After gaining advice and insight on what has sold well from gallery shops and through my graduate show I decided to continue to explore the large faceted aesthetic and its relationship to the making process.

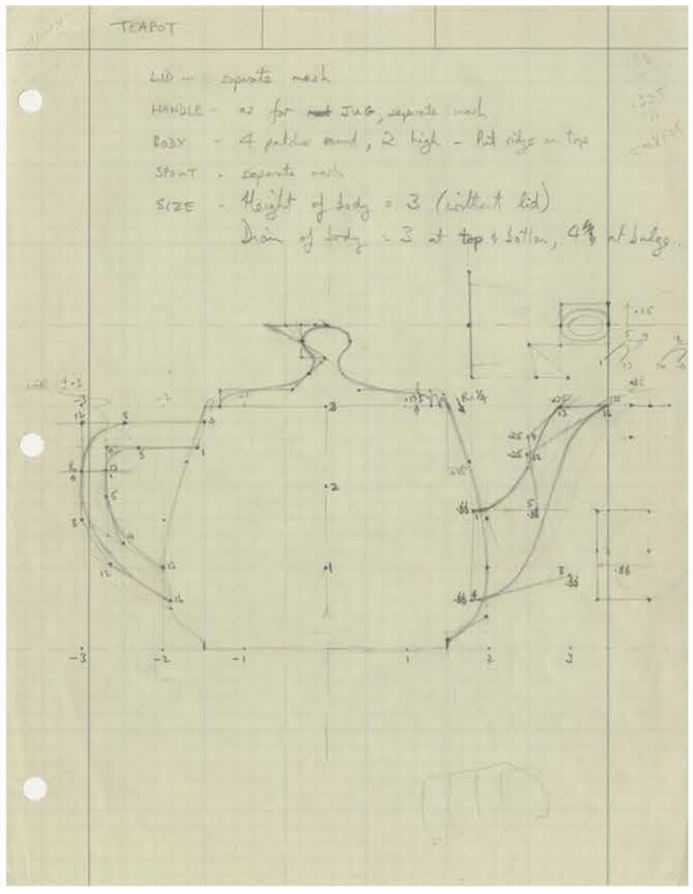
Oliver Turnpenney

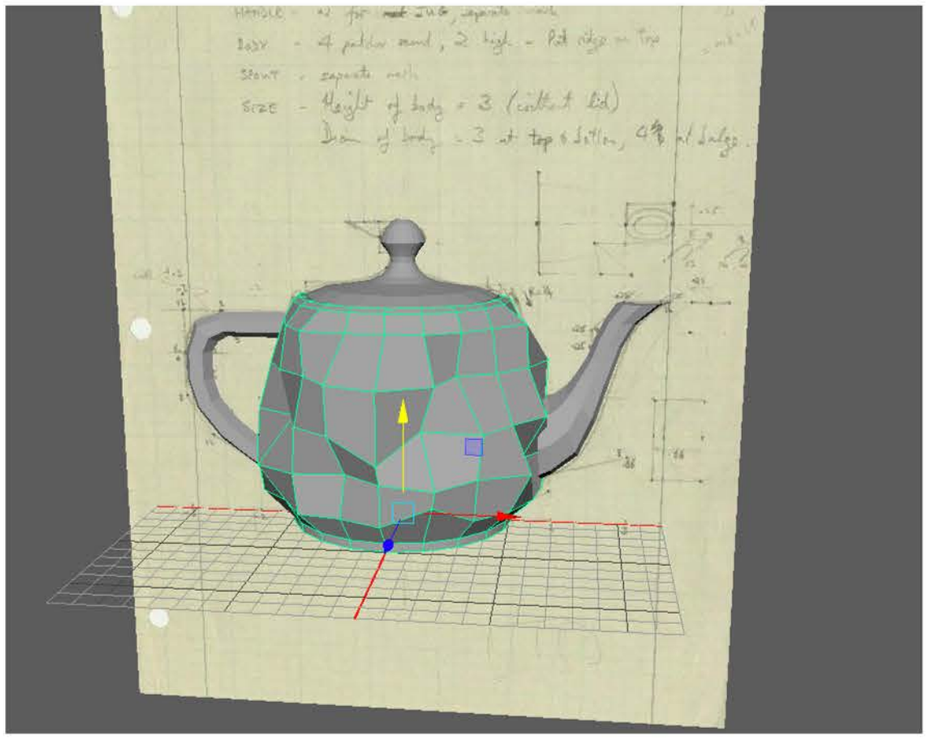
Design MA

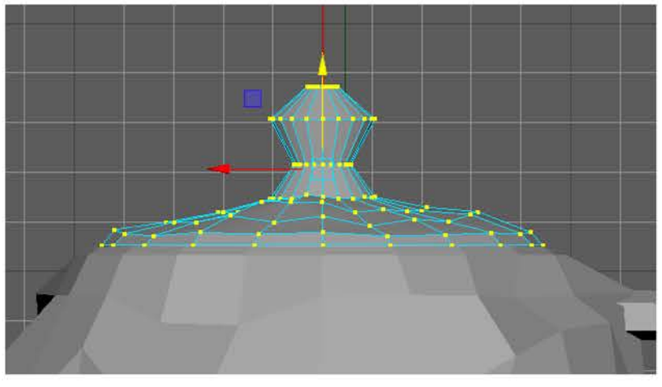
Purpose + User

The Utah teapot is a historical object to work from. It was first inputted to a computer to develop algorithms around rendering, However the teapot itself has become more iconic and used as a symbol of this work, whereas the algorithms are used everyday.. The symbol has appeared in movies like toy story, and has also made appearances in ‘pipes’ the windows screen saver. The object is also an icon to programmers and coders who call the teapot a hello world program, This is one of the first things programmers learn to do.

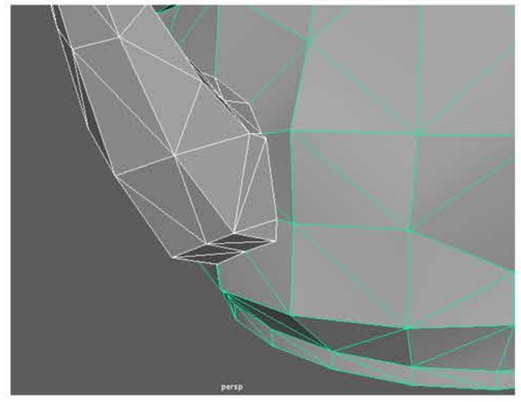
I started to model the teapot based on the original drawing Martin Newell used to transfer the object into 3D computer co ordinates. In plotting the co ordinate points to transfer the object Newell created a low poly mesh I modelled this before pulling and pushing the points as a sculptor would push and pull on a block of clay to transform the surface of the geometry into an irregular mesh to have a cohesive visual language across the mugs and the teapot.

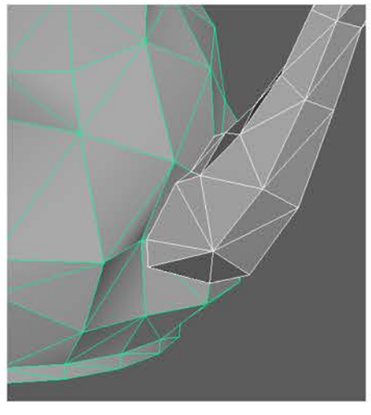




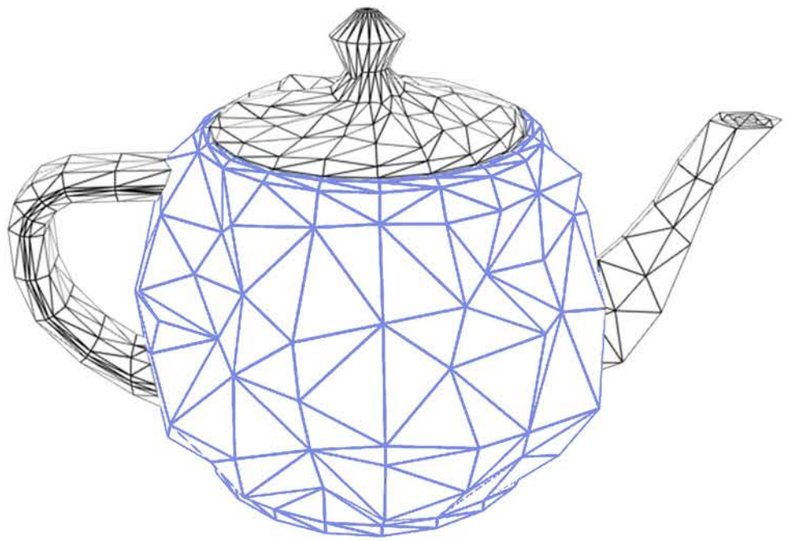


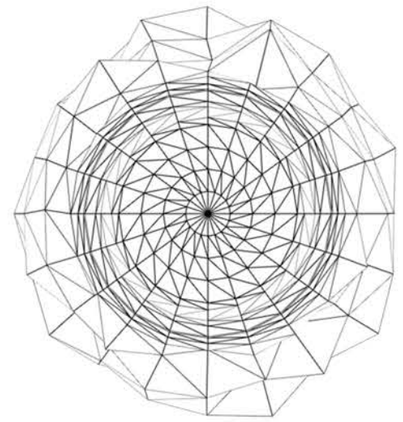
I modelled the parts of the teapot separately as I would need to make four different moulds to transform the teapot through slip casting after 3d printing. Using subtractive booleans I matched the connections between the handle and the spout to the body. t was necessary to triangulate the mesh also before printing the object to make it quicker for the slicing program to read the objects.

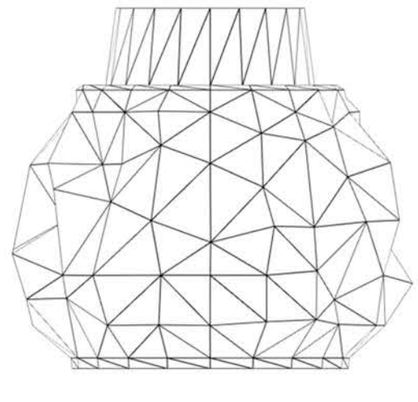


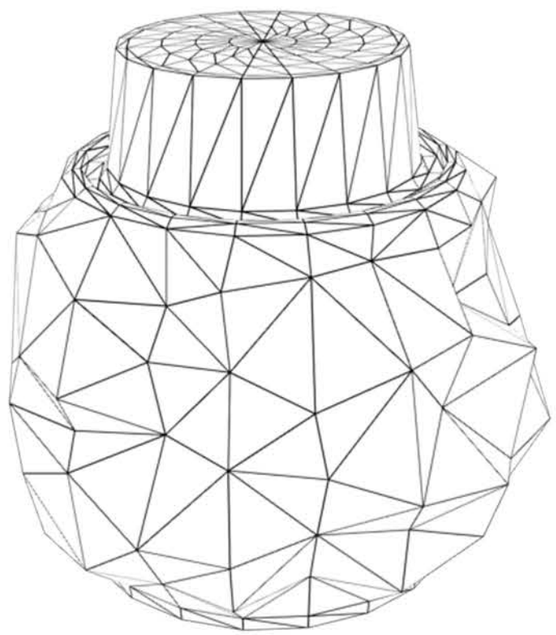


In the following pages I have shown plans for each mold.

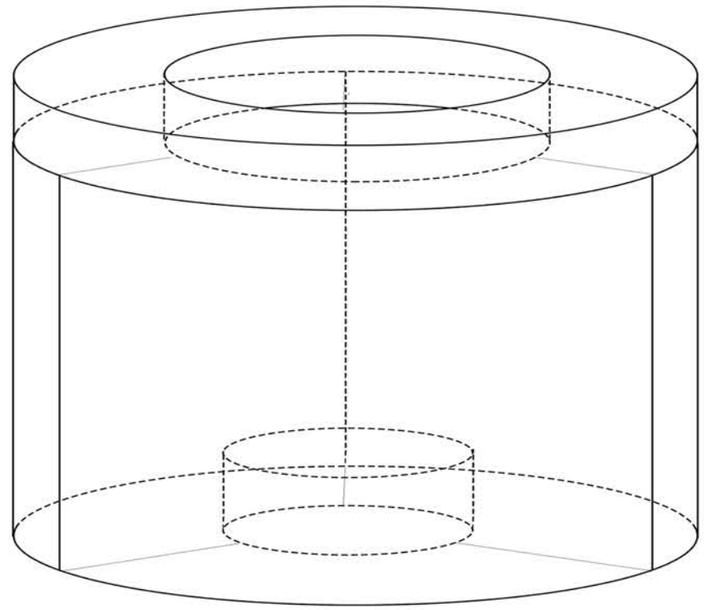


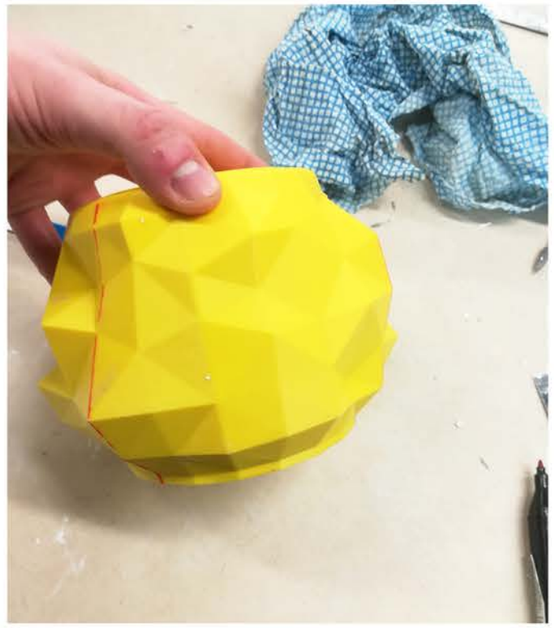






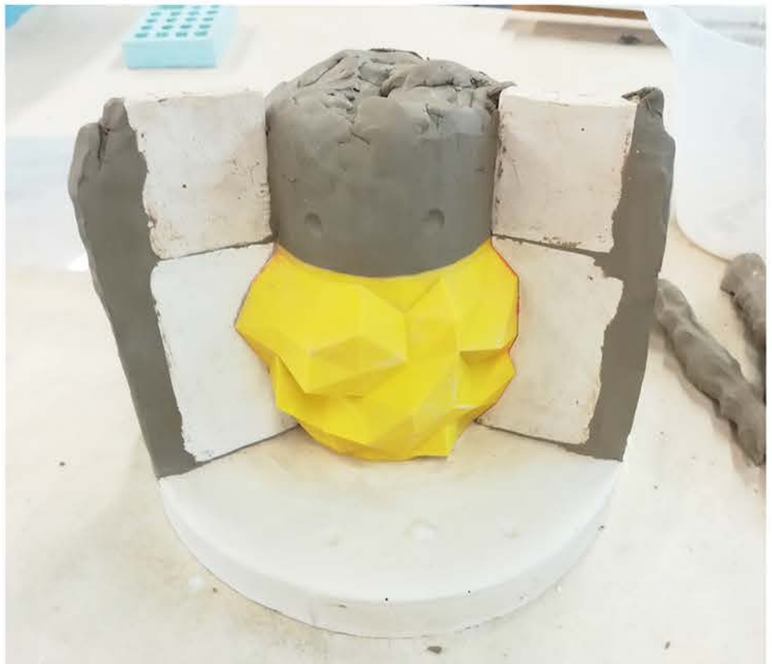
The mold of the body had to be split into at least three peices to cast each side without any undercuts to the form. The spare, to be cut away and re used after casting was placed on top where the opening to the teapots body will be. Finally their is a seperate peice to the base this is so that after casting each side can be pulled away to leave the cast object on a small stand, Minimising the risk of deforming the shape whilst handling.





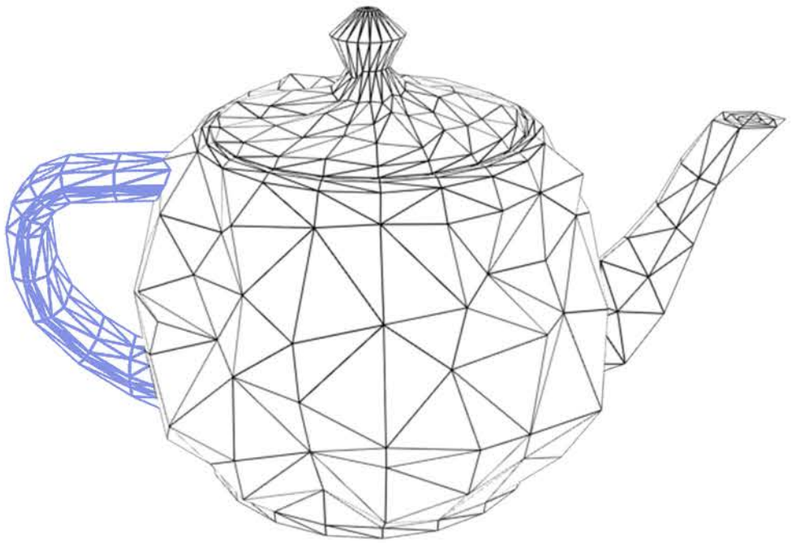
I soaped the object so that the plaster will not stick and become difficult to remove. Next I blocked out the sides of the mold using plaster so that the seam lines will be accurate.

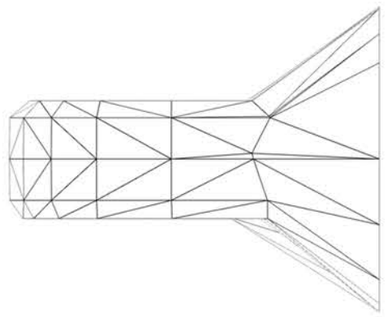
I poured the top part of the mould first this could then act as a level base to work from whilst casting the sifes.

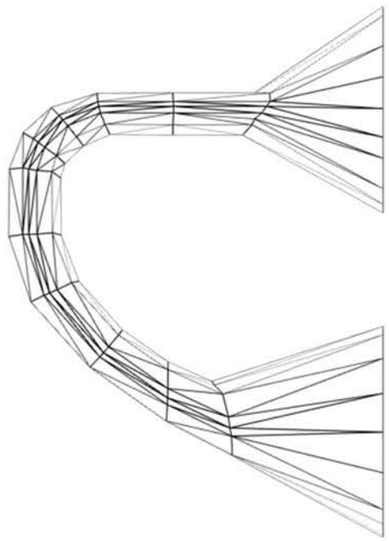


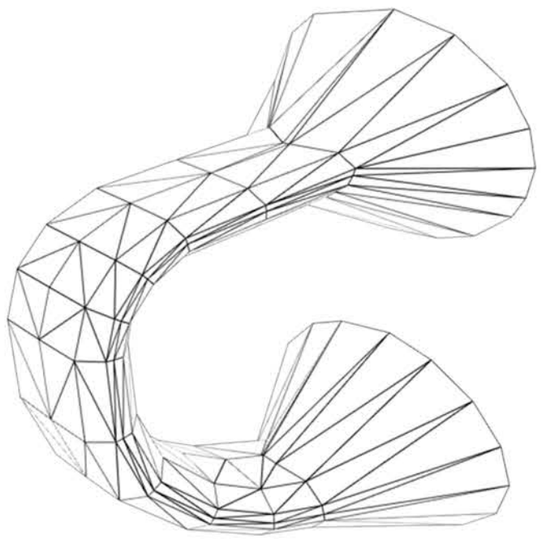
I went thorough a process of blocking out the sides of the mould and pouring the plaster...
The central piece will be poured last.

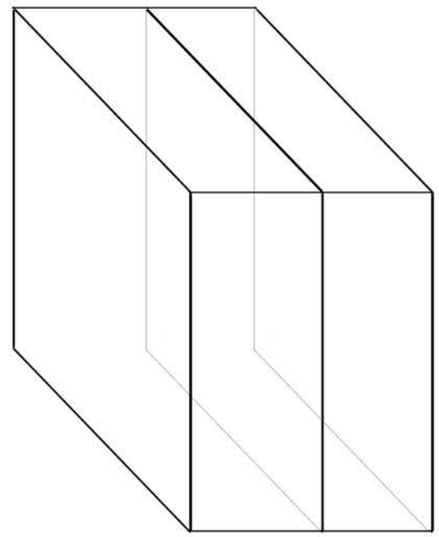
After pouring the final central piece I used a rasp to flatten the parts of the mold together.



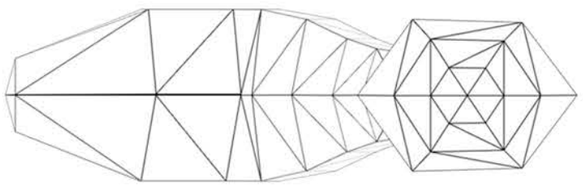


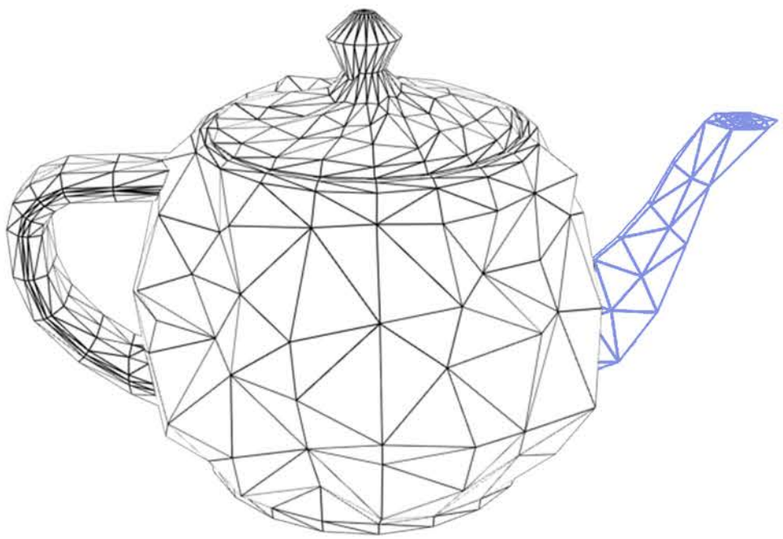


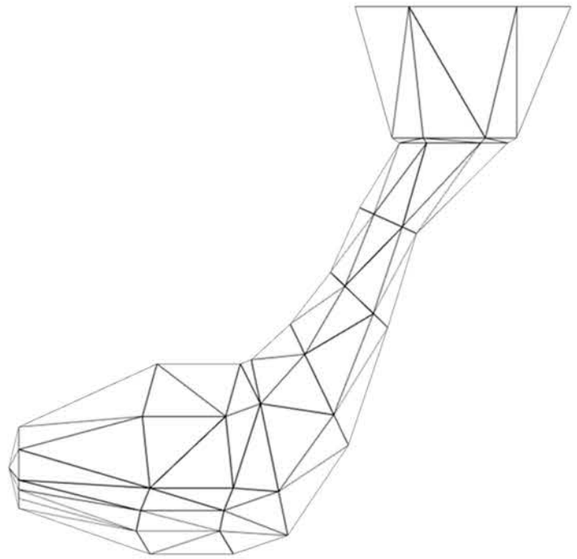


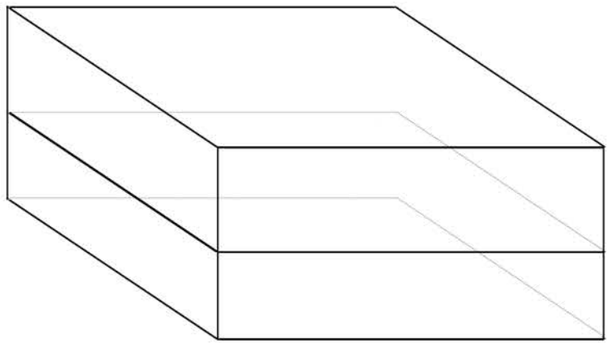


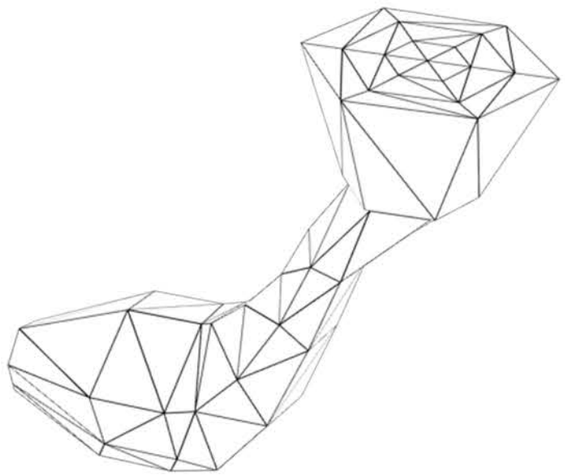
The handle is made up from a two part mould. Their are two spares that open to the top of the mould. When pouring slip into this mould I will watch for the slip to fill up both of these holes at each end of the handle. After casting I will carefully trim these away and attach them to the teapot.



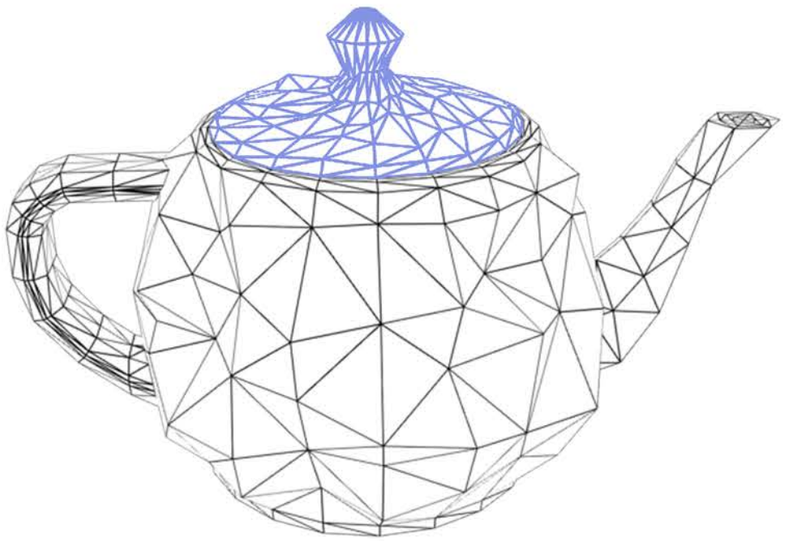


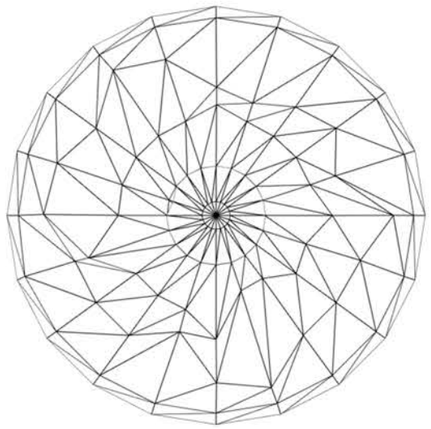


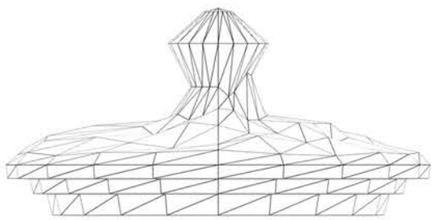


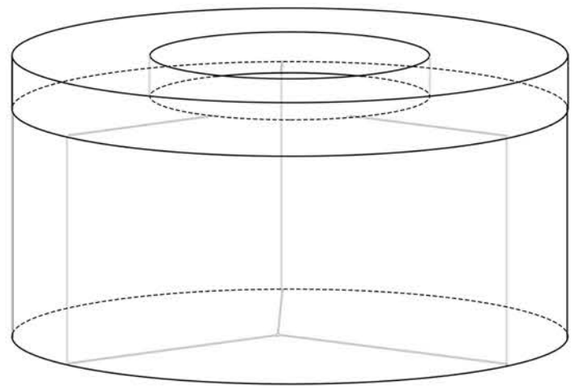


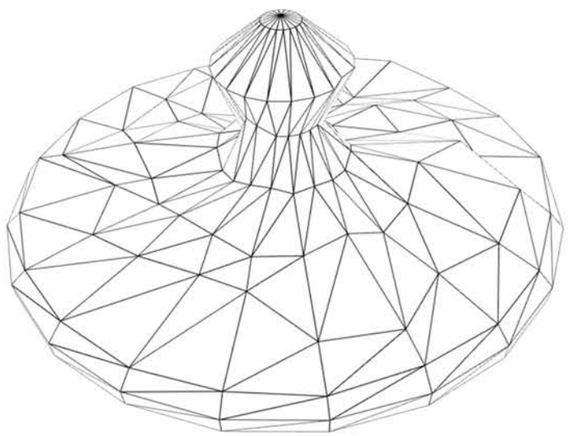
The spout can be cast in a two sided mold. I added a spare cavern to the base of the spout where the bottom of the mold will be and the spare to the tip of the spout where the slip will be poured to be trimmed away after casting.





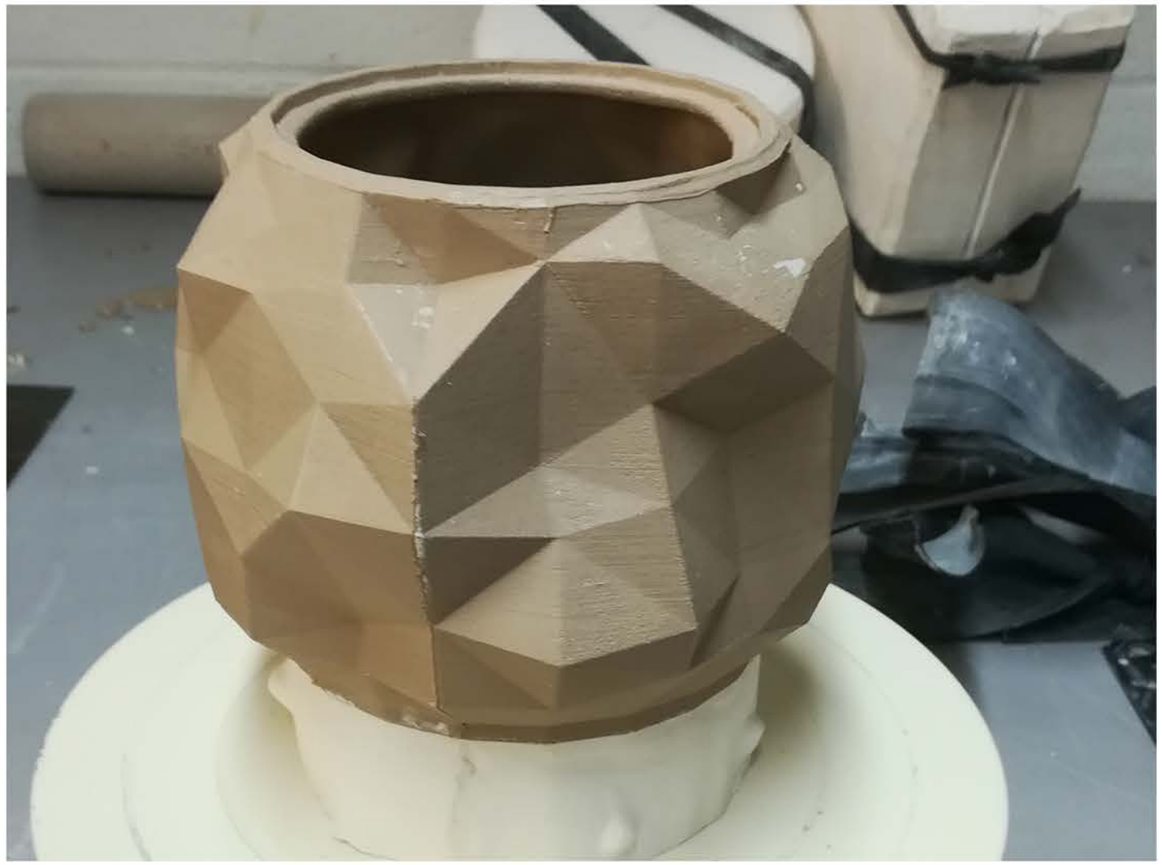


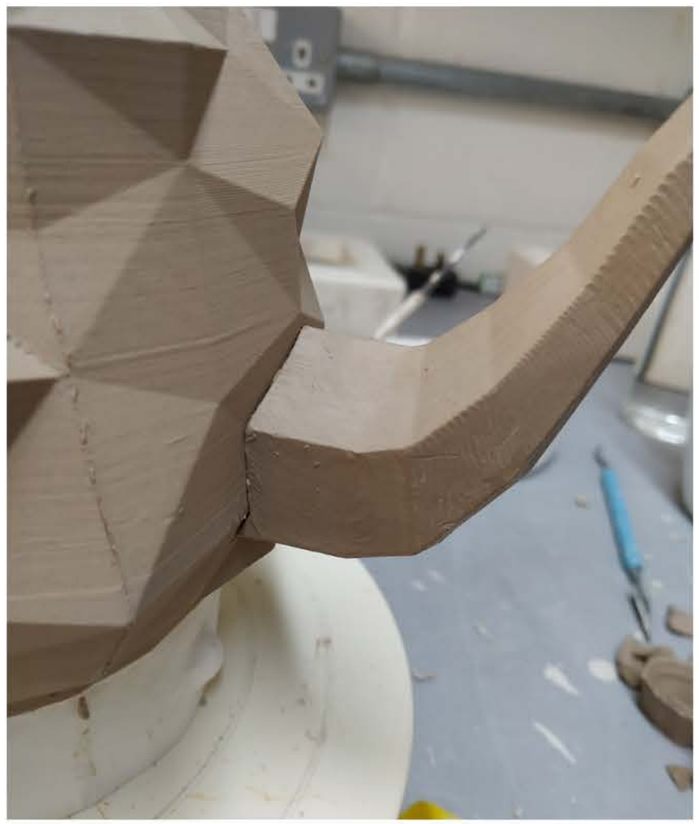




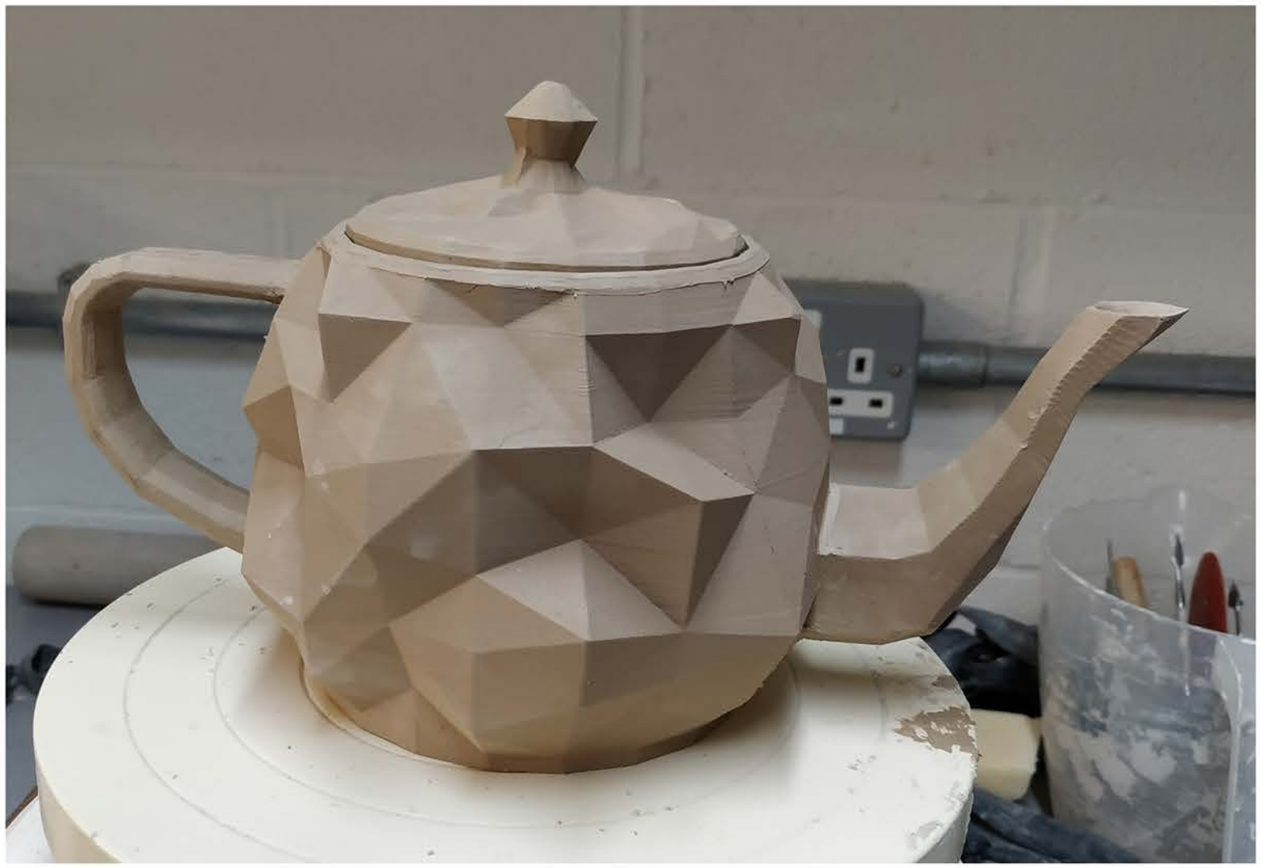
The lid needs three sides to the mould as well as a spare to the base of the lid. This can be cut away leaving a cm or so length where the lid will sit and catch onto the body whilst pouring.

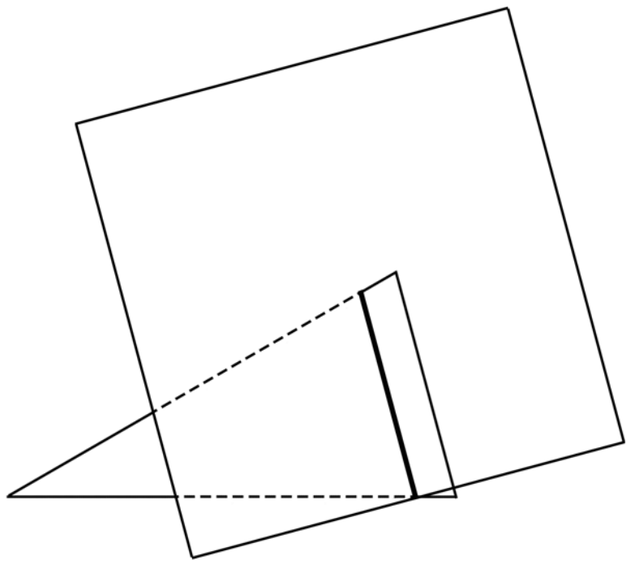
It would have been made easier to trim the spare from the lid mould [pictured left] if I made an extra step in the mould at the level of where the cut was to be made. Because I did not do this I needed a steady hand to trim this level and leave a lip to catch and hold onto the body while using the final teapot. The handle and spout moulds would also have benefited from something like this to speed up production time.

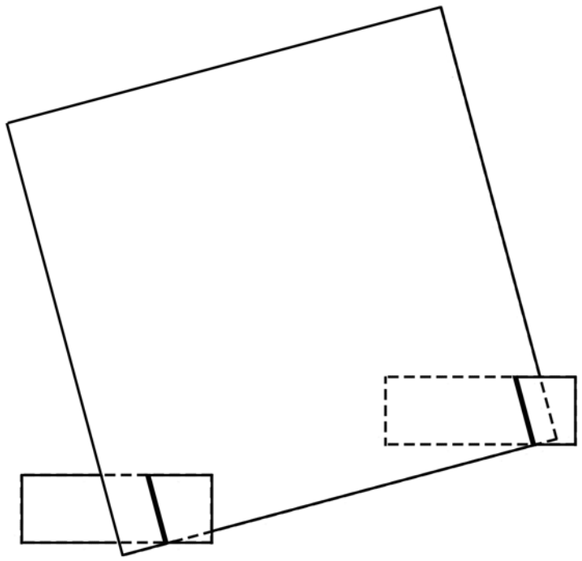


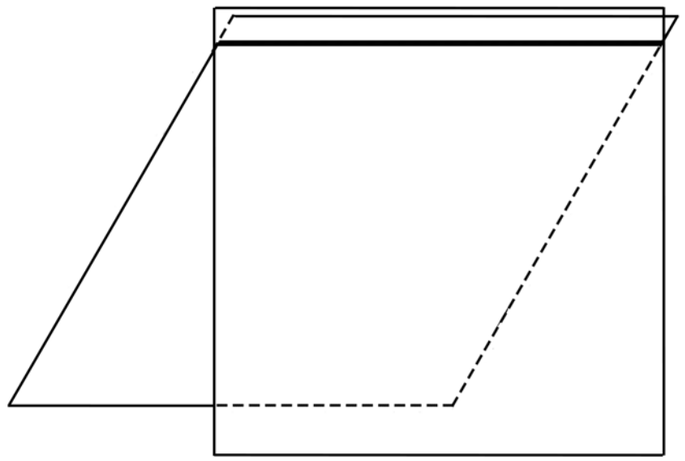


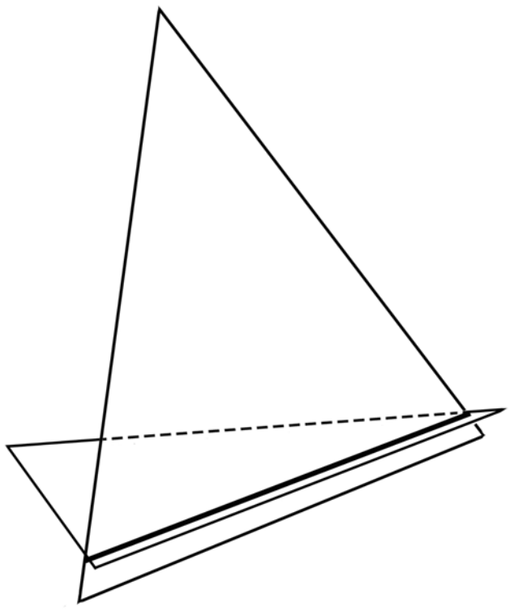
Attaching the components meant using slip clay as the glue. This needed to be spread evenly and without air bubbles to make a successful connection that will not crack during the firing stage.

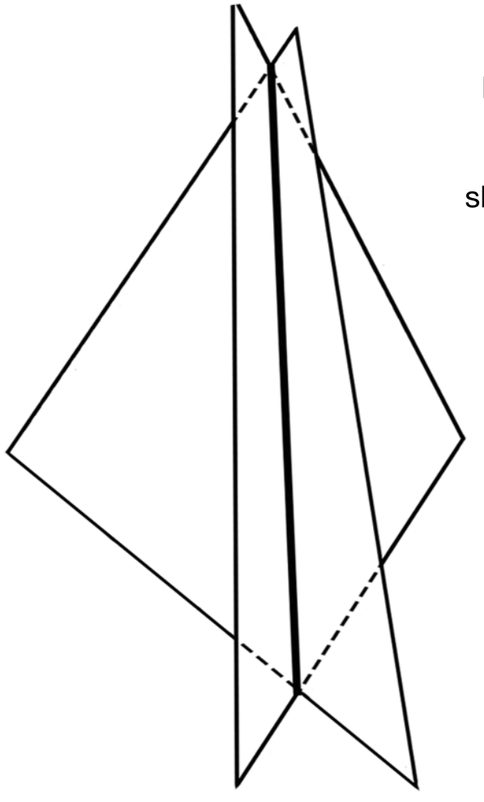




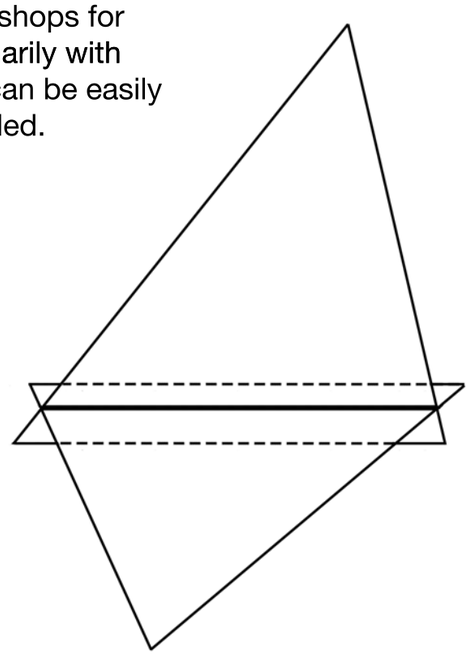


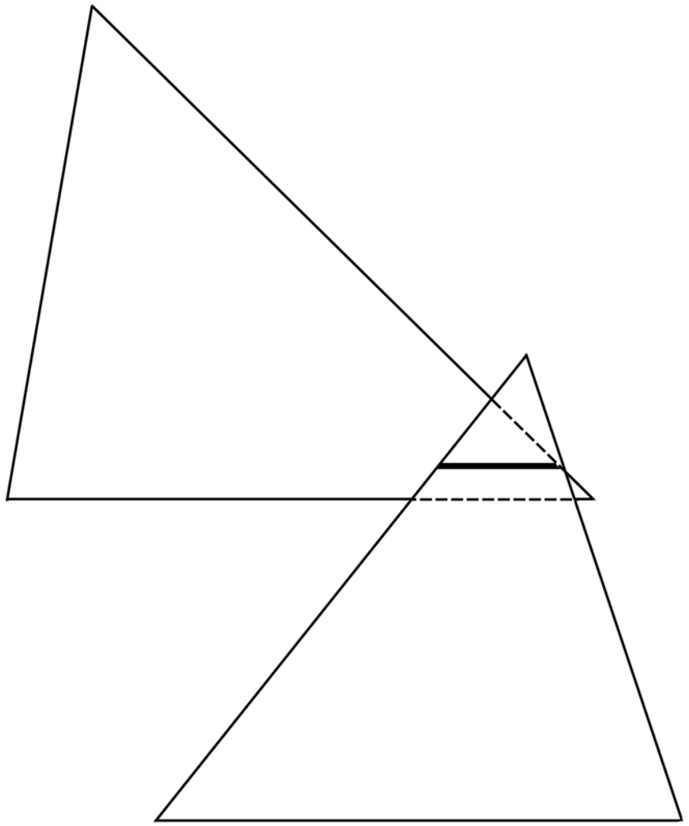


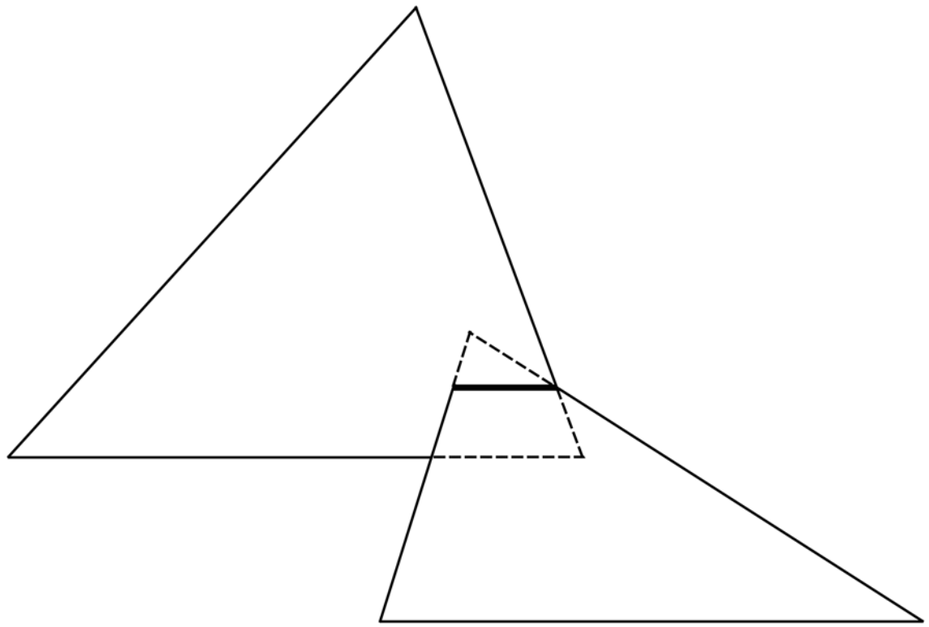


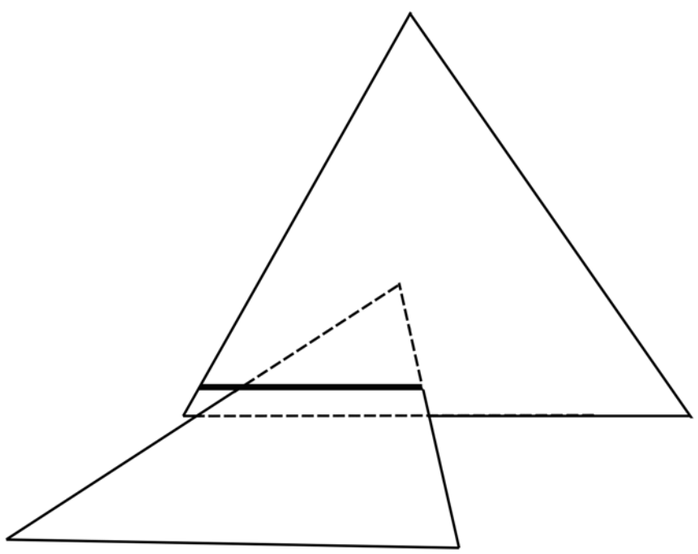


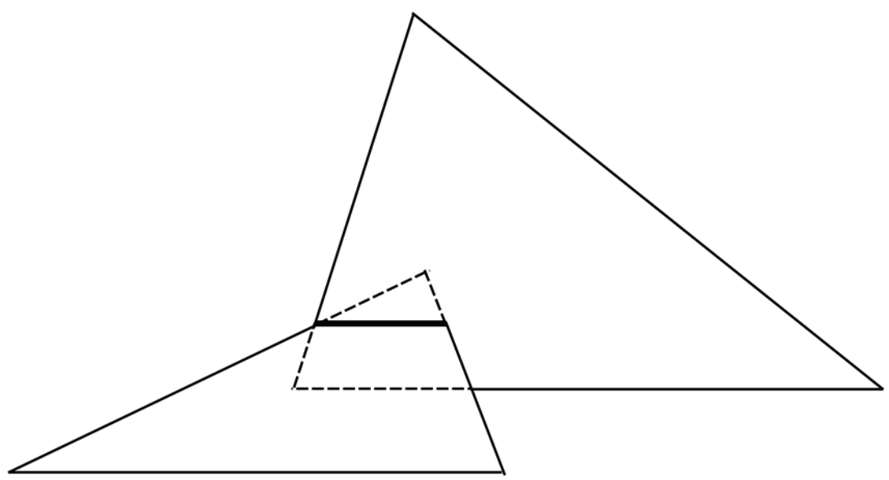
The display explaining the story of this teapot is very important and I wanted the visual language of the display coherent with the teapot I first experimented with ways of making displays, moving onto using triangles to tie the visual language of the display to the teapot. As this is something that can be sent out to shops for display I chose to experiment primarily with slotted fittings. This way the display can be easily packed, posted and assembled.

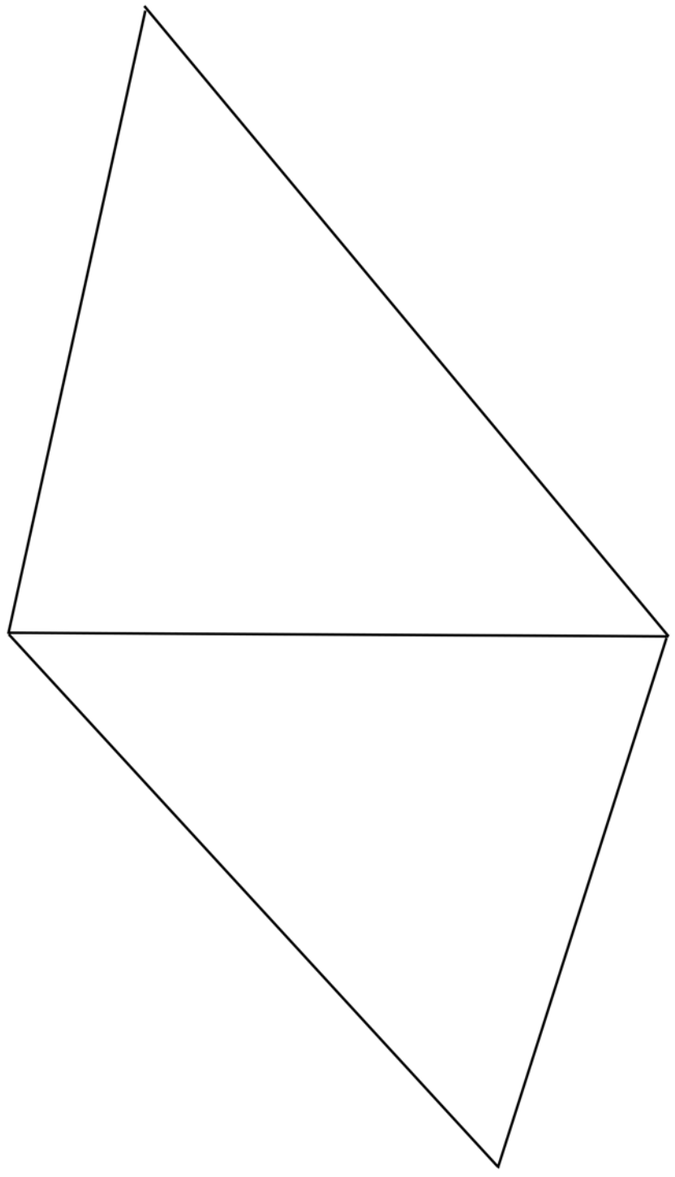


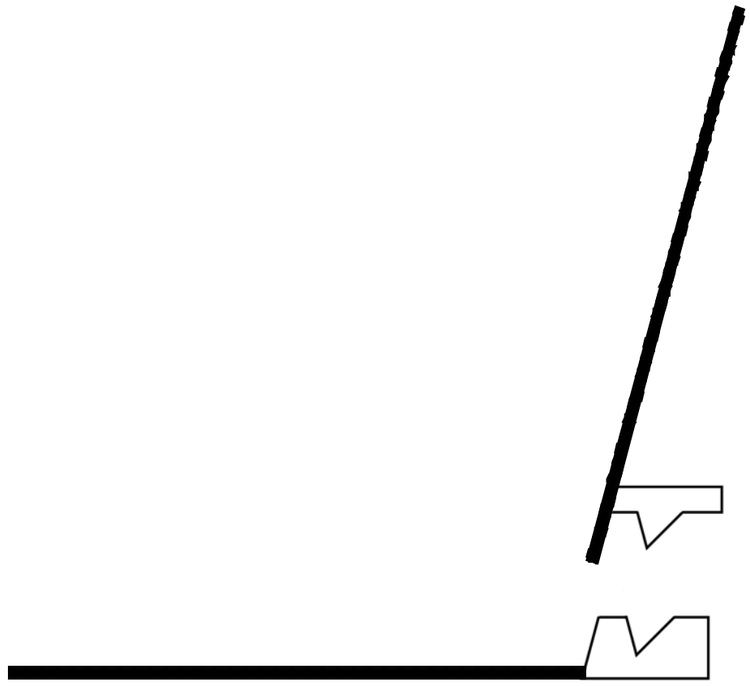












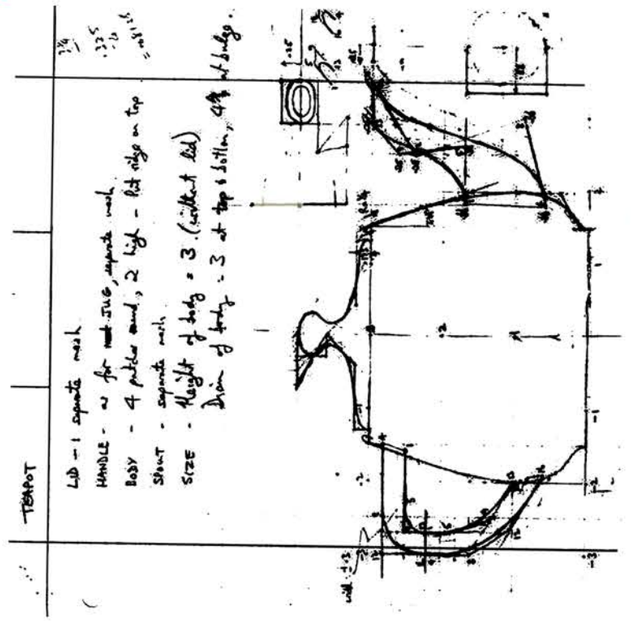
Using a tenon style join would hide any joins but this could lead to peices that can break off during transit.

Before sending the display design to be aser cut I had to define lines for the machine to cut and lines for the machine to rastor.

Expressive Utah teapot

The expressive Utah teapot is a digitally altered and 3D printed teapot that has been made and based on one of the oldest computer models created by Martin Newell in 1975 when his wife (Sandra) suggested he converted the teapot from the kitchen table into a computer model to develop rendering algorithms around. The shapes that make up the teapot presented certain challenges for the creation of the algorithms.

Expressive Utah is modelled on the original teapot model created by Newell and has been remodelled into an expressive mesh. The process reflects how digital modelling technology has evolved from a co-ordinate point based modelling program into a fluid organic and crafted process. The object has again been returned to its original purpose as a functional ceramic teapot.



Courtesy of Martin Newell and the School of Computing at the University of Utah. Available at : https://www.computerhistory.org/revolution/computer-graphics-music-and-art/15/206

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Courtesy of Martin Newell and the School of Computing at the University of Utah. Available at:

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