

Mod Your Space - create your own badge or jewellery pin

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Background

This workshop was developed as an offer for the 15-17yo Age range for the 2019-20 Summer Festival in collaboration with the YPF unit and adapts/updates material written for [Casting Materials available for sale in the space](#) and the [Belt Buckles Ahoy Workshop](#).

I started the (re)development of this workshop by asking “What type of badges/ jewellery pin might young people like to design and fabricate in the relatively short turnaround of the 4hour workshop?” YPF also wanted the workshop to have a 3d design and printing component.

For some time I have considered [Cameo](#) workshop as a useful form for this kind of workshop and could be something that uses images from the collection.

The following workshops introduces participants to a range of fabrication concepts and techniques, utilising

- demo using precut laser badge backs/ cameo frames.
- with a short intro to 3d design (including 3d navigating space in CAD, creating complex models

via additive and subtractive grouping of primitive geometric shapes, use of Type tool, use measuring tools, and then a quick/ manageable 3d printed outcome(including exporting models, prep and slicing models and effective use of 3D printer).

- a quick intro to silicone moulds and casting (including making a container to pour a mould, basic moulding and casting).
- finishing and decorating your cast badge.

The Workshop as i have approached it also allowed me to introduce participants to Thingiverse and have participants walk away with a painted finished product and a silicone mould for making more. It shows participants all the basic skills required create a basic sellable product and could be scaled into 2 or 3 day project.

Materials & Equipment

Workshop Outline

Part Zero - Prep

Design and cut badge back Cameo frames for participants to choose from.



Design files for a selection of these are included here

cameo.pdf

heart.pdf

mynameis.pdf

police_etc_badges_.pdf

pow.pdf

splosh.pdf

telebubble.pdf

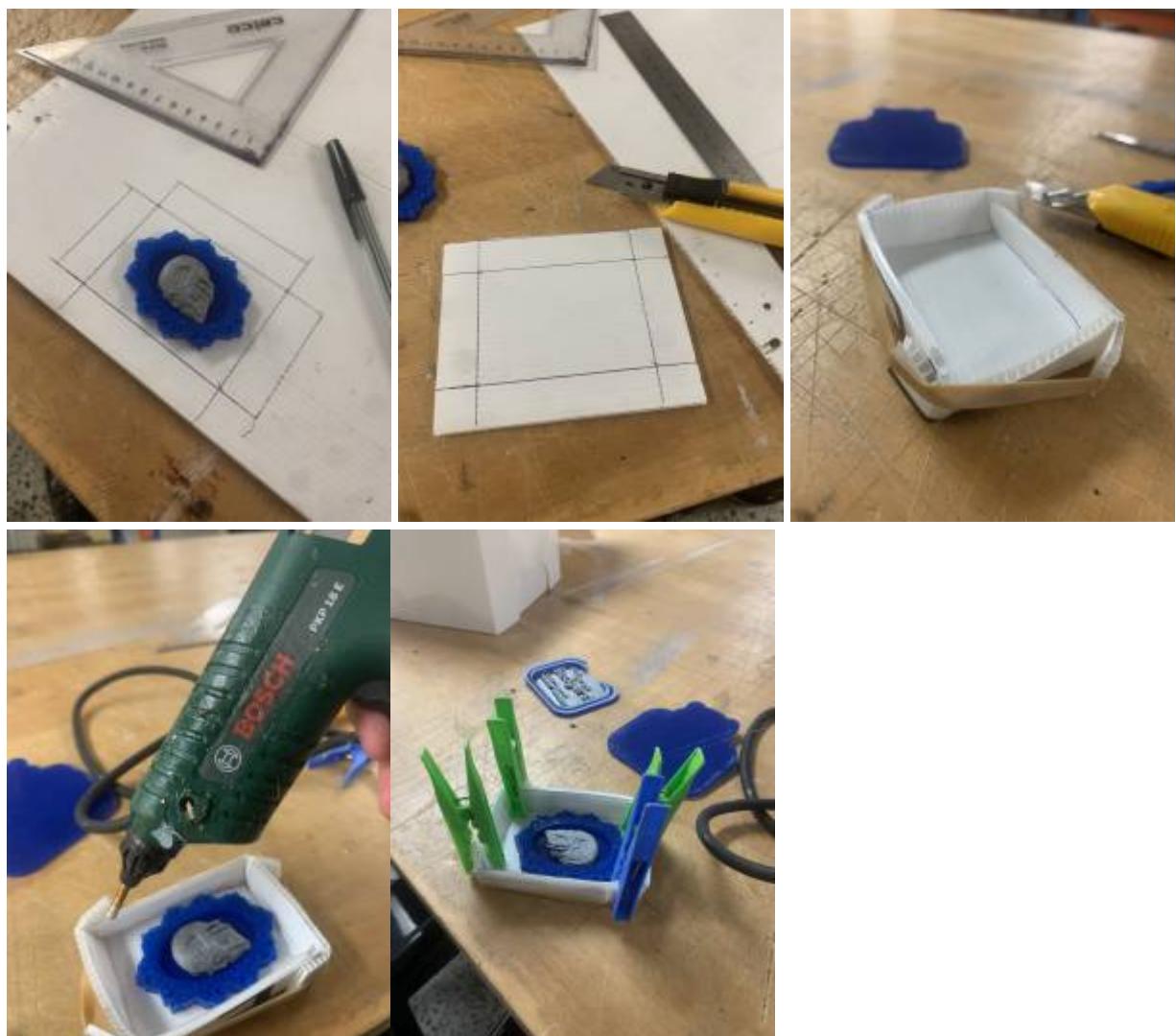
These were cut / etched on the laser on 3mm Acrylic with the following settings to create a recess for the 3D component to fit in

Etch Power 100% Speed 7.5% **Cut** Power 100% Speed 1.5%



Part One - Demo Silicone Moulding

1.1 Make a container for your silicone mould



On a bit of Cardboard or Core Flute (this is better cause it can be reused) markout a box around your badge (with a little room to spare) and add then some sides and assembly tabs to make yourself a little tray (you want this close to the size of your badge so you do waste silicone but not too close that its too small once you get the sides folded up) hold it together with a rubberband while you seal up any gaps and glue the tabs with hot glue (pegs are handy for this too)

Hot Glue is... HOT! and hurtie

1.2 Measure the volume of Silicone you'll need



You can work out how much Silicone you will need to mix up by filling the container to the required height with water and then measuring this with a measuring cup. then halve this volume for Part A and Part B of the Silicone Preparation. With the small amounts required for badges i generally use 2 syringes to measure out Part A and Part B (2 cause you dont want the 2 parts mixing in the syringe 😊)

1.3 Mix, pour, cure and demould





Mix Part A and B Thoroughly - mix until all the Hot Pink and White streaks are mixed in. You have 2 minutes Mixing / "Pot Time" before the mix starts to cure. Curing will be complete in 20 mins. You'll be able to peel (clean)up any mess after the cure time.

Part Two - Intro to CAD and 3D Printing

2.0 Sign up for Tinkercad

2.1 Navigating your space

2.2 Creating complex models via additive and subtractive grouping of primitive geometric shapes

2.3 Using measuring and alignment tools

2.4 Importing STL models from Thingiverse

2.5 Exporting your STL Model

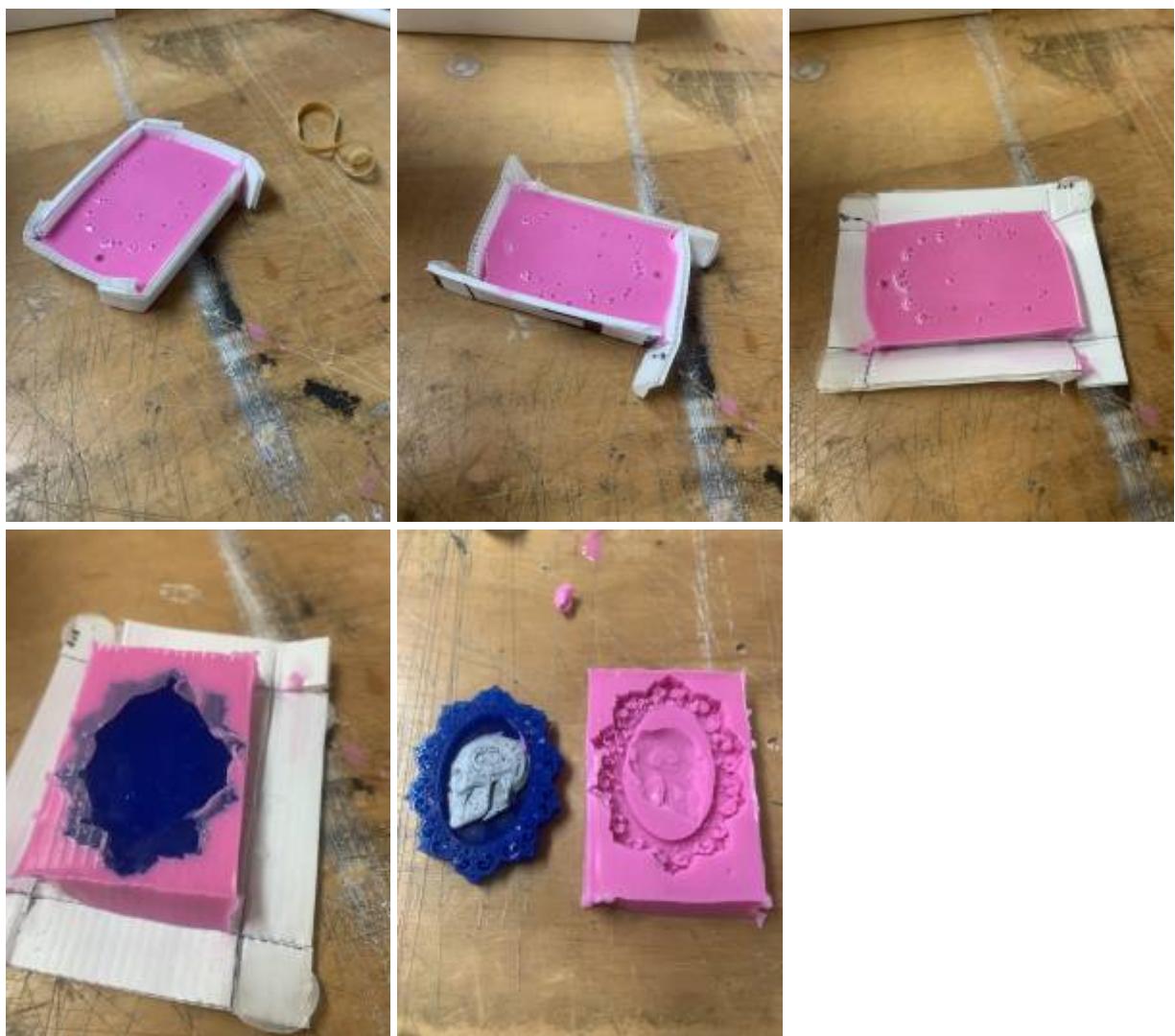
Part 3 - Intro to 3D printing

3.1 Intro to Slicer

3.2 Intro to the Prusa i3

Part 4 - Demould Demo silicone and Casting Demo

4.1 Demould Demo silicone



Curing will be complete in 20 mins. You'll be able to peel (clean)up any mess after the cure time.

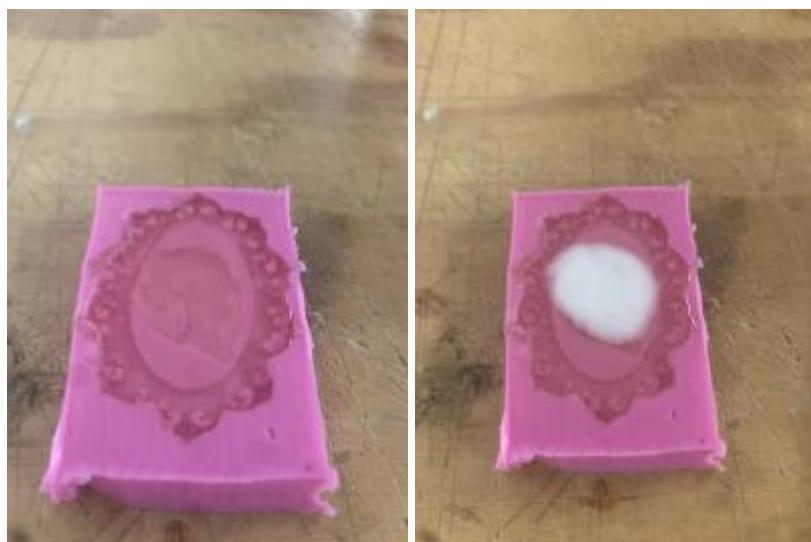


When you are done here you can remove the 3D printed component (its just been hot Glued Down) so someone else can reuse the badge back.

4.2 Cast a copy of your Badge



Again you need to workout what volume of the 2 Part Polyurethane Resin you need to mix up. Again you need to mix this thoroughly and you only have 2min "Pot time".



When you can see the resin start to "go off" (cure - turn cloudy white) Add you Jewellery pin





Voila!

Part 5 - Participants Design and 3D print models

The key to success in this workshop is to quickly settle on a simple design and that can be printed out quickly - The Badge /Cameo form is a useful constraint to create circumstances for Participants to be creative within some limitations and create something that is simple, looks good, and is quick to print)

Option 1 - Cameo *This could be a kitch spin on the traditional cameo*

Instructions

1. Search for and download a 3d Model of a bust of pop culture character from Thingiverse
2. Select a badge back and measure the space available to insert a 3d Model.
3. Import Thingiverse model into Tinkercad and Scale in the X & Y axis. Then *foreshorten* the model (Scale in the Z axis) in Profile (like i did with the T800 from Terminator) you want the model around 2-3mm deep (Z Axis)
4. Export from Tinkercad as stl
5. import into Slicer and then set print settings. Check that model will print correctly at set resolution and adjust settings (or even model in Tinkercad) where required. export to SD card ready for printing.
6. Print

Option 2 - Name badge or sherifs badge *rename your self something devilishly witty or bestow upon yourself some new authority to poke your snarkie nose into other peoples business* (eg make your self a fashion police badge or a snack inspectors badge).

Instructions

1. Use your razor sharp intellect, the text tool and other features in Tinkercad to make your create a design to insert.
2. As above

Option 3 - Onomatopoetic Badge *imbue your ensemble with the visual representational power of noisy words*

Instructions - As above

Part 6 - Finishing your badge

Once models have started 3D printing give the participants some finishing tips.

6.1 Remove Flashing or dags

6.2 Mask and Paint