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Mana Tohu Mātauranga o Aotearoa  
New Zealand Qualifications Authority

## Level 2 Design and Visual Communication 2023

91337 Use visual communication techniques to  
generate design ideas

# EXEMPLAR

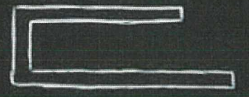
Merit

TOTAL **M**

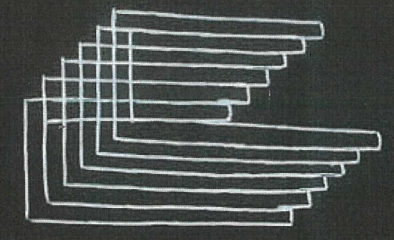
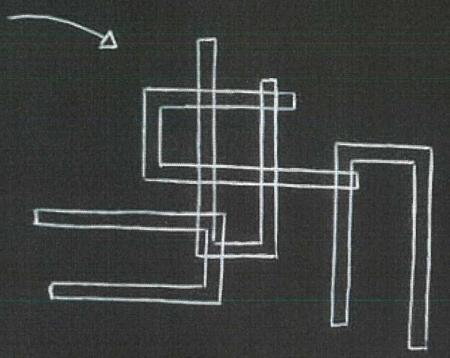
# IDEATION

Brief: Design an outdoor seating solution

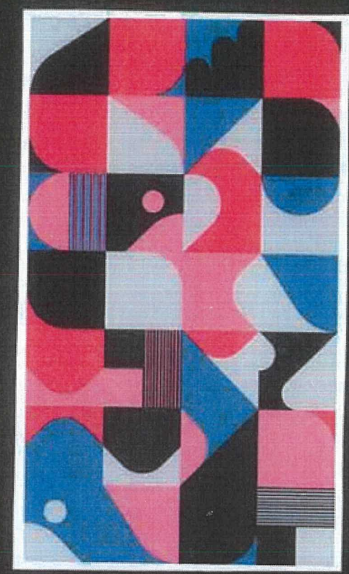
## EXPLORING MODERNISM



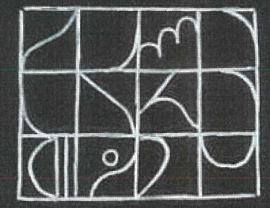
REPETITION



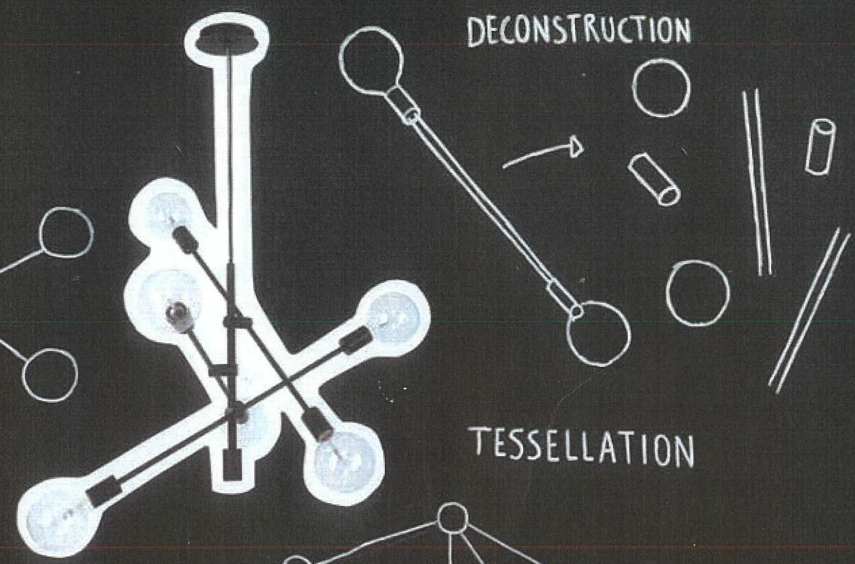
TRANSLATION



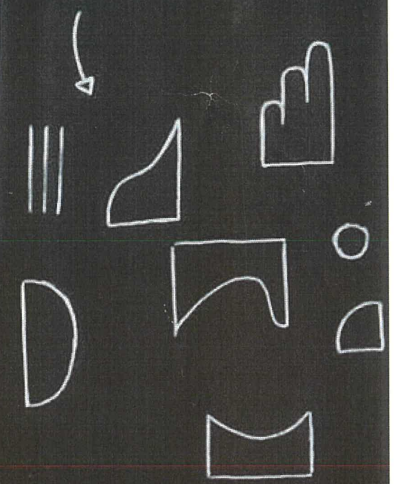
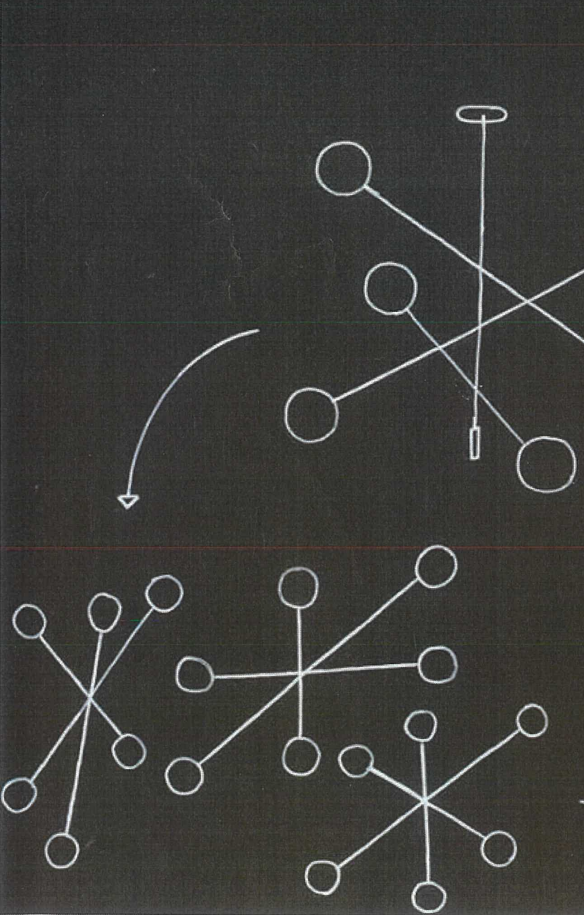
DECONSTRUCTION



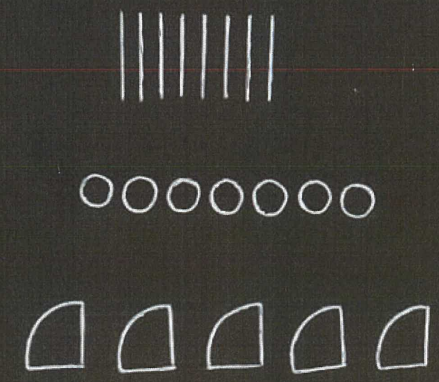
DECONSTRUCTION



TESSELLATION

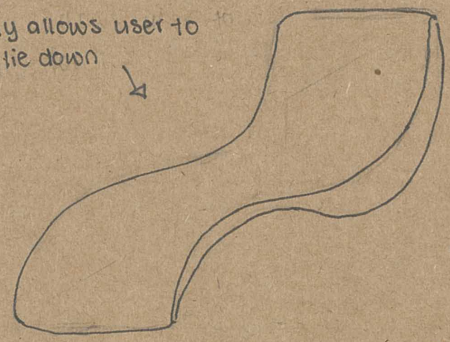


REPETITION



# INITIAL IDEAS

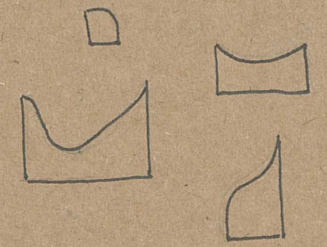
mostly allows user to only lie down



fits children as the shape molds to the body

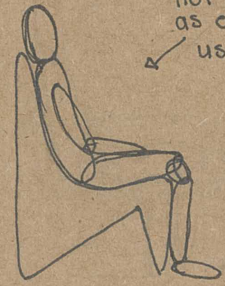


Inspiration from ideation

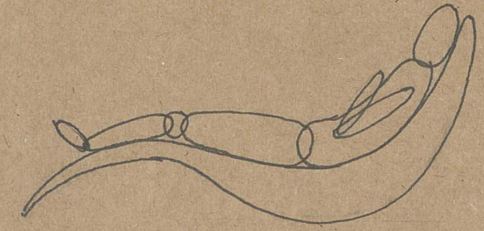


curves relate back to modernism

not used for relaxing as only allows the user to sit upright

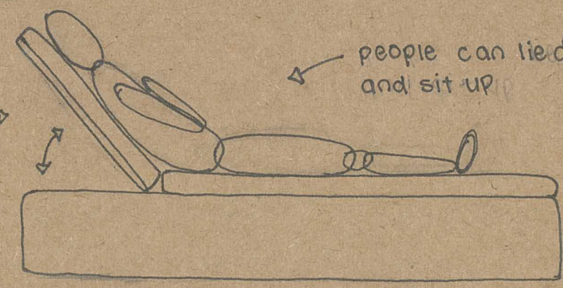


curves and angles relate back to modernism



adjustable

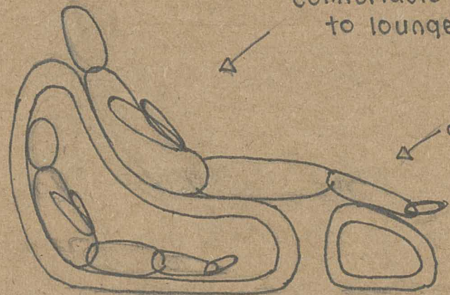
people can lie down and sit up



comfortable to lie on as it is soft

shape molds to body

comfortable for people to lounge on



optional leg/foot rest

fits both adults and children

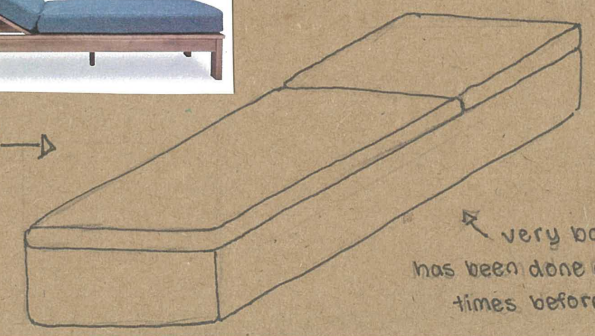
sleek, straight lines relate back to modernism ideation



curves from ideation links back to modernism design era

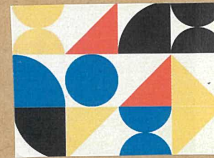
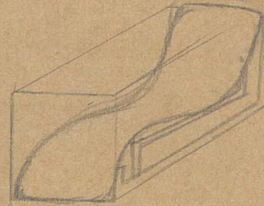
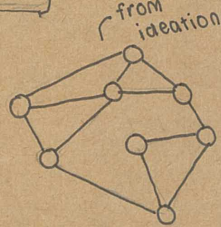
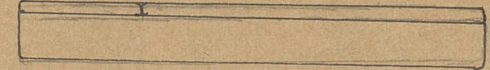
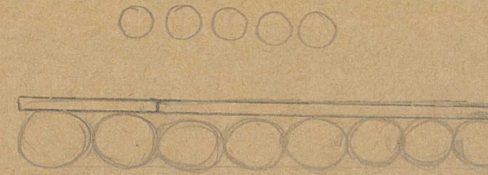
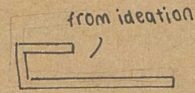
room underneath for children

can be used as a bench seat for multiple people

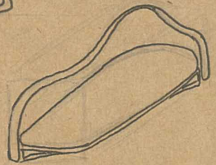
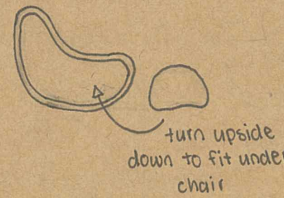
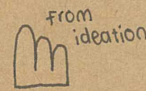
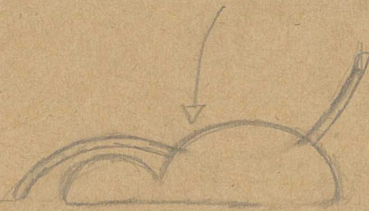
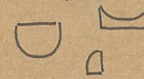


very basic, has been done many times before

# EXPLORATION



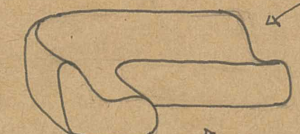
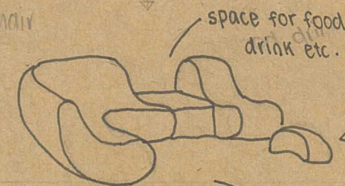
Shapes from ideation



lower support bar curves under to prevent hitting feet on it.



← back of chair



← foot/leg rest

multiple people

multiple people

# CONCEPTS

## CONCEPT ONE:

### DIMENSIONS

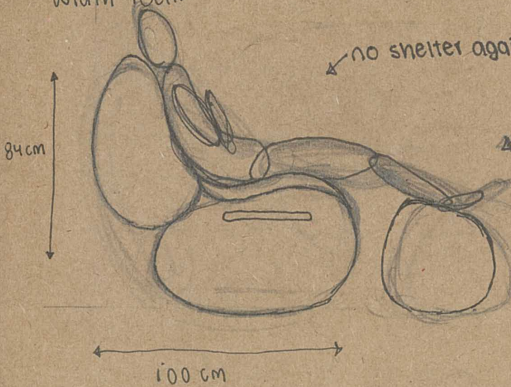
seat to backrest 110°  
 Height 84cm  
 Length 100cm  
 Width 70cm

no shelter against elements

no shelter against elements

foot rest which is removable

removeable foot/leg rest



100 cm

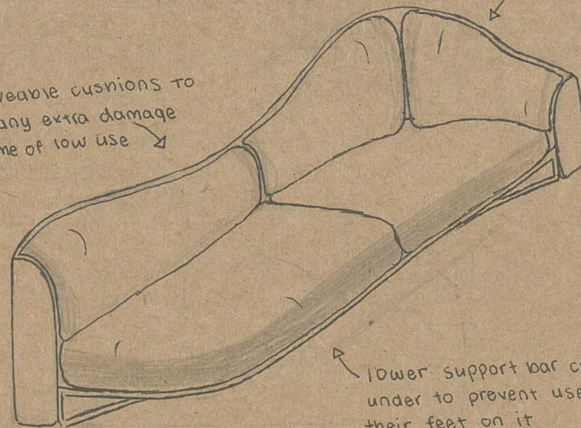
70cm

removeable cushions to prevent any extra damage during time of low use

## CONCEPT TWO:

soft seat/back cushions for comfort

lower support bar curved under to prevent user hitting their feet on it



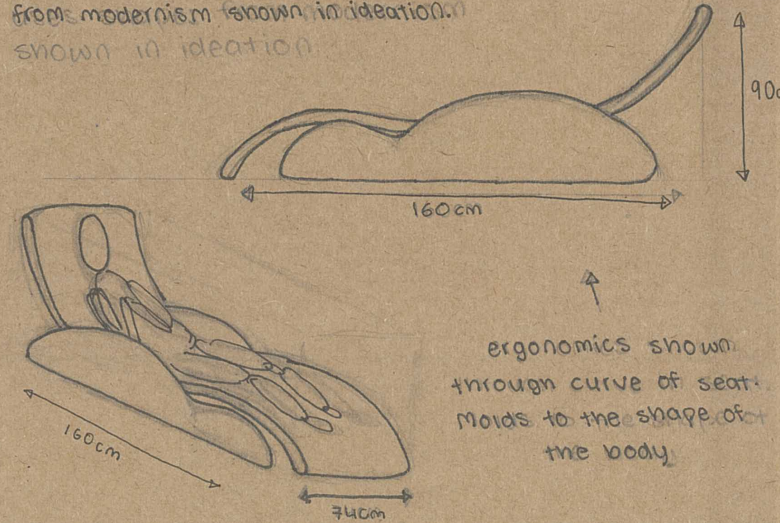
Pros: space for multiple people.  
 soft seat and back cushions.

Cons: no table space. no foot rest

## CONCEPT THREE:

Pros: comfortable due to shape, relaxing as the user can stretch out on it. Durable and suitable for long-term outdoor use. uses shapes from modernism (shown in ideation.) shown in ideation.

ergonomics shown through curve of seat. molds to the shape of the body.



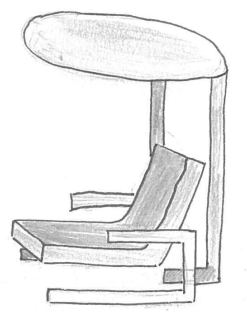
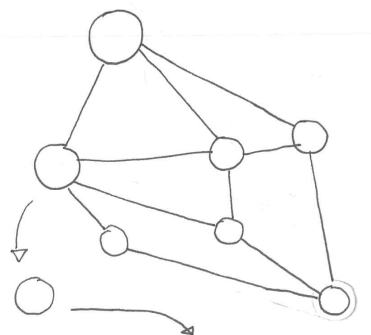
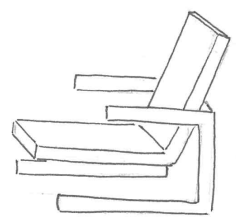
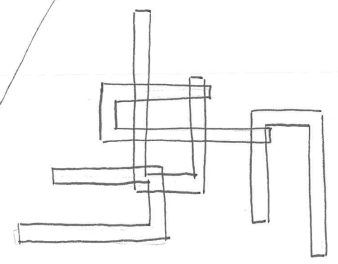
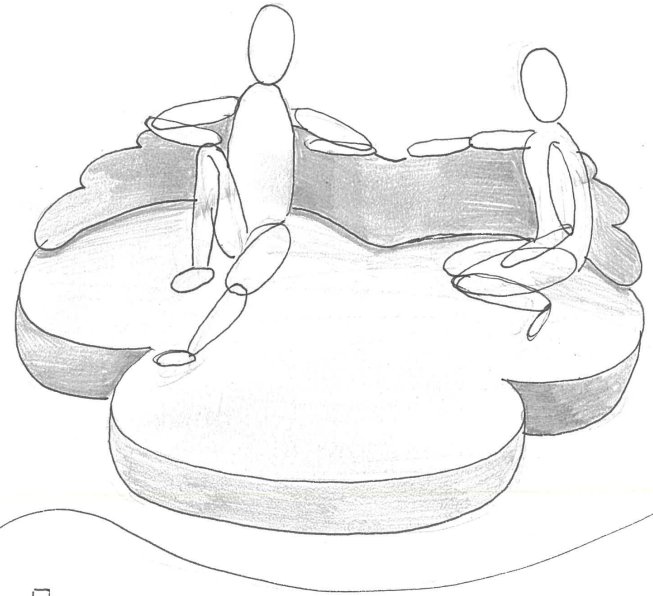
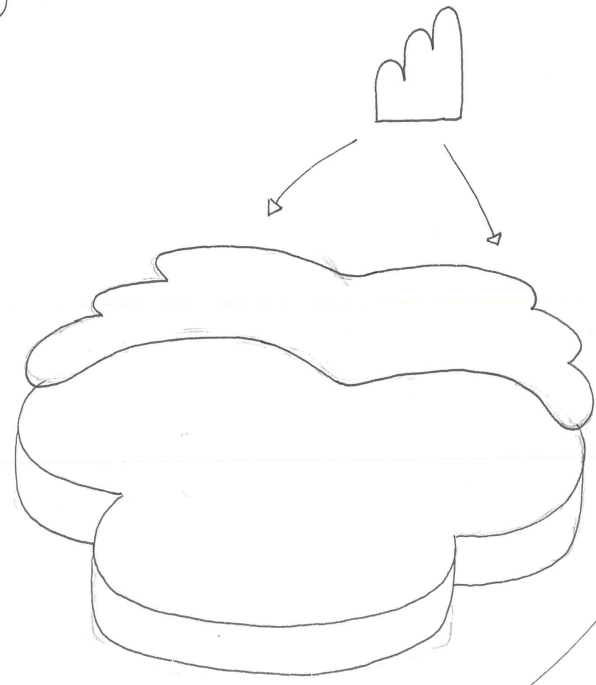
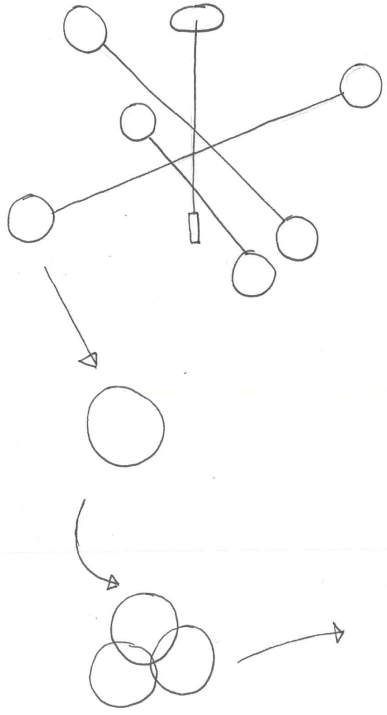
Cons: no shelter from elements. no place for food, drink etc.

Dimensions → seat to backrest 120°  
 H = 90cm W = 74cm L = 160cm

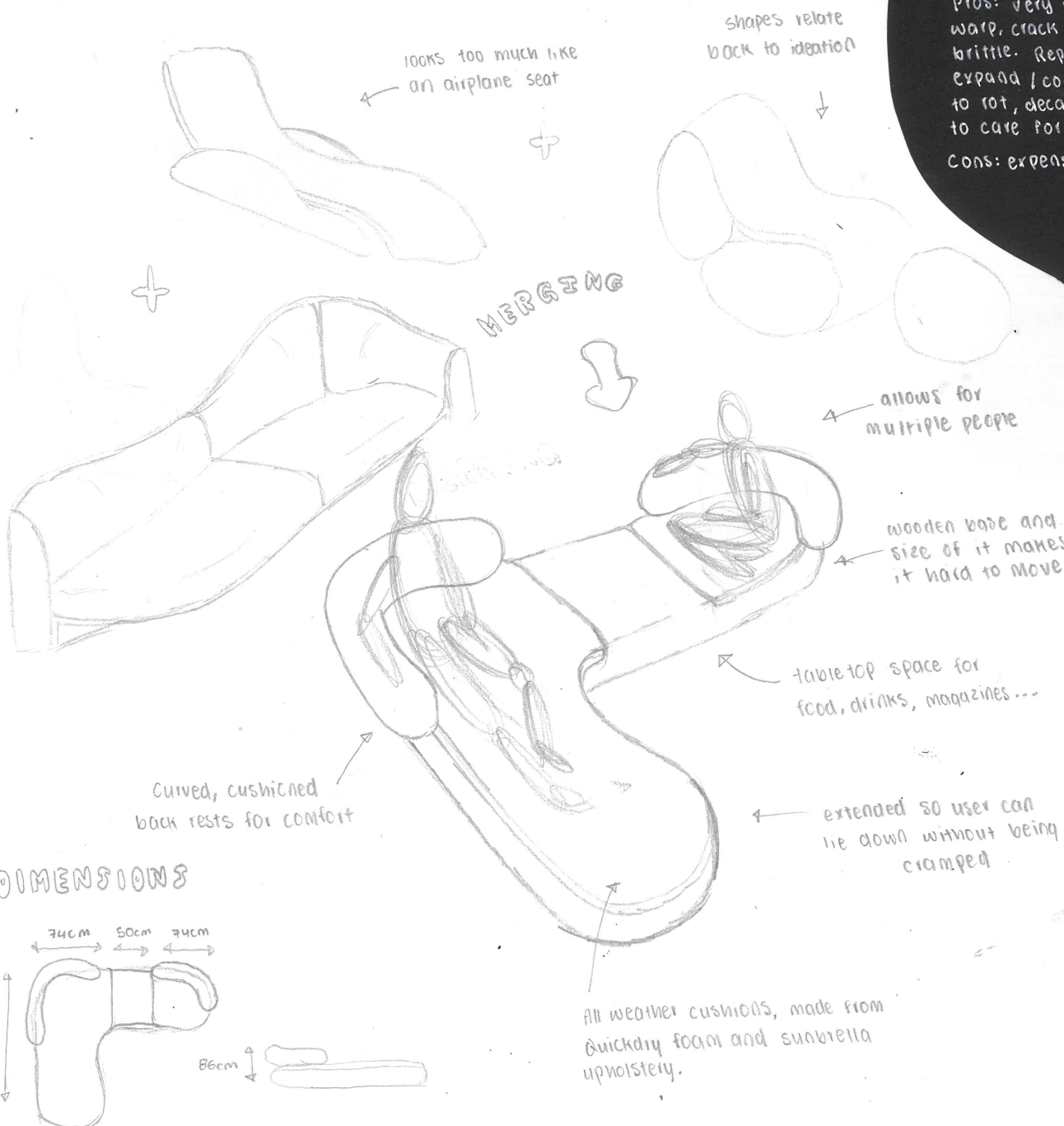
side table slides out when needed for food, drink, etc.



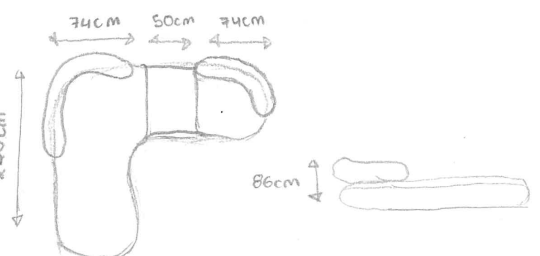
# CONCEPTS



# DEVELOPMENT



## DIMENSIONS



# MATERIALS

**TEAK HARDWOOD**  
 Pros: very strong, doesn't warp, crack or become brittle. Repels water (doesn't expand/contract). Resistant to rot, decay and bugs. Easy to care for.  
 Cons: expensive

**SUNBRELLA UPHOLSTERY**  
 Pros: durable against rain, sun, wind. Fade resistant. Stain and water resistant. Resistant against mold and mildew. Easy to clean.  
 Cons: expensive

**QUICKDRY FOAM**  
 Pros: extremely durable and strong. Large, open pores allow water to drain rapidly and foam to dry. Comfortable, holds shape. mold and fungus resistant.  
 Cons: expensive

**MARINE GRADE ACRYLIC CANVAS**  
 Pros: durable against rain, wind, sun.  
 Cons: has a specific look, not as aesthetic.

**ACRYLIC FABRIC**  
 Pros: durable, strong, weather and moisture resistant. Doesn't fade. Easy to clean.  
 Cons: expensive

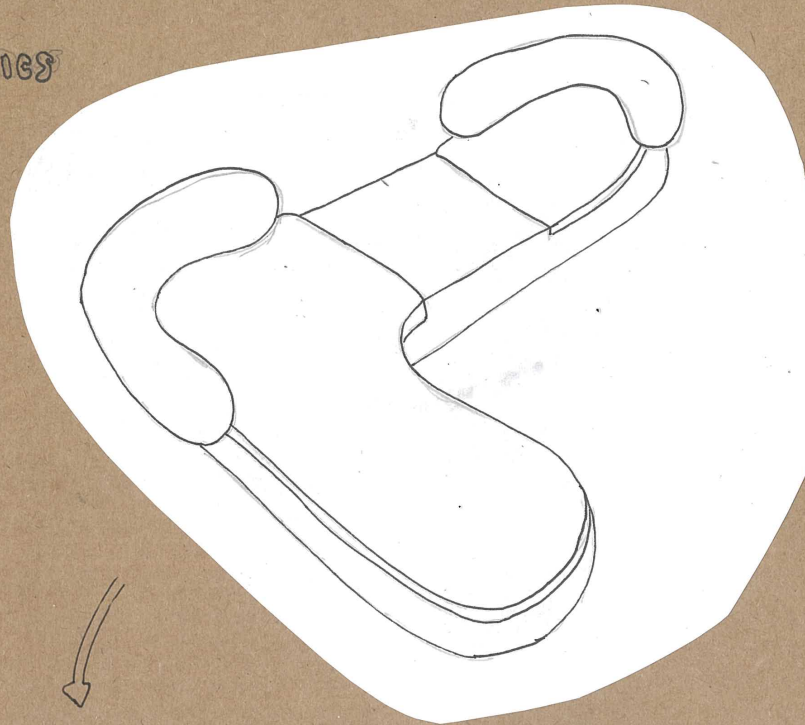
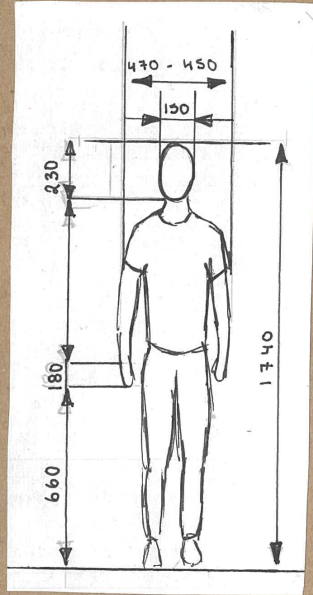
**RECYCLED PLASTIC**  
 Pros: strong, weather resistant. Doesn't fade or discolour. Easy to clean. Eco-friendly.  
 Cons: may blow/move in high wind.

**SYNTHETIC RESIN**  
 Pros: extremely weather resistant. Doesn't fade or discolour. Doesn't crack.  
 Cons: may blow around/move in high wind.



# DEVELOPMENT

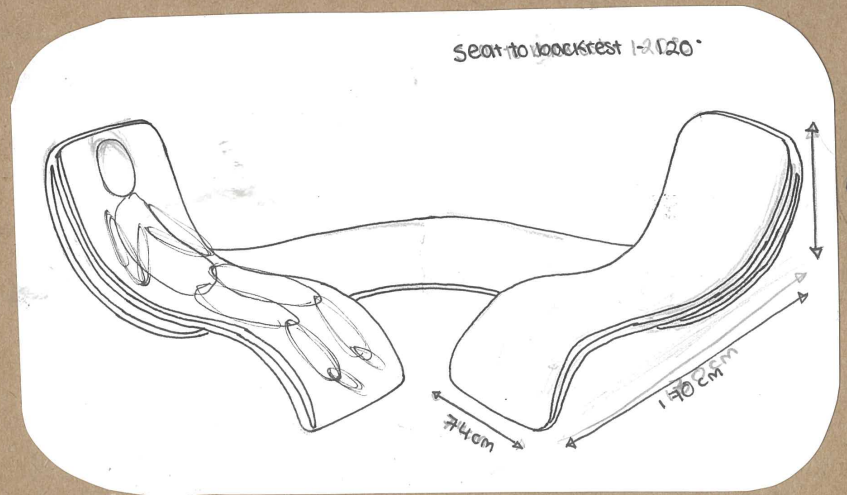
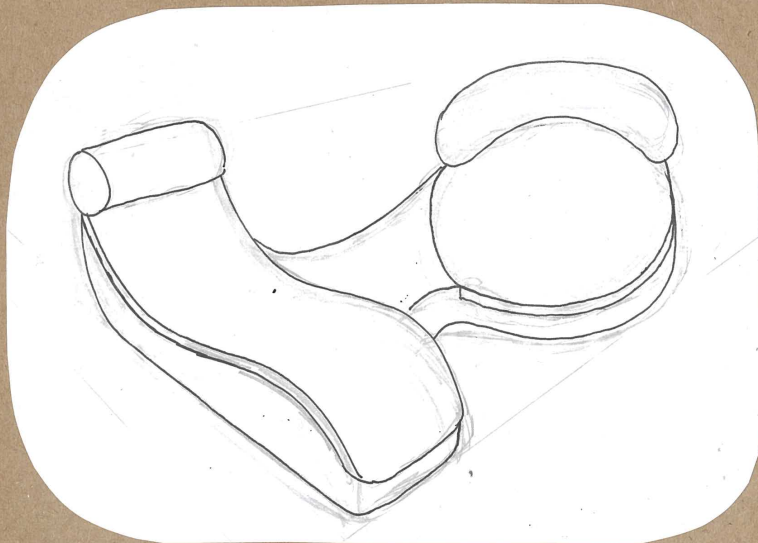
## ERGONOMICS + ANTHROPOMETRICS



This design was too basic and looked like a piece of furniture that had been done many times before.

I developed this design to show more shapes and curves. I wanted it to look different and unique.

However the design I created from this one didn't look and flow very well. To overcome this I decided to take the curved lounge aspect of it and replicate it (seen in ideation).



FINAL DEVELOPED DESIGN



# REFINEMENT



## Teak hardwood - base/frame

- this wood is very strong. It will not warp or crack in the harsh NZ environment.
- it repels water so will not expand or contract. This is good for the high amount of rainfall expected.
- it is resistant to rot, decay and bugs, and ∴ can be left outside
- it is easy to care for and clean. It can also be bent into shape.

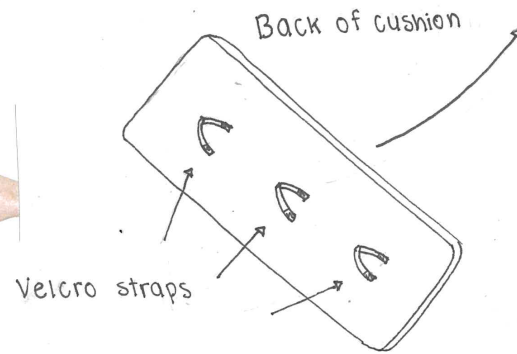
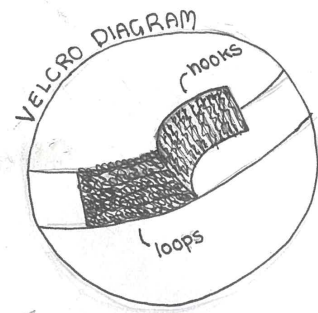
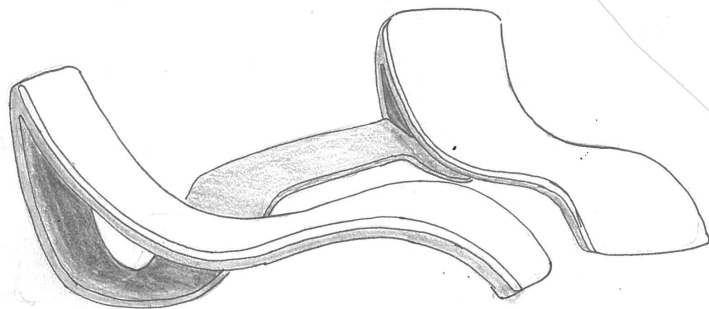
## Quick Dry foam - cushion inner

- extremely strong and durable
- foam has large, open pores which allow water to drain rapidly and foam to dry. This is good for the rainy environment.
- it is comfortable and holds its shape
- it is also mold and fungus resistant. Good in the damp environment.

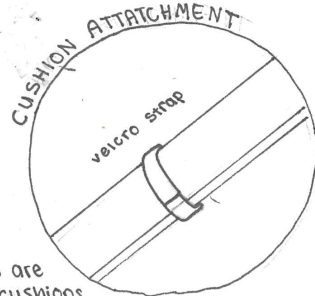
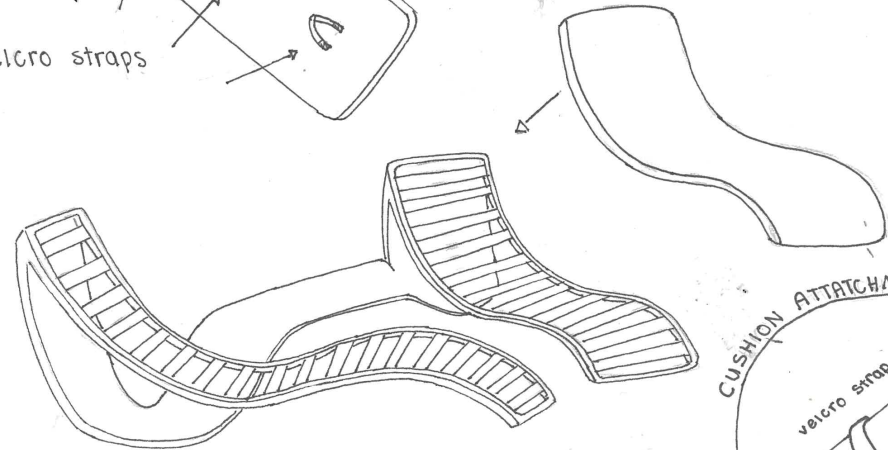


## Sunbrella upholstery - cushion outer

- durable against rain, sun and wind. Good for the changing NZ environment.
- fade, stain, and water resistant.
- it is also resistant against mold and mildew. Good for the damp months
- it is also easy to clean/care for.



The cushions attach by three velcro straps located on the back of the cushions. From there the straps wrap around the wooden slats.



The loungers have a wooden base and frame, the slats are also made out of wood and are there to support the cushions.

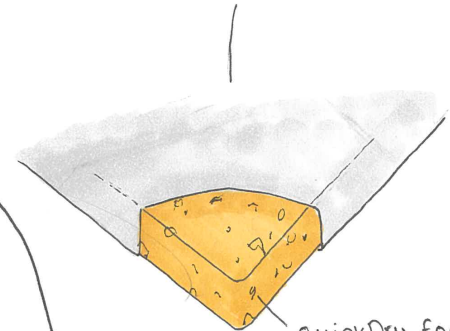
Can the cushions come off?  
How will they be attached?



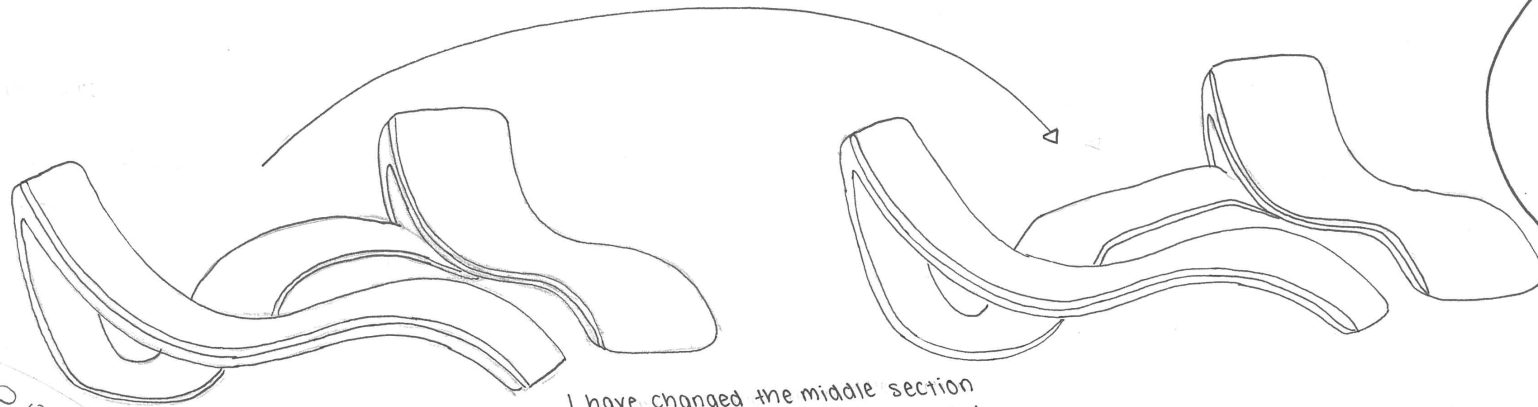
# REFINEMENT

## CUSHION INNER AND OUTER

Sunbrella upholstery



QuickDry foam



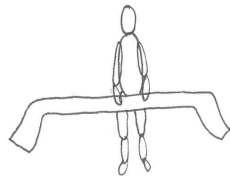
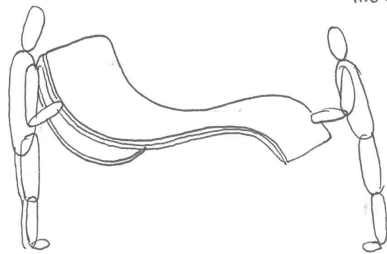
I have changed the middle section of my loungers from being rounded to being flat. This will allow it to be used as a table for food, drink, magazines etc, as well as another space for people to sit.

## MOVEMENT

- The loungers can be taken apart which results in three parts (2 loungers & the table).

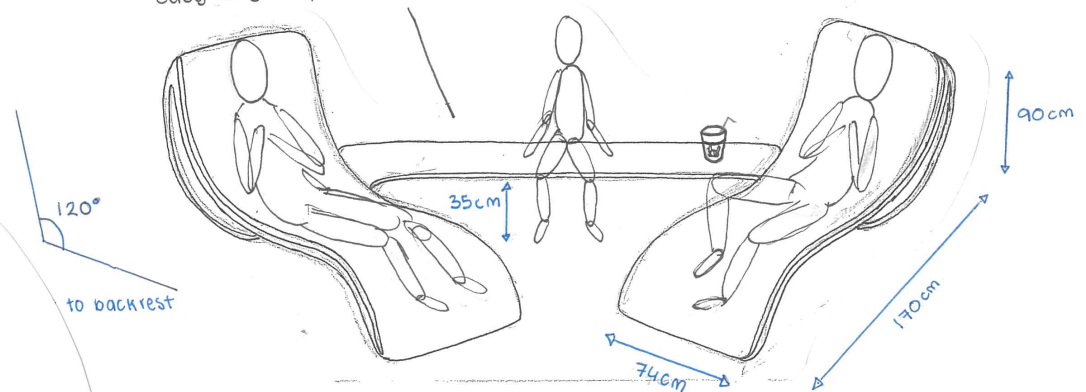
↳ This allows it to be easy to move, each chair section weighs approximately 26kg and the table/bench section weighs about 8kg.

- Each lounger can be easily carried and moved by two people
- The table/bench section is extremely light so can be lifted and moved by one person.



The middle is able to be used as a table or a seat. It is especially good for children as it is low so is easy to get up on.

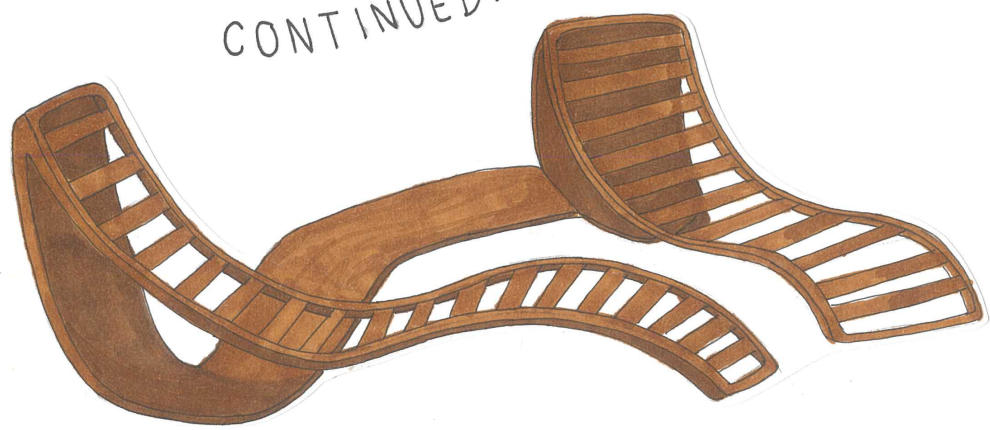
The loungers can accommodate both adults and children in terms of size and ergonomics.



Total weight - 60kg

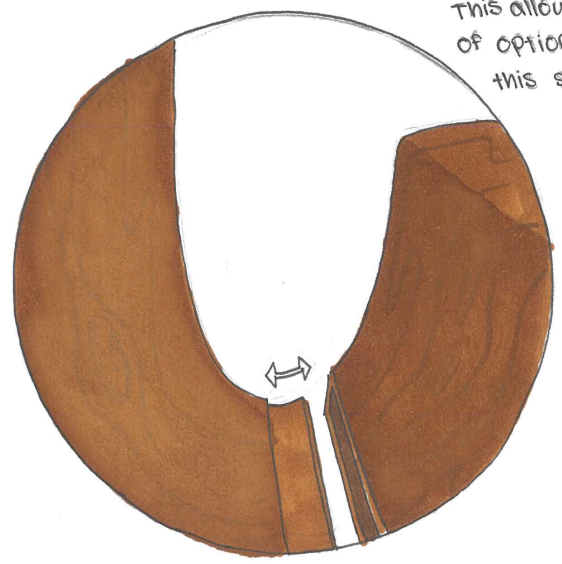
# REFINEMENT

CONTINUED...



The table section can be detached from the loungers. They have been designed so they can easily slot into and out of each other.

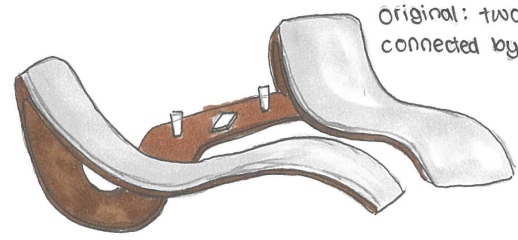
This allows the user to have a wide range of options for how and where to situate this seating solution.



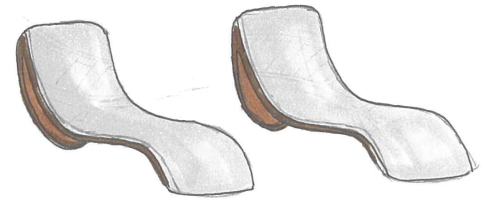
This seating solution can be adapted to the users needs as it can be arranged in multiple ways



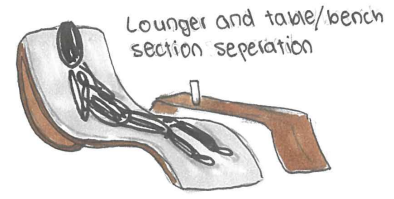
One lounge on its own



Original: two loungers connected by table/bench

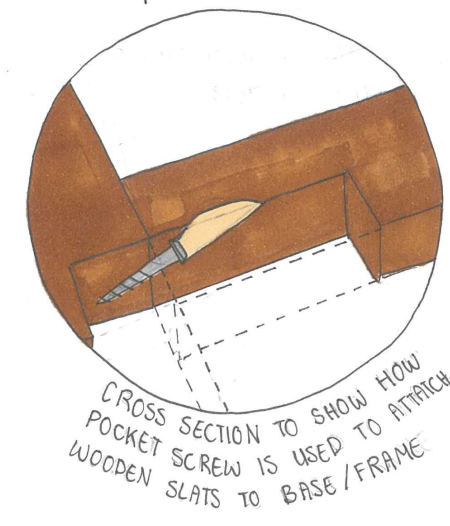
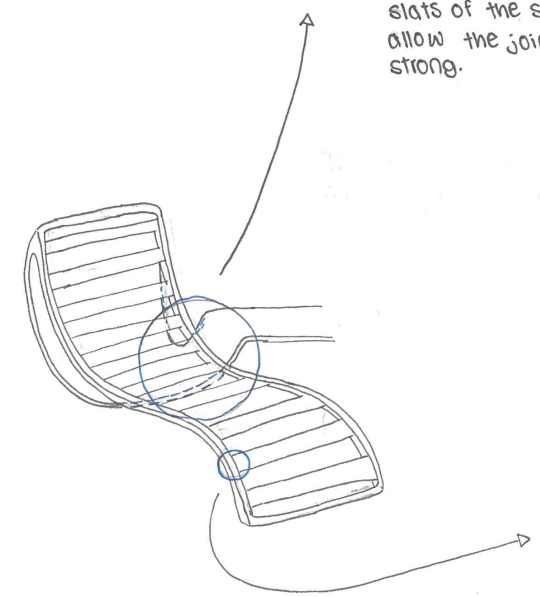


two loungers seperated



Lounge and table/bench section seperation

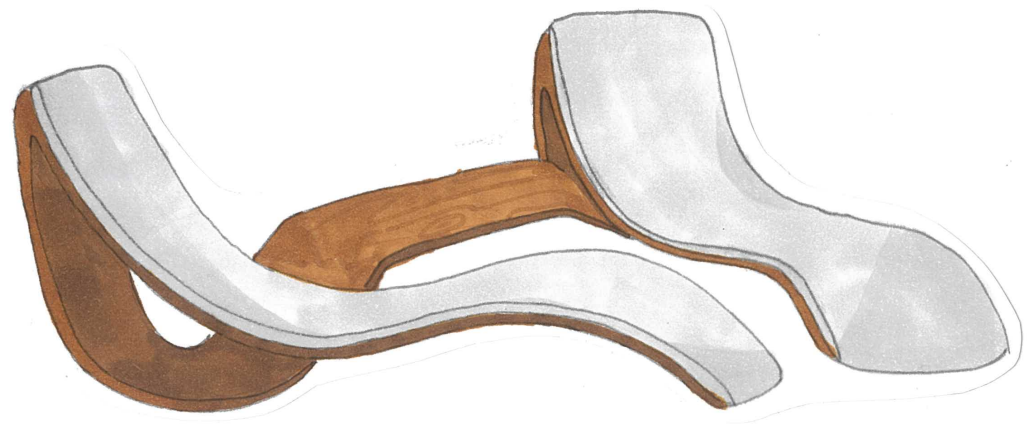
Pocket screws have been used to join the wooden slats of the seat onto the frame. Pocket screws allow the joinery to be hidden whilst still staying strong.



CROSS SECTION TO SHOW HOW POCKET SCREW IS USED TO ATTACH WOODEN SLATS TO BASE / FRAME

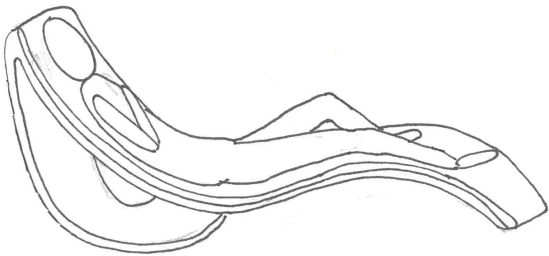
# REFINEMENT

## CONTINUED



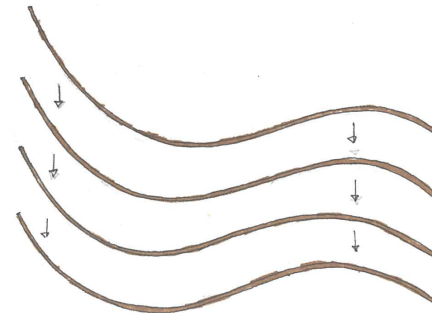
## ERGONOMICS

This lounge has been designed to fit the user. By applying it I am improving the users interaction with it in terms of comfort and the fact that all body sizes from children to adults can use it.



## CONSTRUCTION - CURVED WOOD

Thin layers of wood are glued together to allow the curved shape of my seating solution.

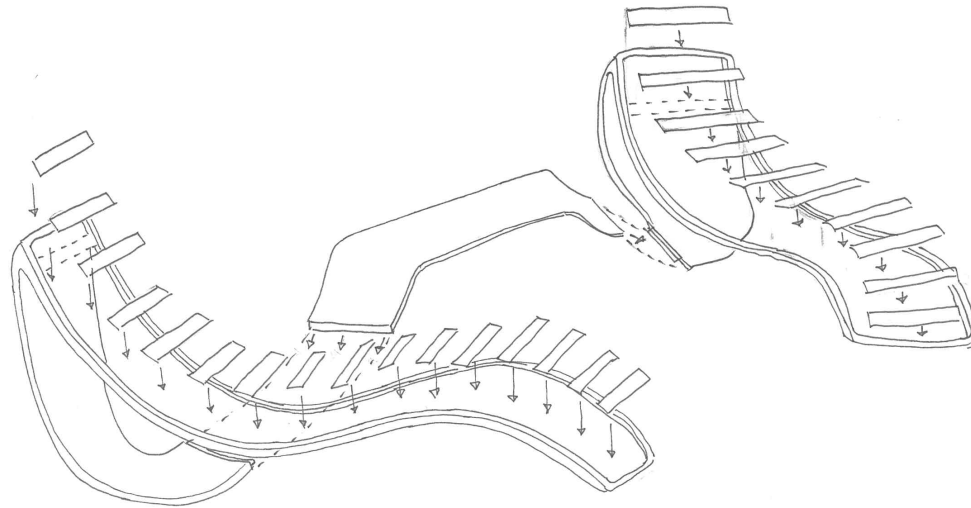


### Why?

- By glueing the layers of wood together and crossing the grains it achieves a much higher level of rigidity.
- It is much stronger and durable
- Allows it to be curved

# FINAL DESIGN

EXPLODED CONSTRUCTION



# FINAL DESIGN



## Merit

**Subject:** Design and Visual Communication

**Standard:** 91337

### Marker commentary

Page 1–3 of the submission focus on the exploration of ideas for an outdoor chair. Shapes have been extracted from images and existing solutions have been looked at to begin the process of developing design ideas for an outdoor chair.

Pages 4 and 5 show a range of design possibilities from the candidate that have been informed by the exploration on the previous pages. Human forms, simple shading and dimensions have been used to communicate the function and form of these ideas.

Pages 6 and 7 develop a chosen idea using 2D and 3D sketching, and a mock up to explore the idea, with some consideration to both function (human forms, dimensions) and aesthetics (materiality on the mock up).

Pages 8–13 focus on refining the idea, with a focus on functional considerations such as size and construction.

This submission is a Merit. A range of design possibilities have been generated – with the strongest evidence for divergence being seen in the development of the chosen design idea.

The visual communication uses a variety of techniques to communicate the candidate's ideas. The functional and aesthetic design qualities are clarified through the use of human forms throughout, and diagrams and details of construction.