

Topologically Equivalent Surfaces

Topologically Interesting Felt

How to make a Möbius bracelet with wool
by Gwen Fisher

Materials

Materials: Wool roving, fine natural fiber fabric that is easy to needle (silk georgette or cotton cheese cloth)

Tools: Barbed felting needle, scissors, thick foam (upholstery), soap, water (preferably hot), towel.

Instructions

First, learn how to make a Möbius band in felt.

1. Cut a rectangle of fabric. To make a bracelet, medium size for a woman, cut the rectangle 9" by 1". Expect the wool to shrink 10% to 25%. Also expect the unexpected because the exact shrinkage of wool during the felting process is challenging to control.

2. Place fabric flat on a piece of foam.

3. Layer wool onto the fabric. To do this, pull the wool with your fingertips, little tufts at a time. Spread apart the fibers in the tufts, and layer them over the fabric. Slightly overlap all of the edges of fabric with wool. Make a few layers of wool that go in different directions. Try to make the wool pile evenly thick, just barely thick enough that you can't see the fabric underneath.

4. Needle felt the wool into the fabric. To do this, use the needle to stab through all of the layers to push the tufts of fiber into the fabric. Do this evenly across the entire piece, rather than focusing all on one spot. You have poked enough when the fibers all hold together well enough to withstand a few shakes.



Seifert Surfaces of Trefoils



Möbius

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Figure 1



Figure 2/3/4

5. Peel the whole strip off of the foam. Flip it over. To neaten up the edges, roll the fiber up and over the edges. Do not do this at the joins. Anywhere you will join two edges, leave the fiber fluffy there. Needle felt the edges.

6. Repeat steps 3, 4, and 5 to add wool to the other side. You can use wool that is the same color or a different color. If you use different colors on opposite faces, neaten the edges without rolling the fiber over the edge.

7. To make a Möbius strip, twist the band with a half turn, and join the ends. To join the ends, peel apart the layers at the ends, neatly layer the fibers together, and needle felt through all of the layers to secure. Add more wool if necessary to secure the join and make it look neat.

8. Once all of the wool is held into place, put away your needle. The combination of needle felting and vigorous wet felting permanently binds the fibers together, making the finished object very durable. Actually, you can needle felt without wet felting, but wet felting is much faster. Plus, wet felting is magical to watch and do with your hands. So, get the piece wet. Hot soapy water works fastest, but you can still wet felt with just cold water.

9. Gently rub a single layer of the surface between your fingers, keeping the flat parts flat. After you rub the whole piece, lightly crumple it into a ball, and roll it a little.

10. Open the piece back up, tugging on the surface to pull it back into shape. Repeat step 9, this time with a bit more pressure.

11. Repeat step 10, this time with more pressure still. Keep agitating the wet wool to felt it as much as you'd like. There is a point when the wool is fully felted and shrinks as much as possible, but you can stop before that if you want.

12. Stretch and tug the piece into the shape you want it to be. Let it dry.

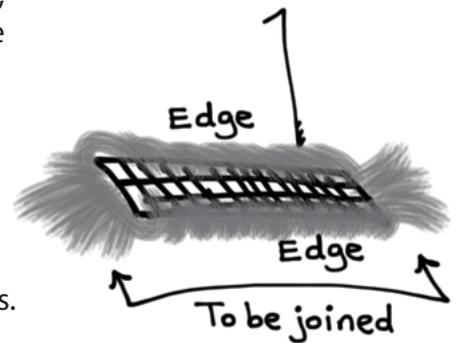


Figure 5



Figure 6



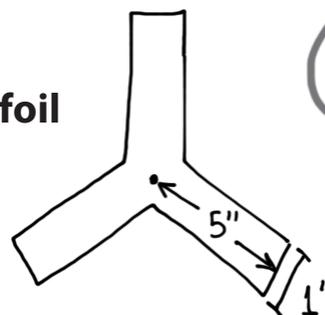
Figure 7

Variations & Inspirations

Use a fabric armature in different shapes or join multiple strips together to make other topologically interesting surfaces. Use a Y-shape as shown to make a Seifert surface for a trefoil knot.

Couch yarn with a needle and thread along the edges to emphasize the edges of pieces with more than one edge.

Trefoil



Cut Fabric



Twist and Join