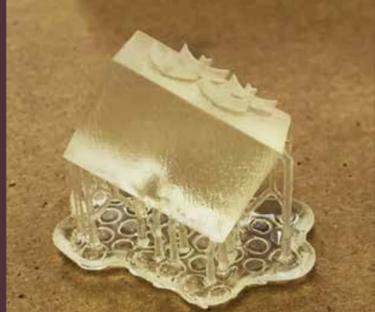
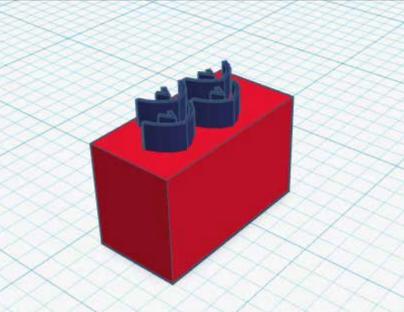


Exploring Technology through Armor

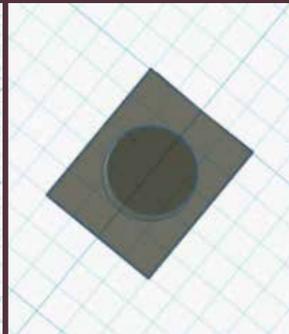
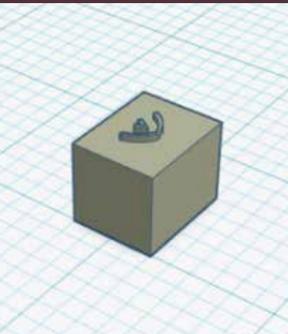
3D Printing



The 3d print of a leather tool was the biggest experiment in this whole project. The image to the left is a zoomed in portion of the original armor from the Met Museum. The first step of creating the stamp was to recreate the pattern using Illustrator's trace tool.



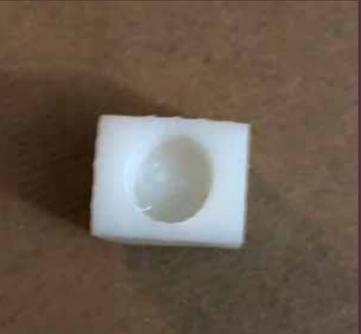
To create the file to be 3d printed the scale pattern was drafted through tinker cad. I first thought the stamp would be more efficient if the scales were in a cluster of four. The draft was printed with a resin printer which creates the shape by pulling it out of a bath of melted plastic. However once doing a sample (as seen on the right) the stamp worked but I realized that the cluster method would not work with the scale of my pattern pieces and design.



The pictures to the bottom left show the changes that were made after the first attempt. I simplified the file to just be one scale and adjusted the hole in the bottom to be the correct size. In my first attempt I also realized that the height of the scale pattern was a problem because it would just keep cracking and I would have to keep filing it down, so that was adjusted.



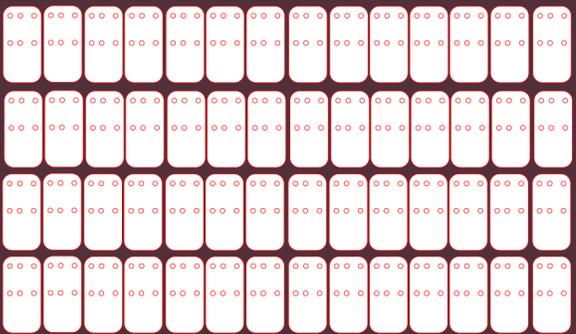
I did one last print after my second. I made the size of the scale smaller since when going from the cluster I made the mistake of enlarging the scale. At this point I was lucky because a new machine became available that would be an aid to me. After the print emerged from the resin bath it was then immediately placed in the new machine that would melt it again slightly just enough to harden the stamp even more. This was a great addition because it ensured that print lasted longer through the tooling process.



Laser Cutting



When starting this project the idea of hand cutting all of the tiles in the skirt portion of the armor was out of question. The idea of laser cutting was the solution. For my first sample of how it would work I cut just a couple tiles to get an idea of how it could work along with how to do the lacing. I discovered that my tiles were too wide, my corners to sharp, and the holes too big.



Once perfecting the file I cut the hydres into 32"x 18" rectangles which is the size of the laser cutter bed. I made sure my file also had the tiles arranged to get the most out of one of the rectangles.



I cut 2 sets of 56 tiles equaling 112, and then used scraps to cut approximately 40 more. The laser cutting process took about 2.5 hours total with no stress on my hands.