Age group:	Techniques & tools:
From 12 to 16	Manual moulding and casting process. We will only use measure tools, a fridge, a boiler and a mixer.
Duration: 2 hours	**Output:** Moulsd mades of biomaterials and chocolate pieces

Learning objectives:

To learn the moulding and casting process in a 2-3 steps
To learn rapid prototyping techniques to create moulds without digital fabrication
To know / discover food/bio materials different applications and properties.
To experiment a community engagement workshop
To measure in different way the ingredients

Settings:

Materials:

- Gelatin (+100gr aprox)
- Water (+ 400ml aprox)
- Agar Agar (10 gr - 2gr/100ml milk)
- Honey Jar (will use 2 spoons for 150ml/water)
- Milk (1l aprox)
- Chocolate bar for melting
- 2-3 objects you want to cast (simple shapes recommended, with min. one face flat)
- 3d print your mould (part A) or any recipient you want to use as a part A (mould)
- Container for use in microwave or a pot to heat food (we would do it in the kitchen)
- Oli (olive or vegetal)
- A spoon
- A scale for weighing food
- Access to a refrigerator and/or freezer
- A table and cleaning paper towel.
- Security ! Gloves , glasses

Warm up activity:

A presentation with a video.
A game with some questions about products that are made by moulds

Main activity:

Individually (or maximum in teams of 2 people)
1. Show all the materials and tools needed to the participants.
2. Explain the process to be followed.
3. Check all participants are ready.
4. Share with the participants the recipe.
Start with the milk+agar agar (100 ml milk + 2gr agar agar) .
5. Prepare the mould. Place the object you want to copy in the container. With the flat part facing down.
6. adds a thin layer of oil to make it easier to remove.
6. Pour over the container to create the mould.
7. Take it to the freezer for 10 minutes
8. Repeat steps 4,5 and 6 for the gelatine (45gr), water (150ml) and honey (2 spoons). In that case for 20 min.
9. While moulds are in the freezer aks participants:
-Did you use any different materials ?
- A 5 min round of objects they use to create the mould.
- Problems ?

Follow-up activity:

Casting !
Use chocolate in case the materials used for the mould are food-safe.if not, you can use plaster or any other quimics.

1. Check at least one of the moulds is ready. (10' for agar , 20' for gelatine).
2. adds a thin layer of oil to make it easier to unmold.

2. Casting with chocolate: Heat the chocolate in the microwave or on the stove until it is liquid.
3. Take it to the freezer for 15-20 min. Not much else as the agar freezes and breaks down.

Reflection:	Related workshops:	References:
What we have done, what did we learn and how can we incorporate that in our life? Addressing both levels – the workshop and bringing it on the meta level in terms of process and mindset. How you will collect feedback? Prepare feedback forms.	What could be the next steps after the workshop in order to introduce the topic/the output in the school? What are possible follow up workshops with Fab Lab BCN?	What are examples of similar projects? Which are possible materials for the participants or the trainers?

Title: **Moulding and Casting with biomaterials**

Purpose: Experiment with materials, moulding and casting