

# Finishing the hat

*The math hatter puts her pattern to work*

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IF YOU COMPLETED the exercises in the math and millinery pattern-making feature from the previous *Teaching Theatre* (“The Math Hatter”), then you should have a hat pattern made of paper that you can use to finish your creation. These instructions — a simplified version of a common hat-making method typically done with buckram (a stiffened canvas) and millinery wire — are intended for novice to moderate sewers. Those with more sewing experience can make a buckram and wire hat following instructions from a book on millinery or from online tutorials.

## Materials

To use the paper hat pattern you created as instructed in “The Math

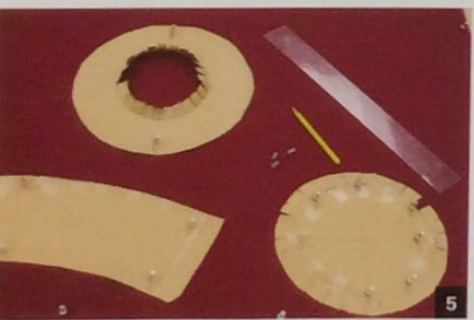
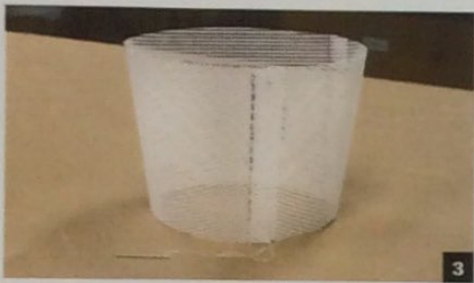
Hatter,” featured in the summer 2017 issue of *Teaching Theatre*, check your local craft store for the following items, which will make one hat.

1. 2-3 large, heavyweight plastic needlepoint canvases, depending on hat size
2. Heavyweight thread (i.e., button-hole thread)
3. Regular sewing thread in a color matching your fabric
4. Large sewing needle (i.e., small needlepoint needle)
5. Regular hand-sewing needle
6. Permanent marker
7. Lead or colored pencil to mark fabric (dark fabric needs a light-colored pencil)
8. Clear grid ruler
9. Straight pins
10. Sturdy scissors to cut plastic canvas
11. Scissors to cut fabric
12. ½ yard of fabric (more for a larger hat)
13. 24 inches of ribbon at least one-inch wide, depending on hat size

## Optional items

1. Sewing machine
2. Hot glue
3. Double-fold bias tape or narrow trimming to cover the outer edge of hat brim
4. Other trimming or hat decoration, as desired
5. Millinery wire or other fairly heavy wire, like a lightweight coat hanger





## Working with the plastic canvas

Step 1: Lay out the paper pattern pieces on the plastic canvas. Trace your crown sides piece as is, including the one-inch overlap. Trace your brim and crown top pieces minus the tabs. If any pieces are too large to fit on one sheet, overlap two pieces of plastic canvas by about an inch and join them using glue or sewing with heavy thread. Pin or weight the pattern pieces to hold in place (Figures 1 and 2).

Step 2: Trace the pattern pieces using a marker. Mark a line where the two canvas pieces overlap, if using two pieces together.

Step 3: Cut out the pieces from the marker line's *inner* edge, so that the line doesn't show and the cut canvas piece ends up the exact same size as the paper pattern.

Step 4: To sew together the plastic canvas piece, use the large needle with heavy thread. Pull the thread through the needle and tie the two ends to each other with an overhand knot. To begin sewing, poke the needle through one spot and out another, forming one stitch. Before you pull it all the way through, poke the needle through the loop of thread to anchor the end.

Whipstitch the pieces together.

To tie a knot when you finish (or run out of thread), make a stitch and go through the loop before you pull it tight. Do this twice more in the same spot, going through your previous stitch.

Then cut the thread near your knot — but leave a small tail, so it doesn't come untied. The stitches can be quite large, and as long as they are strong, they don't have to be pretty, because they won't show.

Step 5: Join the crown sides piece to itself, overlapping one inch (Fig-

ure 3). Double check the hat's fit before you go any further.

Step 6: Join the crown top to the crown sides with a blanket stitch — similar to a whipstitch, but you go through the loop of thread each time before you pull it tight. These stitches can also be large (Figure 4).

Step 7: Check to see if the hole in your brim fits around the outside of your crown's bottom edge. Most likely you will have to trim around 1/8 inch off the hole, as the canvas is much thicker than the paper.

Step 8 (*optional*): If your brim is very large, or you want to sculpt the edge, curve some wire to the shape of the brim's outer edge. Overlap the wire about an inch or two and tape it together. Stitch the wire to the brim using a blanket stitch. The wire should sit just off the brim's edge brim — not on top of it.

## Moving on to fabric

Cover your hat with fabric thick enough to hide the texture of the canvas underneath. Fabric that is not slippery or wiggly is the easiest to work with. As shown, I've used a basic cotton fabric that's a notch heavier than standard quilting fabric. You can also use felt, especially if you are gluing rather than sewing the fabric.

Step 1: Line up your brim and crown top pattern pieces so that one of the straight (axis) lines is parallel to a straight edge of the fabric (Figures 5 and 6).

Step 2: Trace the pattern pieces on the fabric's "wrong" side (i.e., the side that will be hidden from view). The "correct" side is the one that will be visible.

Step 3: For the crown top, trace the outer edge of the tabs. If you are using felt, then trace the shape without



the tabs. For the crown sides, trace your paper pattern, adding a line that's  $\frac{3}{4}$  inches above and below the top and bottom edges.

For the brim, trace the shape itself and the edge of the tabs at the inner edge. If you are going to sew the brim's outer edge, add  $\frac{3}{4}$  inches past the outer edge. You will need two brim pieces. You can trace it twice or fold the fabric in half before cutting out that piece (Figure 7).

Step 4: Wrap the crown sides piece of fabric around the canvas so that you can just see the line on the fabric at the canvas edge. Overlap the fabric, tucking the top edge under, and pin in place (Figure 8). Glue or sew the fabric to itself along the join. If sewing, the most invisible method is a slip or ladder stitch, where the needle slides from layer to layer. Sew with regular thread and a regular-sized needle (Figure 9).



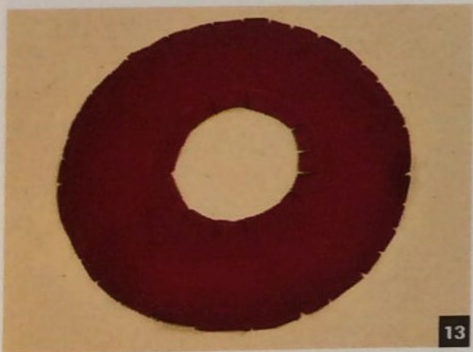
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## Hand sewing vs. gluing

PROFESSIONAL MILLINERS do most hat construction sewing by hand, although gluing is easier and faster for those with little sewing experience. I recommend hand sewing, especially for the plastic canvas steps, because it allows you to adjust your work as you go and to easily correct mistakes. Shapes can be finessed, and the hat's fabric cover can be pulled perfectly taut. I also find sewing more structurally reliable, as glue can pop open — and hot glue burns hurt! When hand sewing, any time you are running out of thread, tie a knot to end your stitching and restart where you left off with a new piece of thread. It's not necessary to sew seams with one continuous piece of thread.

Step 5: Fold the fabric's edge around the crown's bottom and glue or sew in place later (Figure 10). If sewing, use a running stitch, which is a basic in-and-out stitch. The stitches can be large, because they will get covered. If your fabric is very thick, tuck it under itself — but not around the canvas, so that your hat doesn't get too tight.

Step 6: Unless you are using felt, tuck the edges of the crown top fabric under and pin to the top edge of the crown sides fabric. It works best if you first pin at four spots (i.e., north, south, east, and west), then pin halfway between those, and then pin closer together, gradually curving the fabric into shape. The pins hold best — and are less likely to stab you — if you put the pinheads at the outer edge and the pinpoints toward the center.

Glue together or sew (using a slipstitch) the fabric. Whether sewing or gluing, work your way gradually around, removing the pins as you go (Figures 11 and 12).

Step 7: Attach your brim fabric in one of the following two ways.

1. If you are going to sew your brim fabric, then I recommend us-

ing a sewing machine. Pin together the two layers with the "right" sides toward each other. Sew just outside the brim's outer lines, allowing room for the canvas thickness. Trim the seam allowance to a generous  $\frac{1}{4}$  inch and cut small "v" notches right up to your stitching line (Figure 13). Turn the fabric inside out. The seam should then be on the inside. Slip the brim canvas inside the sleeve you just created. Make sure that the narrow ends of the ovals in the canvas and fabric align.

2. If you are going to glue your brim fabric, then put a narrow line of glue around the outer and inner edges of the canvas and place the canvas on one of the fabric's wrong sides. Make sure your ovals align correctly. Glue the second piece of fabric on top, also with the fabric's wrong side toward the canvas, forming a sandwich. Cover the outer edge with a narrow piece of trim or use double-fold bias tape glued around the edge (Figures 14 and 15). My sample shows half and half of both styles. You can certainly decorate the outer edge of your brim, even if you use the machine-sewing method.

Step 8: Cut slits in the fabric at the brim's inner edge, up to the canvas



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(Figure 15). Put the crown's bottom edge through the brim's center, being sure to align the narrow ends of the crown oval with the narrow ends of the brim oval. Pull the extra fabric at the brim's inner edge to the crown's outside. Pin the brim fabric to the fabric of the crown sides (Figure 16). Make sure that the crown's bottom edge aligns nicely with the brim, so the bottom of the hat is flat (Figure 17).

Step 9: Glue or sew in place with large running stitch stitches. These stitches won't show.

Step 10: Put a piece of ribbon as a band around the crown's base, tucking the top edge under the overlap. Secure with glue or a few stitches. This will cover the fabric tabs and give your hat a finished look.

Step 11: Add any additional decoration you desire. **T**

## New to sewing?

IF YOU DON'T have a lot of experience with hand sewing but are eager to learn the stitches described in this article, these YouTube video tutorials can help you get started.

### Hand-sewing basic stitches and techniques (Nutty Crafter)

This video includes a helpful knotting demonstration and showcases two kinds of stitches: a basic, in-and-out running stitch and a blanket stitch, which you will need to attach the crown top to the crown sides and to attach wire to the hat brim.

### How to hand sew an invisible stitch (OnlineFabricStore.net)

This video also includes a knotting tutorial and instructions on how to sew an invisible slip or ladder stitch. Using an invisible stitch to sew the fabric of your hat will give your hat a polished appearance.

### The whip stitch (WAWAK Sewing Supplies)

This video features a clear demonstration of a whip stitch that you can use to sew together the pieces of the plastic canvas that form the structure of your hat.