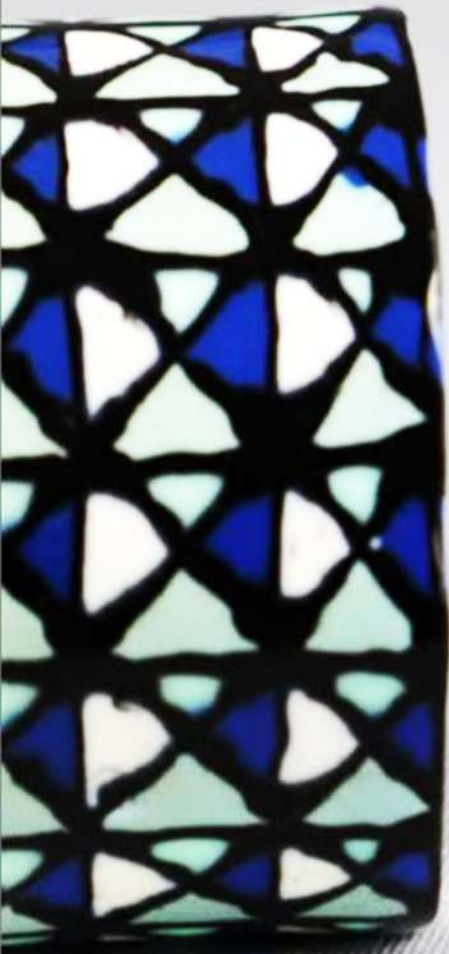




BRACELET

3D PEN TEMPLATE



Thank you for your purchase!

Enjoy our 3D pen stencils. They are meant to serve as guide to make 3D pen creations more accurate and enjoyable. You can use them free hand, but they work best with our **3Dmate BASE Design Mat**

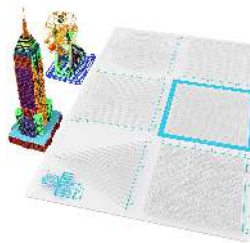
- **Free hand** - place the stencil on a flat surface and trace the printed lines with the 3D pen (you may cover the printout with parchment or tracing paper). Once filament cools, remove the pieces from the paper and fuse them together as instructed.
- **3Dmate BASE Design Mat** – the easy way to improve the quality of your creations. Place the stencil under the mat, draw within the indicated grooves. Once the filament cools, bend the mat and remove the piece and fuse together with other parts as instructed. Enjoy your perfect 3D creations.

NOTE: These and additional stencils are available for download at: www.the3dmate.com/projects. Please enjoy.

3Dmate BASE can be purchased on Amazon.

Search for keyword:

“**3Dmate BASE 3D Pen Mat**” or use the QR code:



Choose 3Dmate BASE branded mat to assure stencil compatibility.



Please leave us a review on Amazon.

Your review helps other customers and is greatly appreciated.

Get all the filament colors needed to complete this creation and more!

Buy Filamate 36 color PLA filament pack on Amazon at: www.bit.ly/filamate-stencils



You can find helpful YouTube video guide showing how to complete this stencil here:

www.bit.ly/3dmate-yt-bracelet



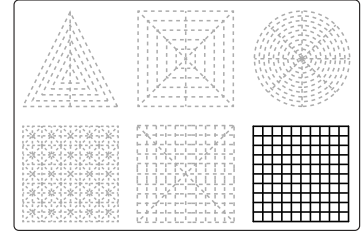
3Dmate BASE design mat is available on Amazon at:
www.bit.ly/3dmate-base-stencil



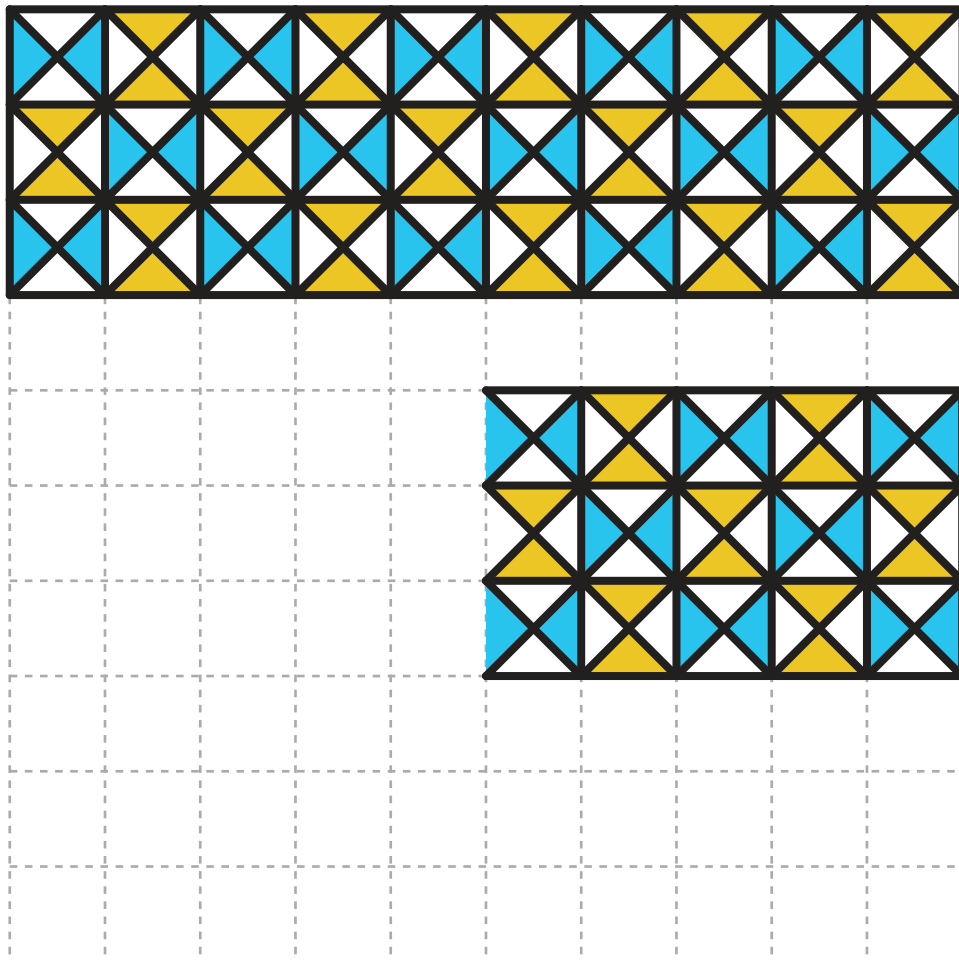
Video Tutorial Available at:
www.bit.ly/3dmate-yt-bracelet



Lower Right Square



Recommended filament colors:





Creating projects with 3d pen becomes even more versatile when it is used together with some simple heat processing techniques. These expand the possibilities of the final surface texture of the finished piece beyond the "stringy" look created by using the 3d pen alone. The bracelet project introduces two of them, baking and hot water forming. Additionally this tutorial demonstrates how to make pieces longer or wider despite the seaming size limitation of the templates to 5"x 5".

You will need:

- 3 d pen
- 3 d mate mat
- 3 colors of PLA filament
- (This project was not tested with other kinds of plastic.)
- filament cutter
- (big scissors or pliers that produce a straight cut)
- small scissors (or your favorite tool to cut stray "hair" -
- wood burning tools with variable
- temperature control work well for this job)
- baking surface (ceramic tile or cookie sheet)
- baking liner (silicone mat or parchment paper)
- oven mitts
- toaster oven or household oven (not shown)
- waterproof container the size of the bracelet
- (at least 7.5"x 3", loaf pans work well)
- tongs
- rubber gloves
- electric or stove top water kettle (not shown)
- 2 rubber bands
- bracelet sized form (bracelet blank or a round container
- 7.5" in circumference, most beer bottles
- with the label removed are the perfect size)
- kitchen thermometer (candy or meat kind, optional)



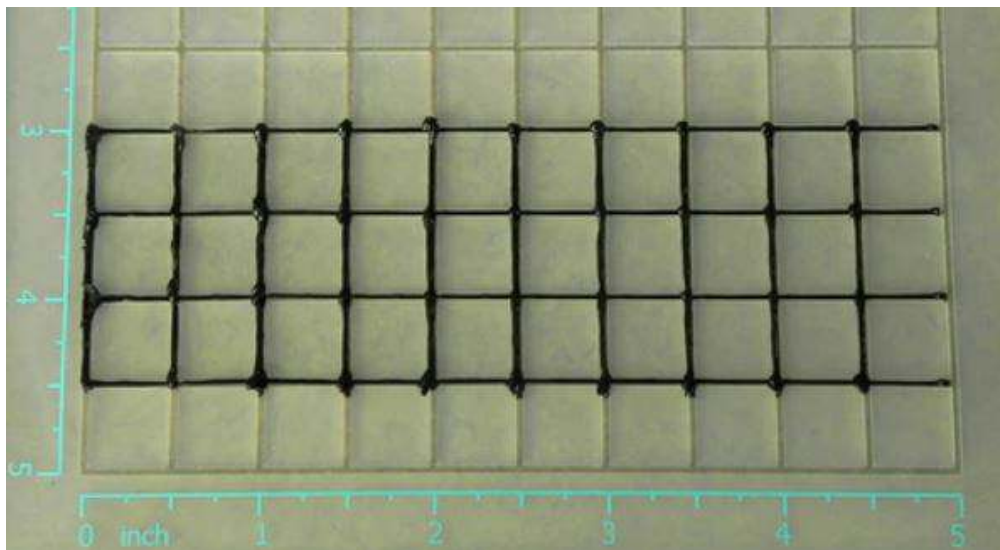


Expanding templates

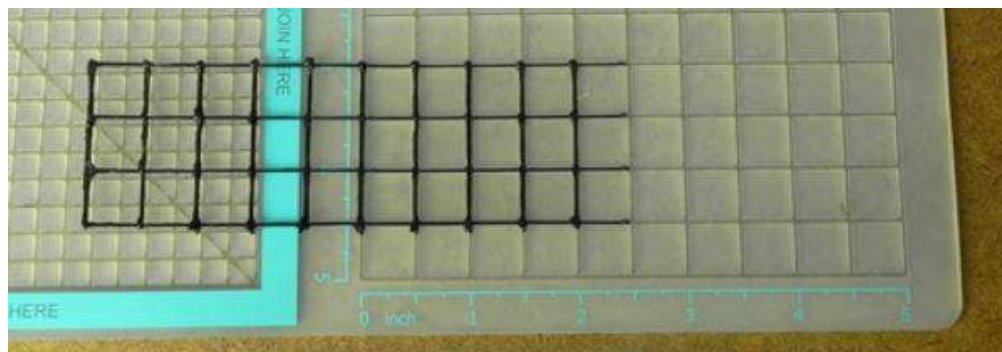
Standard adult size bracelet length is 7.5" so the first thing you get introduced to in this tutorial is how to make a project that is longer than the apparent 5"x 5" square provided by the mats templates.

Fortunately this size limitation is only an illusion and you can achieve practically unlimited size projects with seamless extension in either direction.

When making a longer piece always allow for at least an inch of the previously finished grid to snap back into the grooves to ensure perfect alignment of the continuing lines with the previous segment.

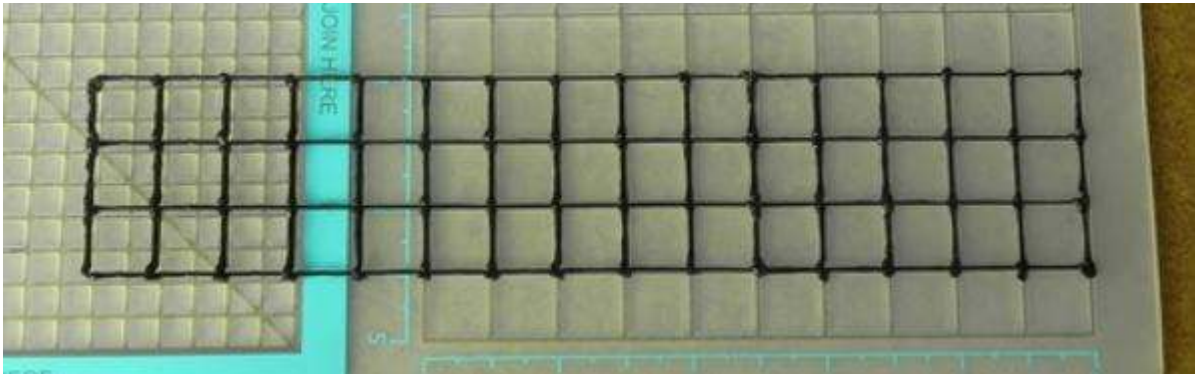


Using the lower right corner template start by tracing four parallel lines 5" in length and connect them with perpendicular lines at all available grooves except the last one. Cool completely before removing the piece to prevent distortion.

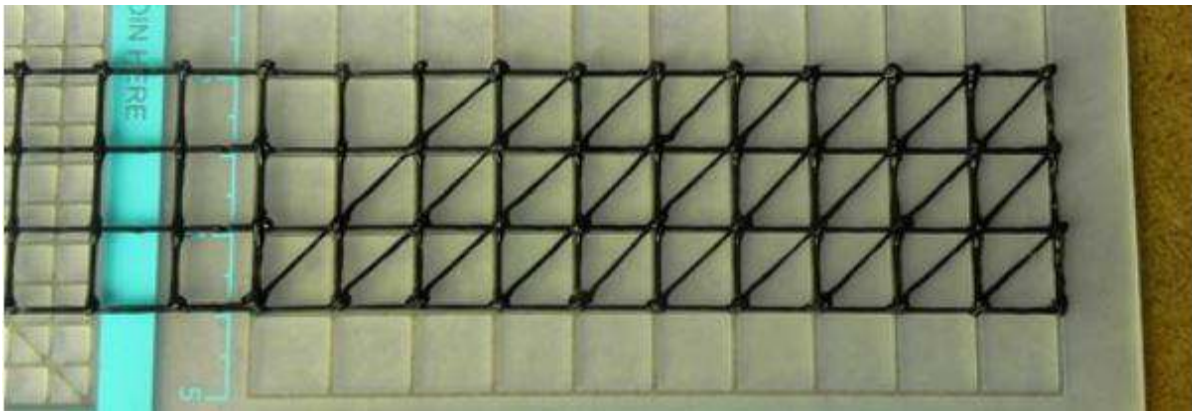




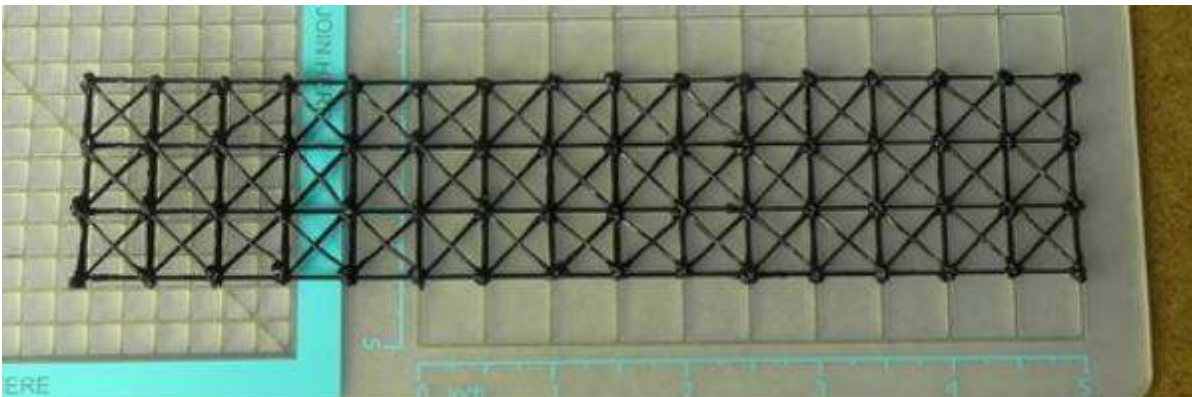
Snap the grid back into the grooves ending at the midpoint of the template so the resulting length of the finished piece equals 7.5"



Continue the horizontal lines as seamlessly as possible to the end of the mat and finish the grid to the total of 7.5" x 1.5" size.

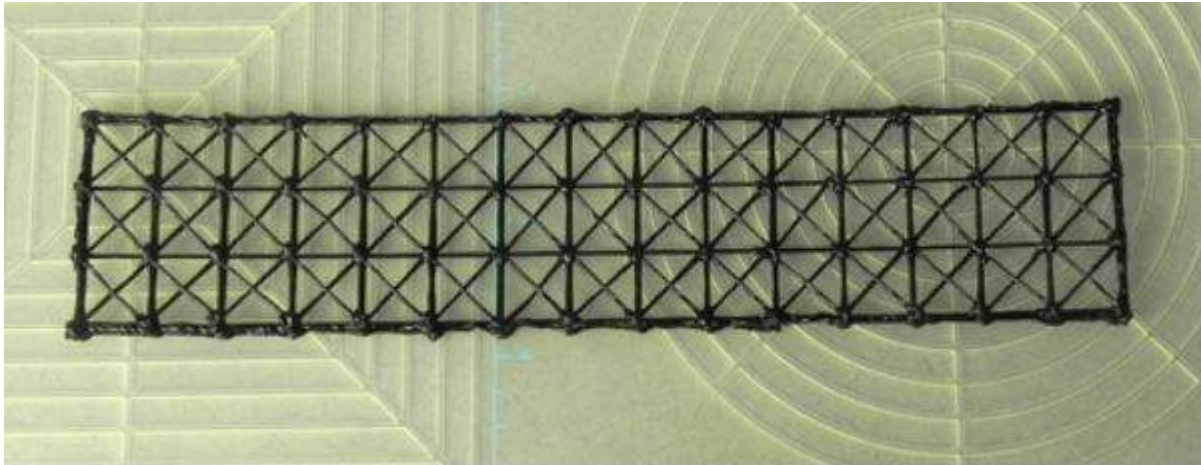


Continue with adding the diagonal lines through the squares of the pattern in both directions snapping the the grid back and forth into the template as needed.





There are no grooves in this template for diagonals but once the groove lines are traced it is easy to attach the subsequent free hand lines to the existing structure. Just connect the corners of the squares trying to create diagonal lines of an even thickness in both directions.

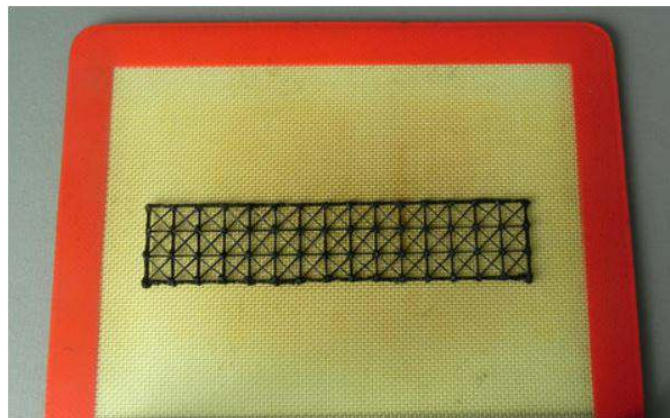


Remove from the template, place the finished grid on the back flat side of the mat, and trace with the 3d pen to double the rectangular outline. This further strengthens the structure and creates a straighter edge on the outside of the bracelet.

Baking process

Bake on a cookie sheet (or a ceramic tile) lined with silicone liner in a toaster oven (or a regular household oven) at 400°F (200° C) for about 7 minutes.

You may need to slightly lower the temperature or increase the time depending on the type of your oven and baking surface. Silicone baking liner can be replaced with a parchment paper (not to be confused with wax paper) but silicone is preferable as the parchment tends to curl up and/or wrinkle which can distort delicate designs.



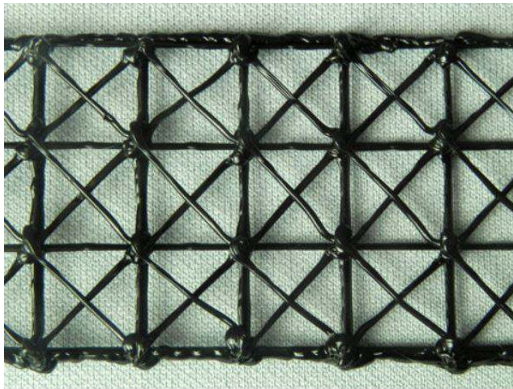


For the first 5 minutes of the baking process nothing happens, but don't walk away, suddenly in the last minute and a half or so of the baking time the lines begin to melt, even out, and the junctions with thicker globs of plastic turn into glossy jewel-like puddles.

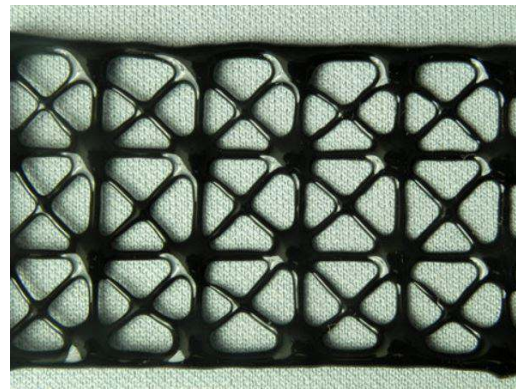
You need to monitor this process closely, and take the piece out when it looks wet and uniformly softened all over. Overcooking will make the design spread out more than intended.

Baking will fuse the grid, flatten it onto the surface, so its easier to fill more precisely, and get rid of most of the annoying hair-like plastic strands left by 3d pens.

It will also soften the scratchy sharp edges which is essential to giving jewelry more pleasant, smooth, wearable feel.



Before baking



After baking

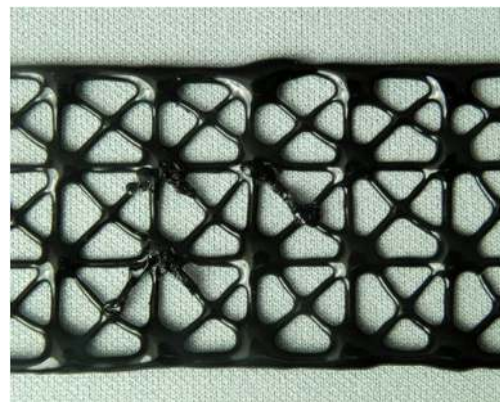
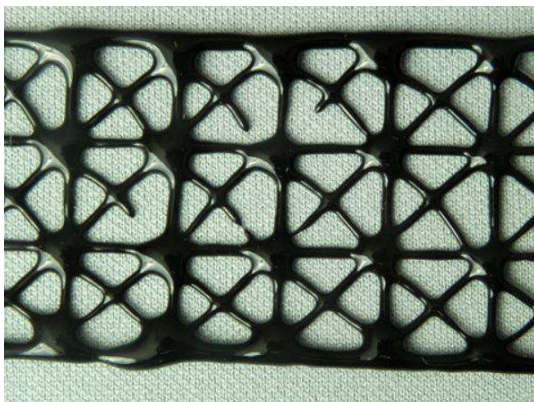
Heat is an organic, natural process, and it will make your design look more organic and natural too.

However you will trade in some of the precision.

All your triangles may not be the same size anymore, and you may even get a few brakes in the design, where the lines may have been a little thinner, and melted through.

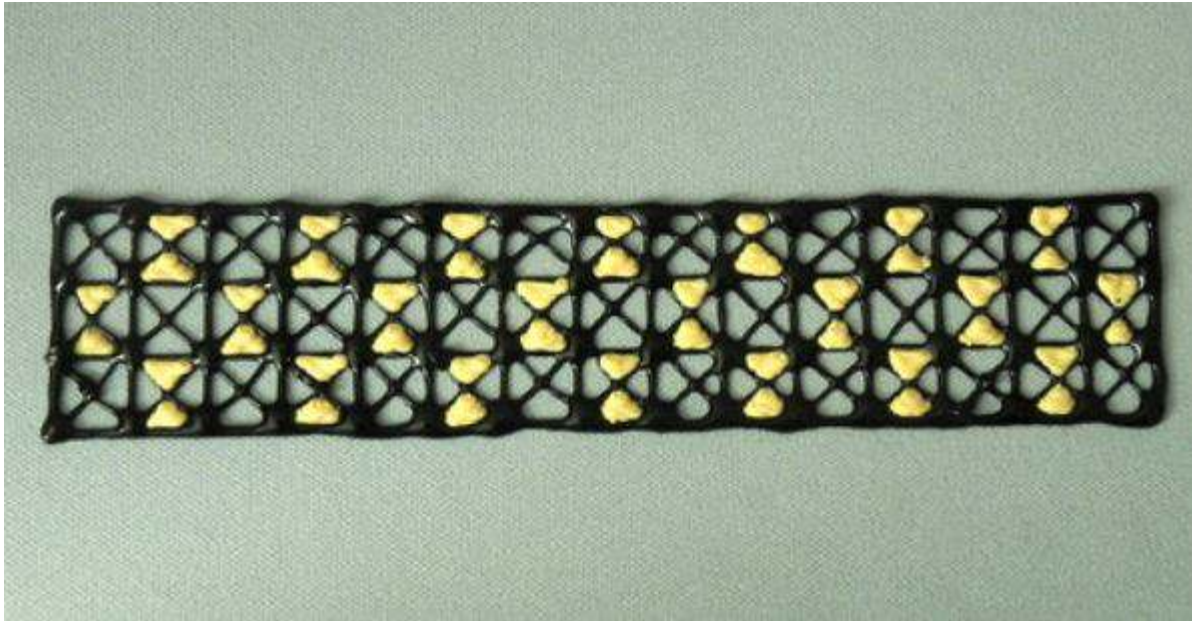
Mend all the brakes with your 3d pen before continuing.

These mends may look temporarily messier, then the melted lines, but they will recover their organic beauty during the final bake.

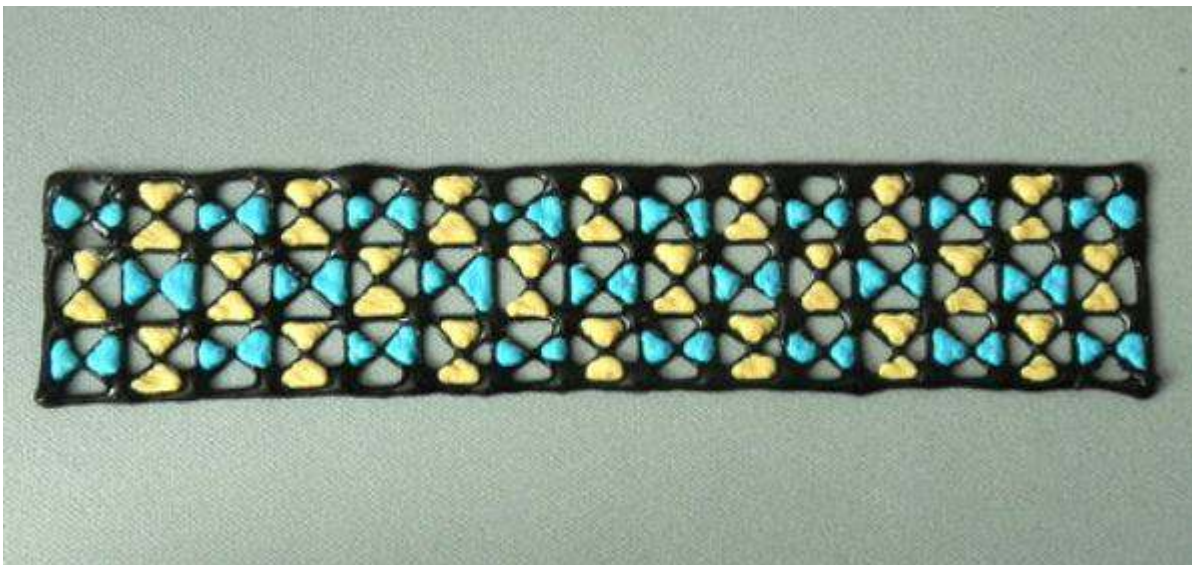




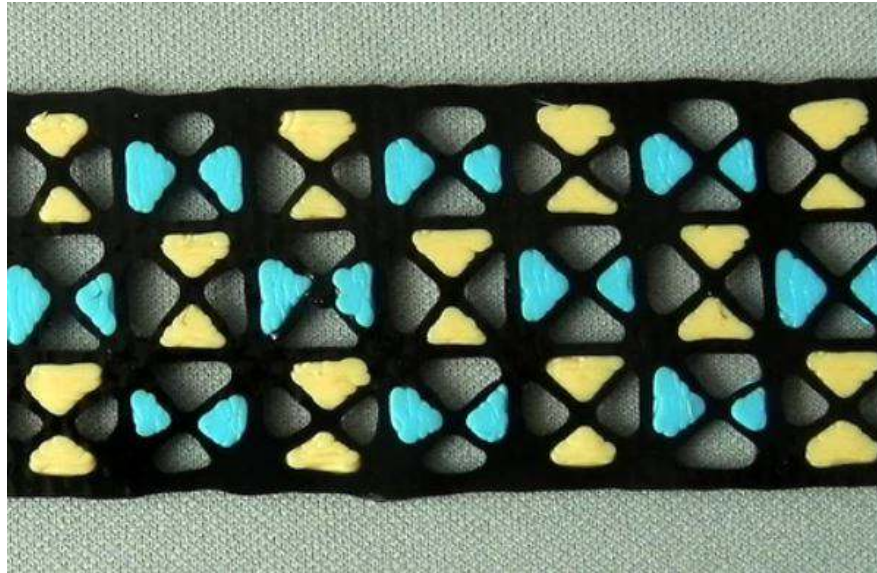
Filling the grid



Think of your design as a checkerboard. Fill in little bow ties (the two opposing triangles) in the first set of checkerboard squares with your first chosen fill color.



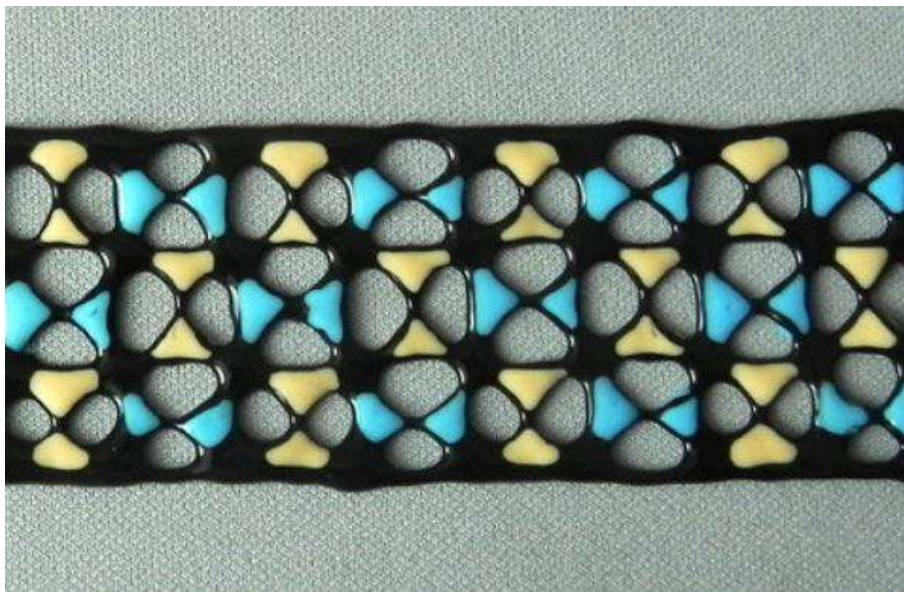
Switch to the second fill color.
Fill in the other set of checkerboard squares with the little bow ties going in the other direction (i.e. if the first set is vertical the second will be horizontal or vice versa).



Turn the project over.

The underside looks a lot more organized than the top, and probably has a lot less unruly stray plastic hair strands. You could almost stop right here, except the side that touches the skin is really scratchy. This nicer side will become the top of the bracelet so make sure you do the final bake with this side up. Remove as many stray strands as possible.

They will mostly subside into the piece during the baking process but if falling randomly on a contrasting color they might leave unwanted smudges.



Re-bake for the same time and at the same temperature as the first bake.
Cool completely before handling to prevent warping.



Although the design starts from the same basic structure provided by the mat, the variations are endless depending how you use the layers of fill, when you fuse, colors you use, and in which order.

You can truly produce one of a kind piece every time.

While there is no real limit to how many times you bake the piece, but the design does get slightly looser, fluid, and irregular with each fusing, so plan your baking wisely. Most importantly all this can be done only while the plastic sheet is flat.

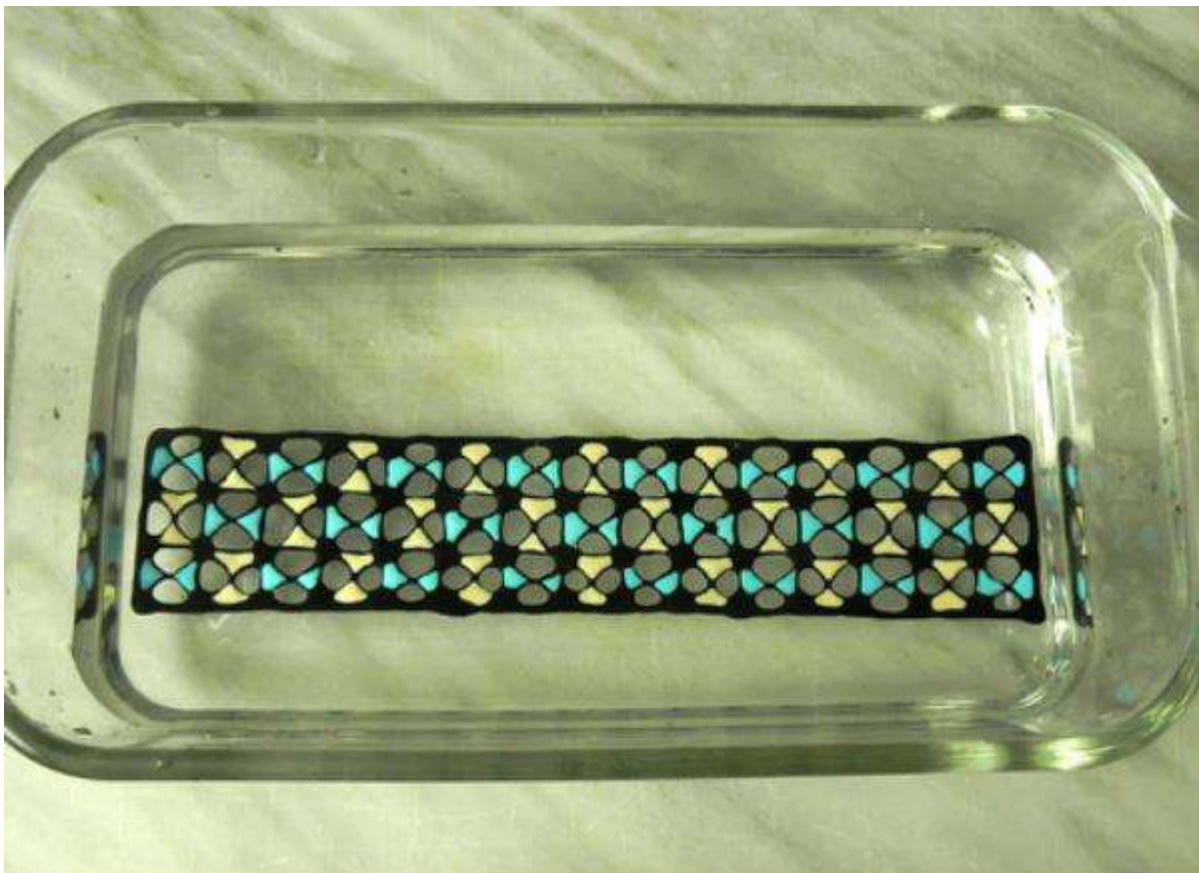
Once it is formed into a 3d object any further baking will collapse the structure.



Forming the bracelet - Hot water method

There are many methods of heating the plastic. They all have their merits in different situations, depending on what you are trying to achieve. Hot water method is called for when you need to soften large sheet of PLA plastic very gently and uniformly all over.

The optimal water temperature for this is about 150°F (65°C), so way below boiling point. Still it is slightly too hot to stick your hand in it. So don't touch it. Reach in the water with tongs, and use rubber gloves when handling the piece, even though the plastic never gets anywhere as hot as the water. Recommended tap hot water setting is 120°F so you will need to mix in a small amount of hotter water to bring it to the working temperature. As with any heat application use adult supervision when working with children.





Pour the hottest tap water you can get into your bottle. This step is meant to protect the glass from temperature stress (and accidental cracking) and also to keep it from floating in the water bath. You can cork it shut if you like. Pour some hottest tap water on the bottom of your dipping container and install the thermometer in it (if using.) Boil water in your kettle. Add some to your water bath until the temperature reaches 150°F. If you don't have a thermometer mix the boiling water approximately half and half with what is already in your container. Gently drop in the bracelet and let it warm through for a while.



Wearing the rubber gloves and using the tongs reach in the water bath and if you see signs of the plastic softening pull out the bracelet and wind it around the bottle. Do not force the plastic to bend, if it is not soft and pliable yet, you could snap it. If it doesn't wind easily, dip it in some more, or possibly add more hot water. Once the bracelet is wound around the bottle secure it on top and bottom with the rubber bands, center the ends of the bracelet so they match up, and stand the bottle back in the water bath, adding more hot water as necessary to keep the part with the bracelet submerged.

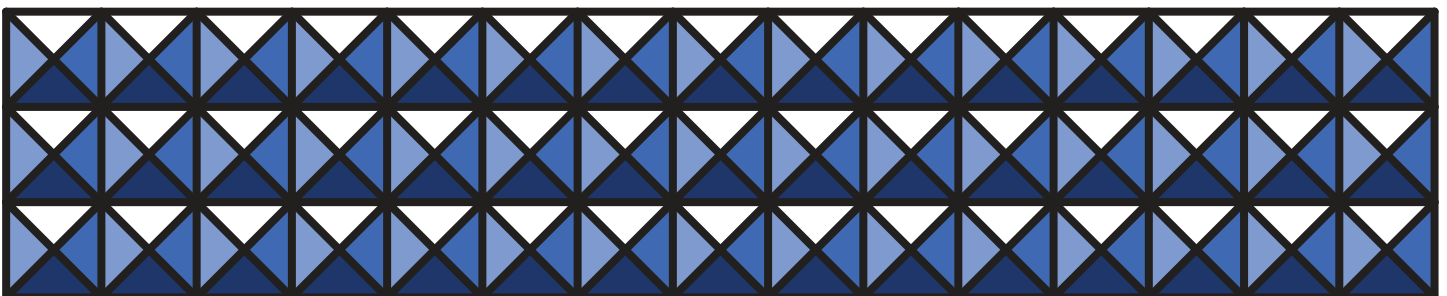
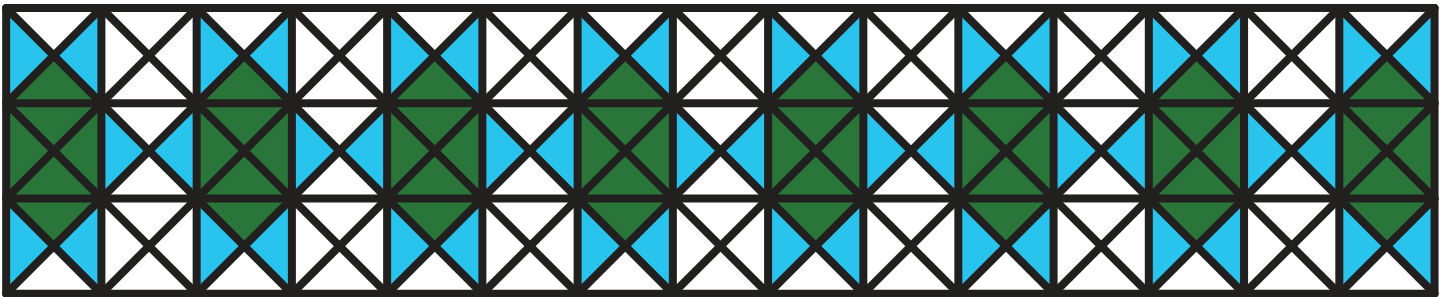
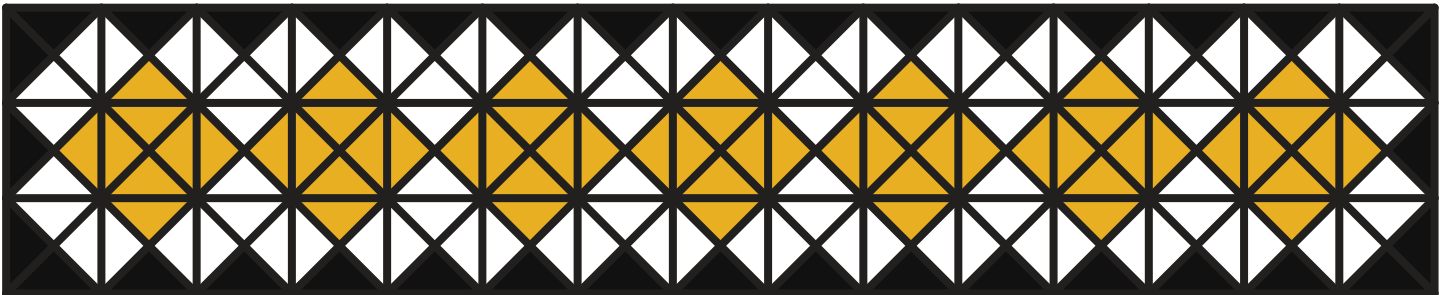
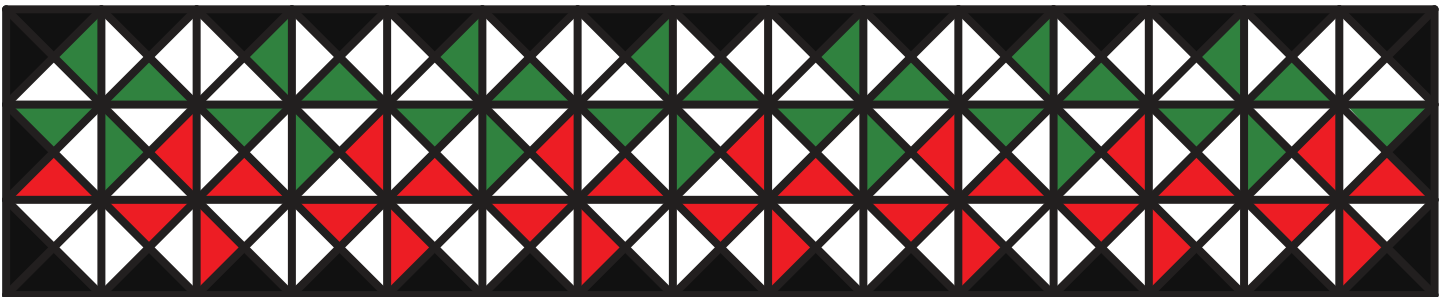
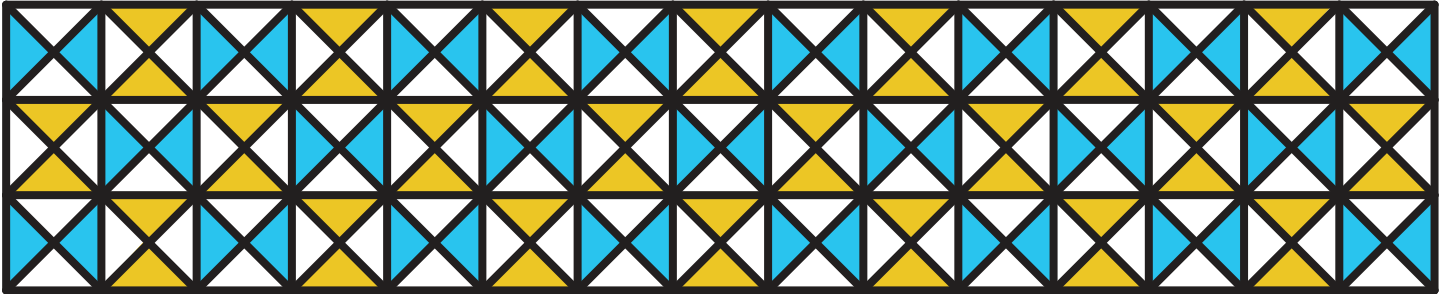
Let it sit for 3-5 minutes to finish the forming job. Remove, cool, and dry off.

Done!!!

3Dmate BASE design mat is available on Amazon at:
www.bit.ly/3dmate-base-stencil



Video Tutorial Available at:
www.bit.ly/3dmate-yt-bracelet





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