

### Extra Disclaimer:

Clothing is hard to make in my opinion. I don't have a system to make actual patterns, but will do my best to provide a guide that others can follow. Some of the steps may not be very exact or measured, but they are what worked well for me.

### Materials Needed:

#### Shown Method

Item	Amount	Cost	Place
Blue Foam	1 pad	\$8*	Walmart
3D Spacer Mesh	1 ft	\$5.85	DIY Gear Supply
¾" Thinline buckle	1	\$0.52	DIY Gear Supply
1" Hook and Loop	1 yd	\$0.95	DIY Gear Supply
¾" Nylon webbing	2 ft	\$0.48	DIY Gear Supply
3/32" Shockcord	2 ft	\$0.40	DIY Gear Supply
Total		\$16.20	
Total w/ Shipping		\$22.15	

\*I have trouble finding this one their website. You will have to go look around the store for the actual product.

#### Additional Materials for Slip Cover

Item	Amount	Cost	Place
70d Silnylon 2nds*	1 yd	\$2.95	DIY Gear Supply
1" Grosgrain	2 yd	\$0.84	DIY Gear Supply
3/32" Shockcord	5 ft	\$1.00	DIY Gear Supply
Project Total		\$26.94	

\*This only comes in red. If you would like a less obtrusive hat, purchase the 30d 2nds at \$5.50 a yard, or even a coated or uncoated ripstop nylon.

#### Cutting the Foam

I've found that the cheap blue foam pad at Walmart, which is something like ½", makes a solid hat. For this you will need a thumb tack, string and marker to make your circle.

1. Tie two loops at either end of the string making sure that the length is 10" after you put the sharpie into the loop.
2. Push the thumb tack down into the center of the foam.
3. Making sure the thumb tack stays in place and go around the circle that the string allows.
4. Next, measure out a ¼ section of the circle. This is easy enough to do if you draw a straight line from the center of the circle to any position on the edge of the circle. Then, draw a line to the edge that is perpendicular to this line.

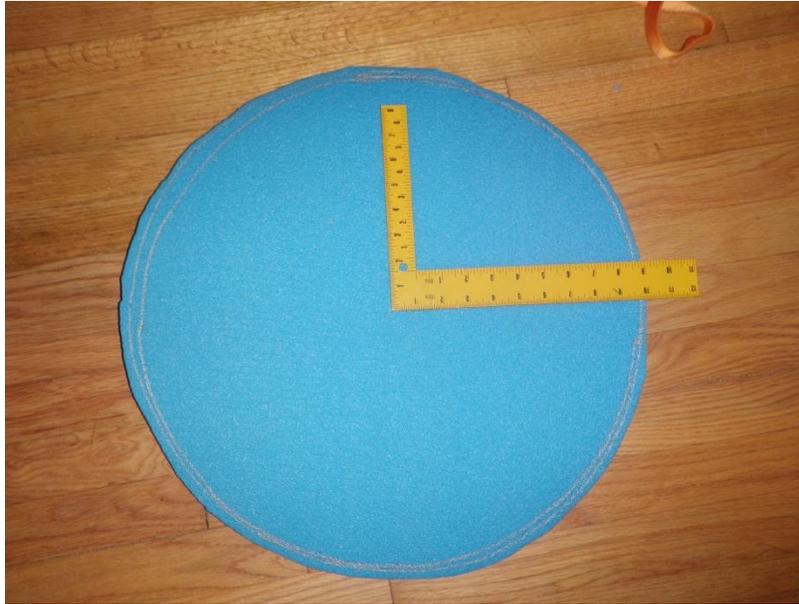


Figure 1 To make the quarter circle, I would just draw a line from the central point along the two edges of this ruler. Having a right angle ruler makes this very easy, but isn't necessary.

5. Now the task is to break this down into a section that is  $\frac{3}{16}$  the area of the circle. I found that  $\frac{3}{16}$  makes a more comfortable hat, for me, at these dimensions than a full quarter circle. To do this, place a ruler across the chord between the two end points of the quarter circle.
6. Measure the length between the two and find  $\frac{3}{4}$  of that length. For me, I found  $\frac{1}{2}$  the length and then found half of those two points, but this isn't necessary.

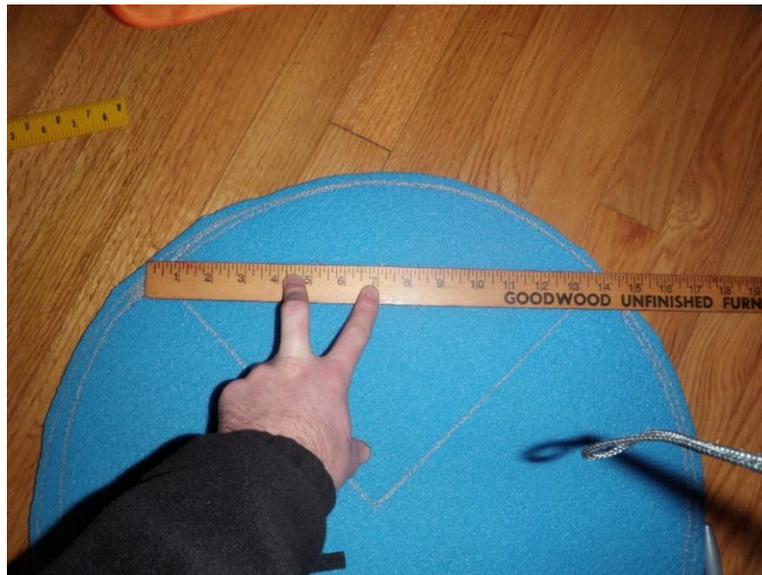


Figure 2 Measure the circle that should be  $\frac{3}{16}$  the entire area by finding  $\frac{3}{4}$  of the length between the two end points.

7. Draw a straight line from the center of the circle to the edge, going through the mark you just made. This will be where to cut the foam.



Figure 3 Here I am measuring  $\frac{1}{2}$  of the area to test multiple sizes, but the line to the right of the ruler would be  $\frac{3}{16}$  the entire area.

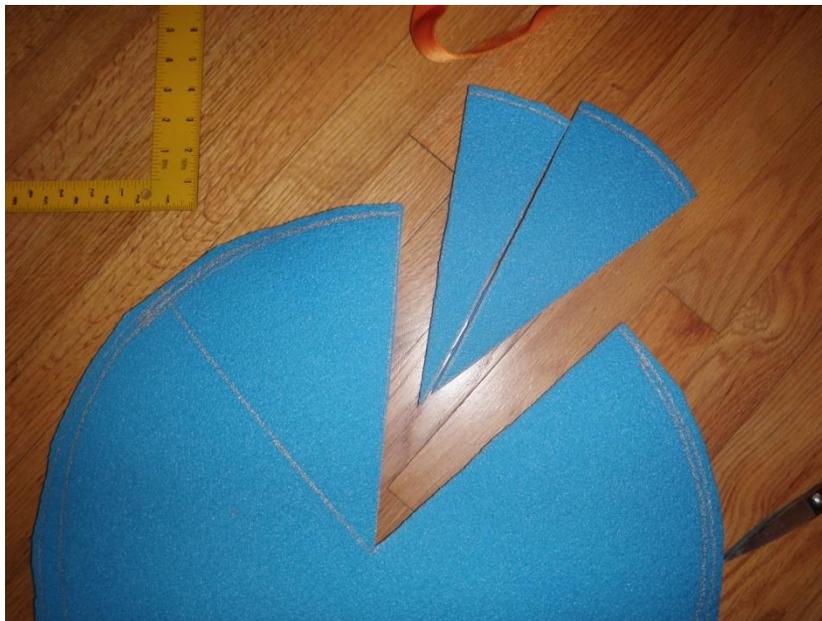


Figure 4 Cutting the foam, testing different sizes. Here the pieces I've got are  $\frac{1}{8}$  of the circle. I took out one more equally sized section to the left to make it  $\frac{3}{16}$ .

8. The final step to make this foam a hat is to add velcro so that it can hold the proper shape. I found this is achieved using two pieces of velcro, but four can be used to make it perfect.
9. Cut two pieces of hook that measure 3" and two pieces of loop that measure 2".
10. Place the first piece of hook facing down right at the edge of the circle along one of the lines you cut with 1" of the hook overlapping on to the foam. Sew a box stitch on this overlap.

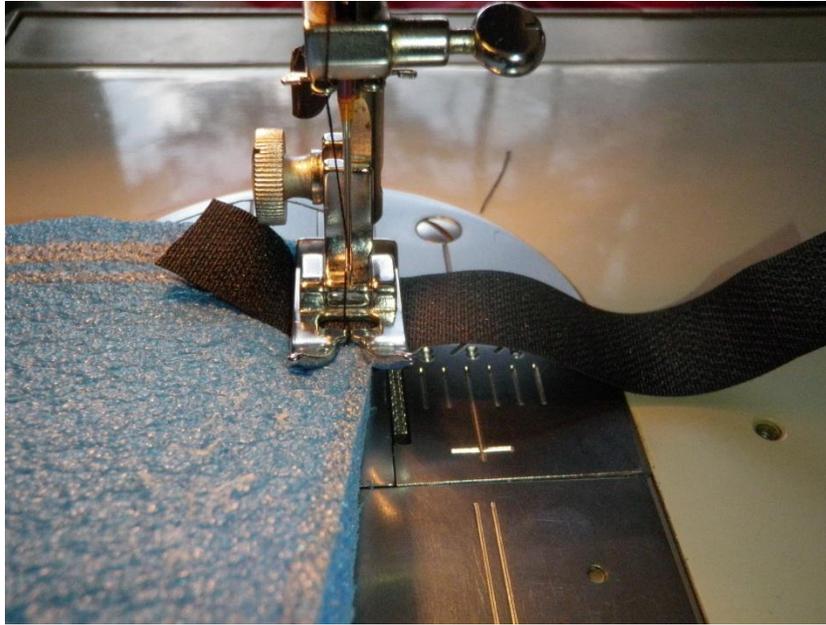


Figure 5 Sew on the hook, facing down with 1" overlap onto the foam.

11. Next, place a 2" piece of loop facing up along the edge of the other line you cut. The whole piece of loop should be on the foam this time. Sew a box stitch onto the loop.



Figure 6 The loop sewn onto the foam.

12. Repeat steps 10 and 11 for the other pair of hook and loop, except 7 ½" up from the edge of the hat this time.



### **Making the Headband**

1. Cut a piece of 3D Spacer Mesh that is 3"x17.5" long. This dimension is based on the size of my head. I measured the size of my head and subtracted about 4.5" to come up with the 17.5" here.
2. Fold this piece in half along the length, with the wrong side (the completely flat side) facing out. Sew  $\frac{1}{2}$ " from the raw edge.
3. Sew one of the two ends shut at  $\frac{1}{2}$ ".
4. Now you need to flip this piece right side out, which can prove a bit tricky because of how small it is. To do this, I used a sharpie. Push it into the end that you sewed down, flipping the entire piece onto the pen. (I will try to get more pictures of a video of this process later.) The pen should end up inside of the headband by the end.



**Figure 7** Flipping the headband using a sharpie.

5. Cut a 2" piece of grosgrain. Fold each cut end in ½" so that the piece is now only 1" long. Wrap this around the raw edge left on the headband and sew down along the folded edges of the grosgrain.
6. Cut a piece of ¾" webbing that is 3" long.
7. Thread this piece of webbing through the loop on the non-adjustable side of the buckle and sandwich the headband (either end works, but I chose what would be the "left" side of the headband personally) between the webbing with a 1" overlap. Be sure you are melting the raw edges of any webbing or grosgrain with a lighter to help prevent fraying.



Figure 8 Positioning the buckle onto the headband. You can also see the grosgrain I used to hide the raw mesh in green.

8. Sew a zigzag stitch through all the layers covering the raw edge of the webbing and another straight stitch near the edge of the 3D mesh.
9. Cut a 9" piece of ¾" webbing. Place it on the other end of the headband on what will be the outside, with a 1" overlap. Sew a zigzag stitch covering the raw edge of webbing and a straight stitch near the edge of the 3D mesh.
10. Place the adjustable end of the buckle on this webbing, and the headband is done.

### Attaching the Headband

Warning: This is where the part that seems a bit vague and un-measured rears its ugly head.

1. Find the sides of the headband by sandwiching it together with the center of the adjustment in the back, matching the center of the front. Where the sides are folded are the approximate sides. Mark these two points.
2. Cut two 4" pieces of ¾" grosgrain.
3. Sew one of the pieces perpendicular to the headband at each mark. The webbing should overlap the entire height of the band and on the outside of the band. Sew a box stitch or two bartacks to keep it in place.



Figure 9 The webbing attached to the head band. I used two bartacks to attach mine

4. To find where to sew these pieces to the hat, put the hat on with the seam at the back of your head. Take your hand, with you index finger pointing up, and put it on the side of your head, just in front of your ear. Wherever your finger touches the hat is where to attach the webbing. This is not an exact science, and having it absolutely important should not affect how the hat wears.
5. Sew the webbing on the headband to the hat in these two places with a 1" seam allowance.

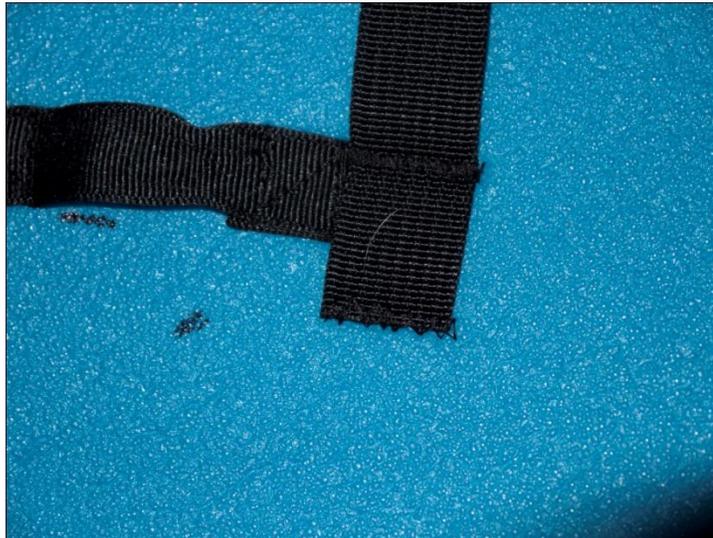


Figure 10 The webbing sewn to the hat. The top stitch here is where I put the mark to sew. I folded the rest to the outside of the hat and sewed a zigzag across the raw edge.

6. The above steps keep the hat steady horizontally. To keep the hat steady from front to back, I decided against webbing and went with a piece of shockcord wrapped through the band. So first cut two 5" pieces of  $\frac{1}{2}$ " grosgrain.
7. Fold each raw edge of one of the pieces under itself 1". Sew the piece right in front of the webbing, and perpendicular to it. Sew the edge touching the webbing first with a box stitch or two bartacks.

8. Measure 2 ½" from the webbing and mark that point. This is where you put the folded edge of the second side. This will leave a slight bump, creating a loop to tie cord.

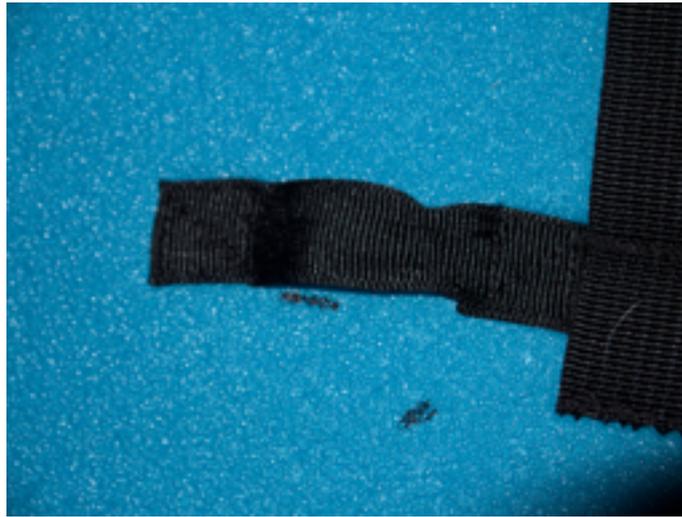


Figure 11 The grograin loop placed onto the hat for the shockcord. It should be place perpendicular to the webbing from the headband, close to the front of the hat.

9. Take a piece of shockcord 15" long (this length may or may not work for everyone, feel free to experiment), and tie it into each of the two loops just formed.
10. Wrap the around the back of the headband once. When the headband tries to pull forward on your head, it will hit this piece and hold still. It has so far worked very well for me.

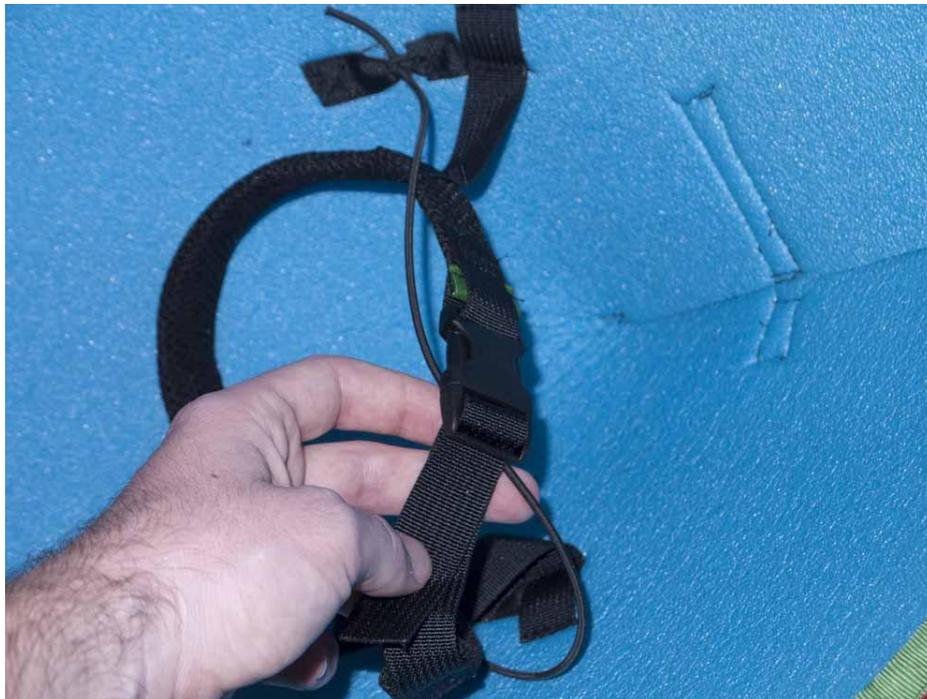


Figure 12 You can see in this picture that the shockrod is tied to the loops and then weaved through the headband to hold it in place.

## Making the Slip Cover

1. Place your finished hat flat onto a piece of silnylon and trace it out.
2. When you cut this out, leave a seam allowance along the two straight edges that is  $\frac{1}{2}$ ".
3. Sew these two edges together using a flat felled seam. This will resemble the exact way the hat itself is formed.
4. Cut another piece of silnylon that is  $2\frac{1}{2}$ "x  $53\frac{1}{2}$ "
5. Roll the hems at the end of the silnylon (the short edges).
6. To sew this piece to the remainder of the cover, wrap the strap around the bottom edge of the shell as shown in the image below. This part can prove a bit trying because the strip of silnylon will not want to curve with the edge of the cover. You will have to more or less force it to do this. Go slow and be patient.

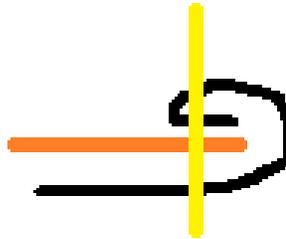


Figure 13 Looking at the stitch to attach the cord holder to the clip cover. The orange is the cover, the black is the cord holder, and the yellow is where you should sew.

7. Cut a piece of grosgrain that is 52" long.
8. Wrap the grosgrain around the unfinished edge of the now attached strip of silnylon, top stitching it into place along the edge of the grosgrain.
9. When you get to the last inch or two, stop sewing. Cut a piece of shockcord that is 49" long and tie an overhand knot at one end.
10. Feed the other end into the grosgrain channel you just made. To make this process easier, starting feeding the cord from the same side you started the sewing of the channel. When the knot you tied is inside of the channel, sew vertically across the channel so that the cord cannot slip farther in.
11. When the unknotted cord appears out of the other end, tie that end off as well.
12. Finish sewing the grosgrain down, keeping the shockcord inside of the channel the whole time.