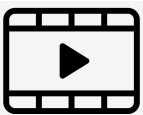


Once you've marked everything, let's get sewing!

Sewing

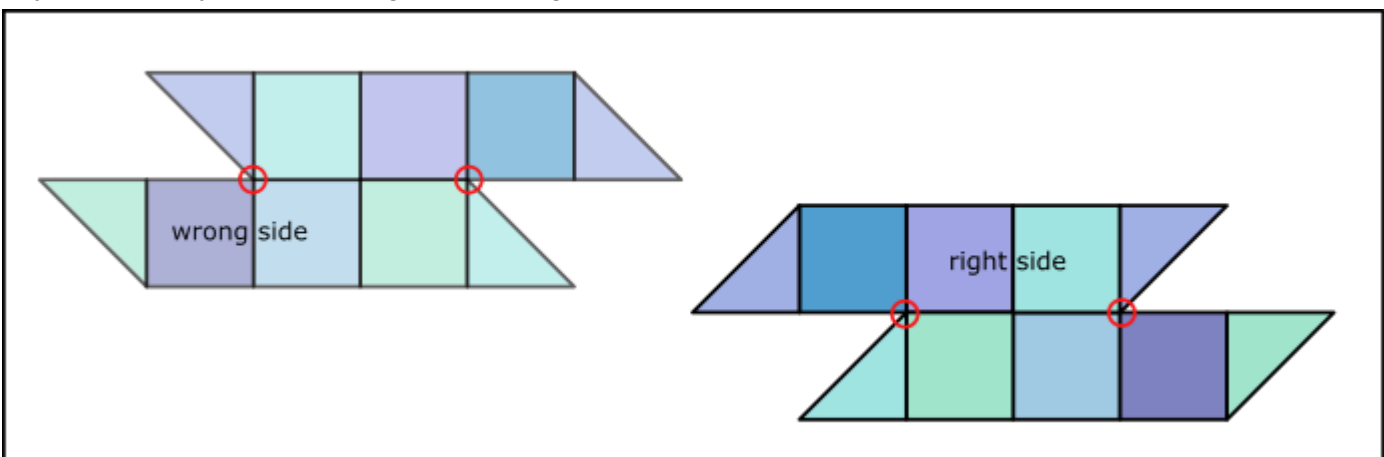
Sew using a 1 cm (3/8") seam allowance, or whatever you added when cutting out.

Sew all seams using **a stitch which can stretch**. Possibilities vary by sewing machine, but you can use a narrow zig-zag or stretch stitch (the one that looks like a lightning bolt) or a triple straight stretch stitch; for topstitching and hemming you can use the same, or use a double needle. Use a stretch needle while sewing, or a ballpoint / jersey needle. Try out your stretchy stitch and needle on scraps of your fabric(s) before starting to sew your garment.

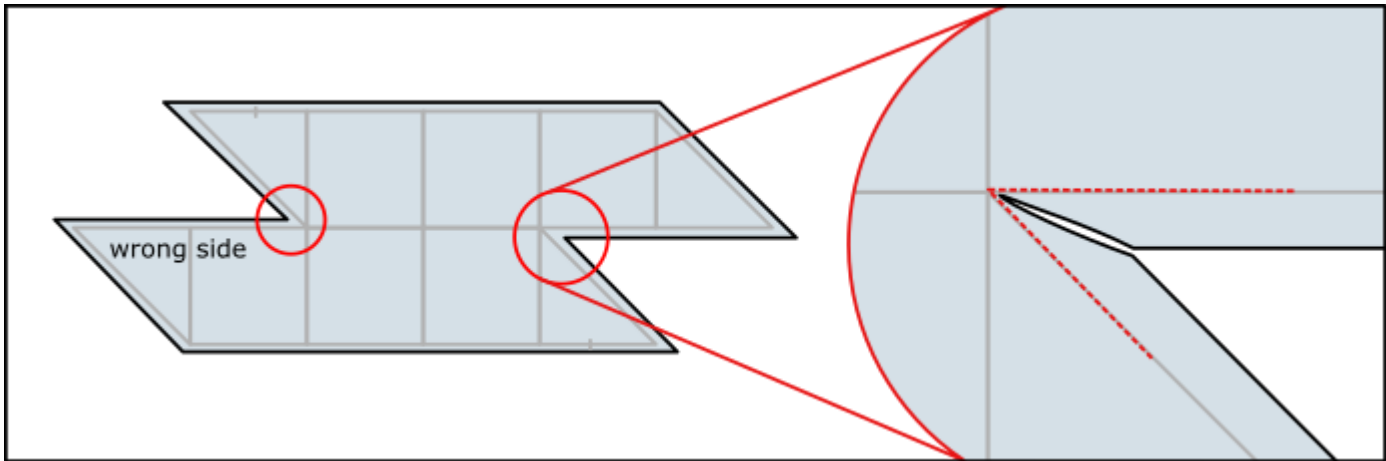


If you'd like some video help, please check [the Empty Hanger Patterns channel on YouTube](#), where there is [a video of how this pattern comes together](#).

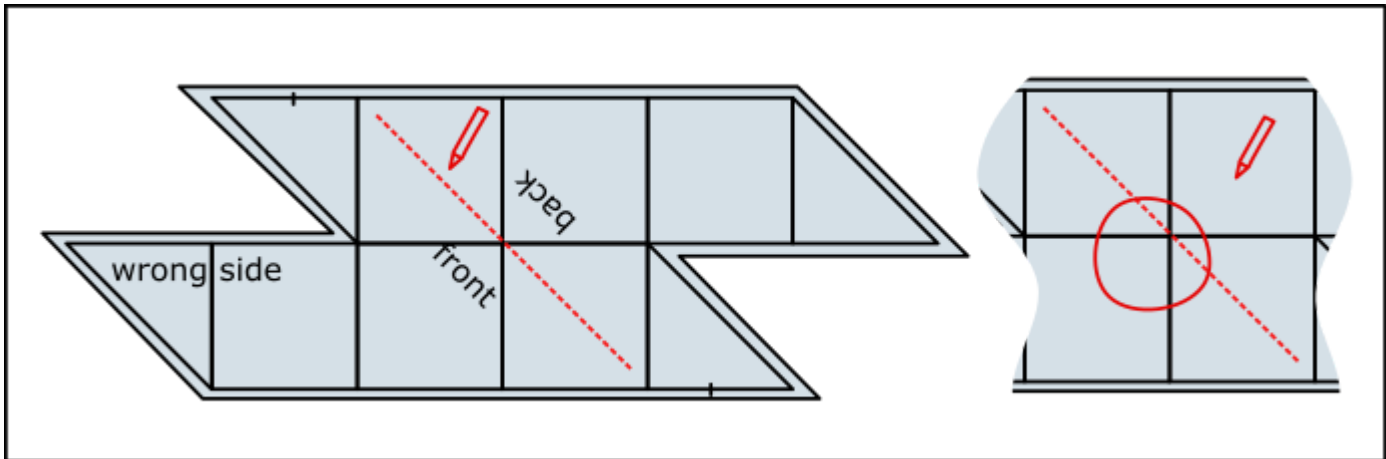
If you cut multiple pieces, now is the time to assemble them. They need to go together like this, and at the points marked you should stop sewing at the seam allowance and backstitch - it will make assembly easier later. Anywhere else you can sew right to the edge. Press all seam allowances open.



If you don't have seam joins at those corners, you should stay-stitch (stitch right along the seam allowance with a small stitch) to reinforce them, then snip into the corners as close as you can without cutting your stitches.



Next add your neck hole. Draw in your shoulder line as shown on the wrong side (be sure you really do it as shown, not rotated 90° - it should be the same angle as the triangles). Label the front and back. Copy a neckline from an existing garment, and draw a line where you want your FINISHED neckline to be.

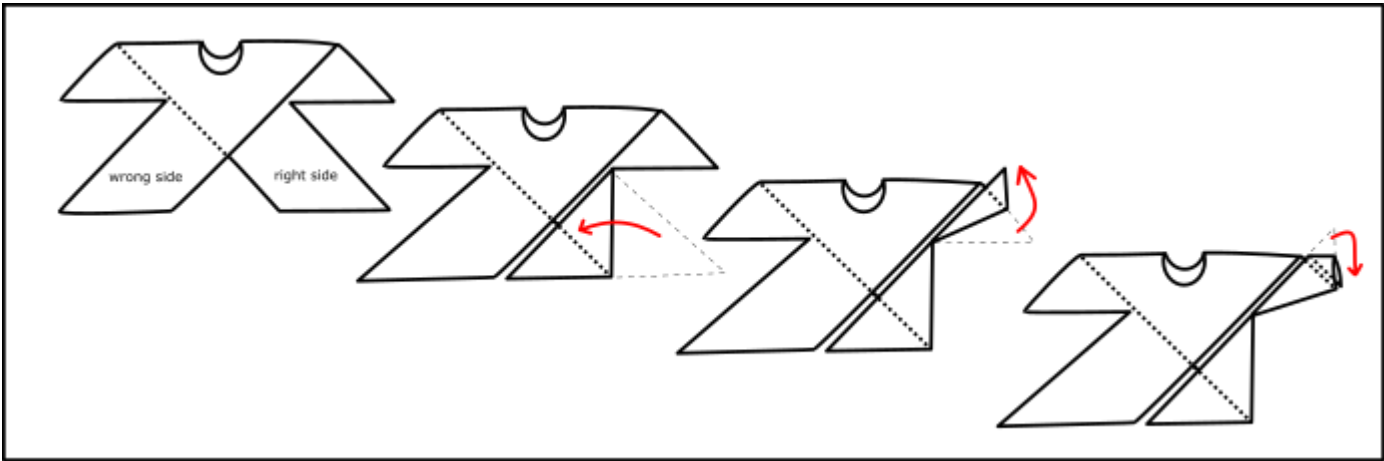


Where you should cut depends on how you want to finish your neckline. Here are some options:

- Just fold over 1 cm and stitch down - cut 1 cm inside your line (or if you want a smaller fold, cut smaller).
- Use bias binding (since bias binding doesn't stretch, be sure it will fit over your head) - cut 1 cm inside the line for a 1 cm seam allowance when sewing on the binding.
- Add a 1 cm band (4 cm wide cut, folded in half, and sewn with a 1 cm seam allowance) - cut exactly on the line
- Add a 2 cm band (6 cm wide cut, folded in half, sewn with a 1 cm seam allowance) - cut 1 cm outside the line you drew.
- Add a 3 cm band (in ribbing or VERY stretchy fabric with good recovery) (8 cm wide cut, folded in half, sewn with a 1 cm seam allowance) - cut 2 cm outside the line you drew.
- If you want to add something else to your neck hole (a hood, a tall collar, etc), you will probably be using a 1 cm seam allowance to do so, so cut 1 cm inside your drawn line.

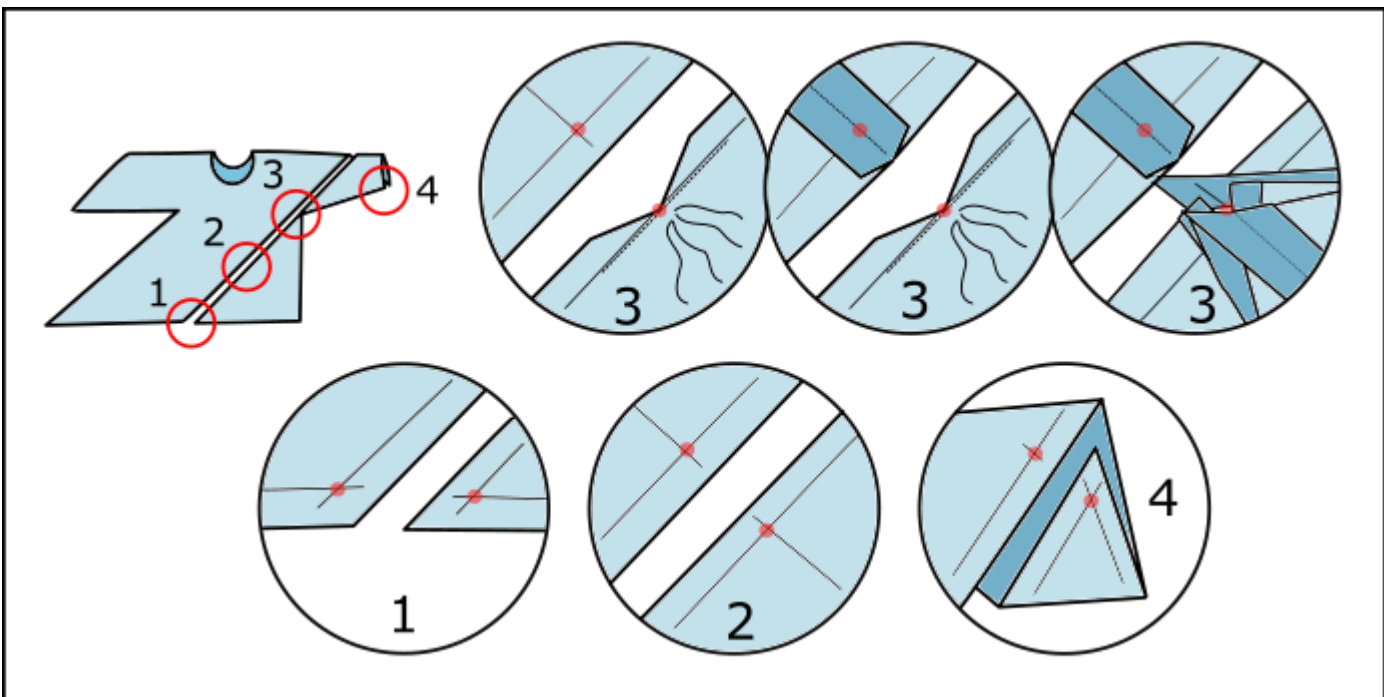
When your neck is finished, the next part is the most exciting: sewing the shirt together! Basically it's one long seam on either side.

With wrong sides together, fold at the shoulder. Then fold the side over, and fold the sleeve up and back down (illustration on next page).



Pin together at the following points (I hope you marked everything at the cutting stage because this is where it's really useful!):

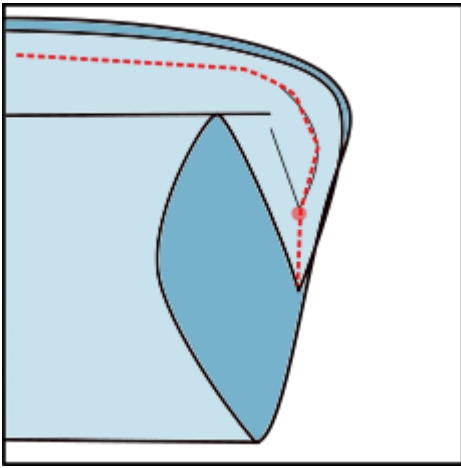
1. Match the seam allowances at the bottom edge. You might have a seam allowance on one side
2. Match at the middle of the seam. You might have a seam on either side here, or just the marks you made
3. The underarm is the hardest match. On the top you might have a single piece, or a seam. On the bottom you might have a single piece, with your stay-stitching, and a lot of excess fabric below the point. Smooth out the excess, out of the way of the seam allowance, and match the points. Or on the bottom you might have two, three, or four pieces joined, which means you have a mess of seam allowances AND excess fabric. Smooth it away from the seam allowance as best you can and match points. When sewing, you can either blaze right through all the seam allowances, or it may be easier to sew up to the point on one side, stop and backstitch, then start again from the other side.
4. At the wrist, match the corner with the match mark.



I also recommend putting another 3-4 pins in between the underarm and wrist, because the seam spirals around and when you're sewing it can seem like you're getting lost.

Sew up the seam, then repeat on the other side. At the wrist, after the match point taper your seam out as shown - this will make it easier to either hem or add a cuff later.

(illustration on next page)



Last step! Finish the cuffs and hem. Depending on your size / proportions you might want to make them shorter or longer. To make either longer, add a cuff or band. To make the hem shorter, cut some off and hem, or fold the hem up and make a mock band. To make the cuffs shorter, just cut them off - if you take a deep hem or fold it into a band, it will still be as narrow as the narrowest point.

Bonuses and “hacks”

Add a pocket to the front - a kangaroo pocket looks great, especially combined with a hood. Or add an inseam pocket to the seam - you could even do it fully zero-waste by using the neck cutout!

A tall cowl collar looks great, as does a hood! If you're interested in trying out some zero-waste hoods, Liz Haywood has collected some ideas in the [June edition of her Year of Zero Waste Sewing series](#).

You can slice up the front and make a great cardigan! Doing it this way gives you the possibility to finish the hem, front, and neck in one go with bias binding.

