

No part of the candidate's evidence in this exemplar material may be presented in an external assessment for the purpose of gaining an NZQA qualification or award.



Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Level 1 Design and Visual Communication 2024

**92002 Develop product or spatial design ideas
informed by the consideration of people**

EXEMPLAR – PRODUCT DESIGN

Excellence

TOTAL 08

Purpose



Drink bottle

Vinegar

coffee

Honey

jam

Butter

Traveling

Camping

Overseas

Tamping

Everyday

Home

Kitchen

Emergency

school

Sport

Brainstorm

Place

Cometic users / people

Teenagers (13 - 17)

Children (3-12)

Toddlers (1-3)

Middle age people (40 - 60)

Babies

Females

Athletics

Males

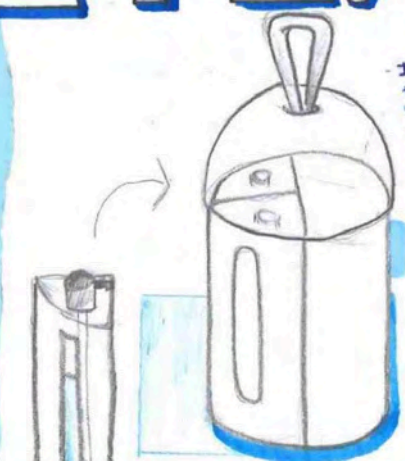
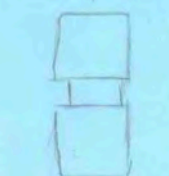
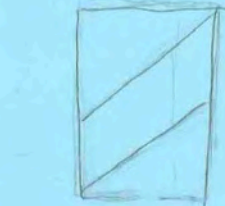
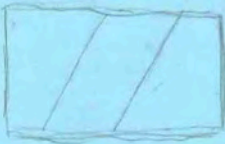
Design statement

I am going to design a travel kit that contains toothpaste, mouthwash and toothbrush. The people who will use this is anyone who will be traveling.

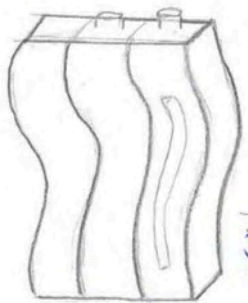
This can be used for anyone who is traveling for example camping or going overseas.

This is to make packing and finding toiletry easier and more efficient for having these products together

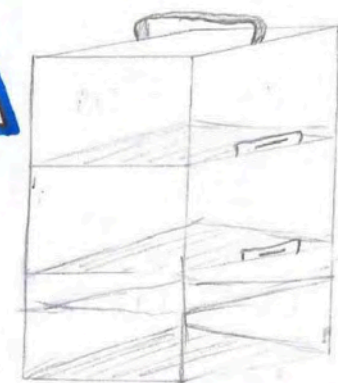
INITIAL IDEA



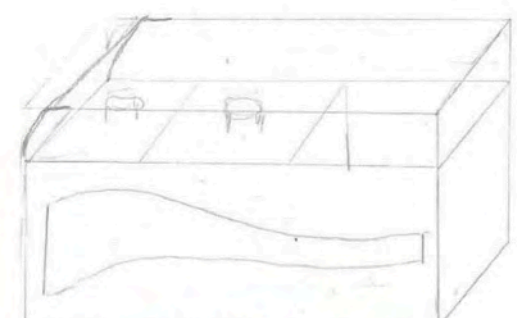
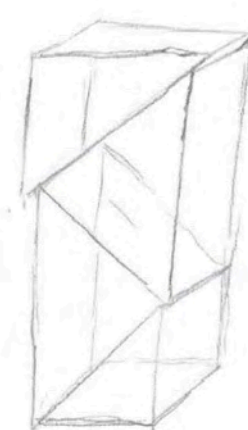
I really like this design there are multiple things that you can put in here. The bottles make it easier for people who travel to carry liquids.



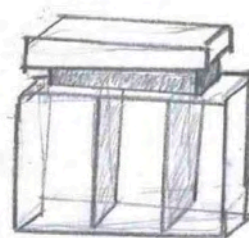
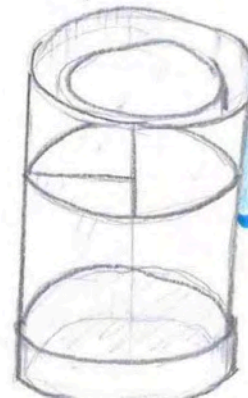
- hard to put things inside but cute concept



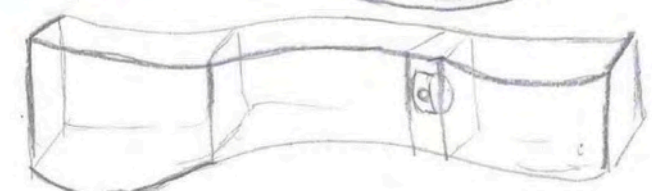
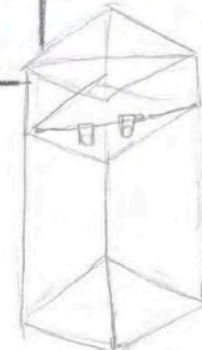
to bulky not good for traveling



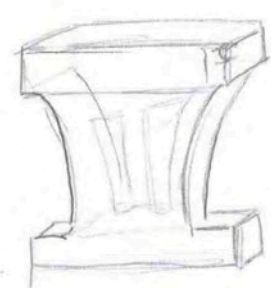
- Its to Sharp and feels bulky but its a simple design. May be hard to develop



I like the concept but its to difficult and its very compact, not good for travelers



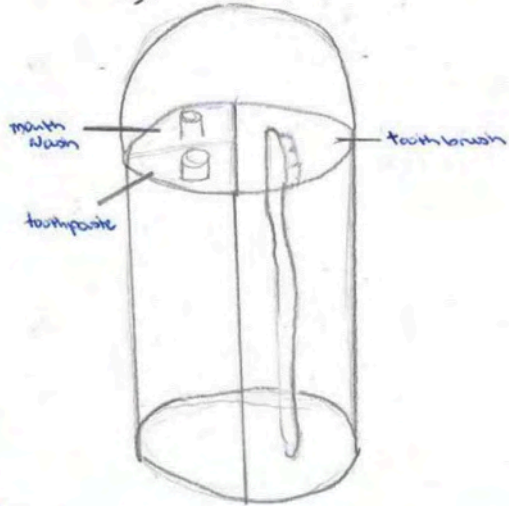
- This would be nice and compact but how could I add/have a tooth brush.



DEVELOPMENT

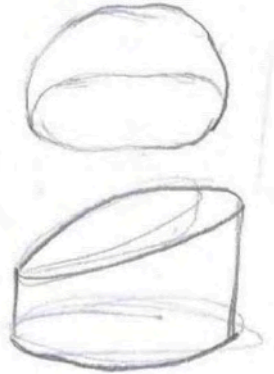
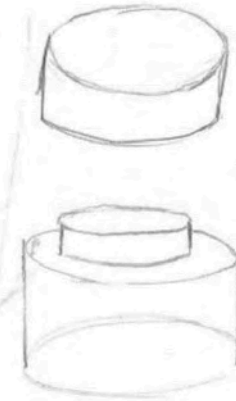
SHAPE AND FORM

Initial Idea



I like these 2 because its like water & the flow box

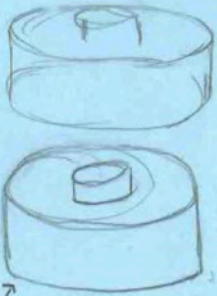
Lid Shapes



WAYS IT COULD GO TOGETHER



-makes a semi circle and is the best outside shape.



Stackable

This should be very annoying to get out since you need to get the top one out just to get the second one out.



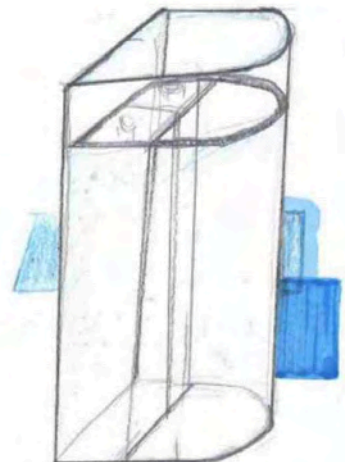
Stackable



This is the most stable than others however its much more bulky and people who travel would probably much rather have something less stable but compact than very stable but bulky



I like this bottom because it would be an extra storage



-I like how it has a flat side and a curvy side the curvy side should be nicer to hold

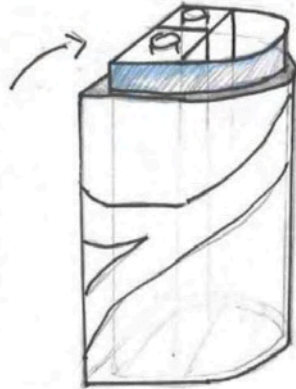
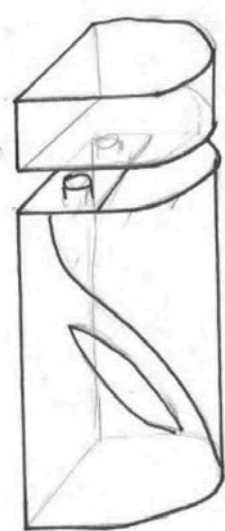
This flat side helps it become more stable since it can be next to the wall



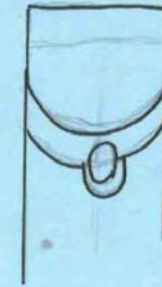
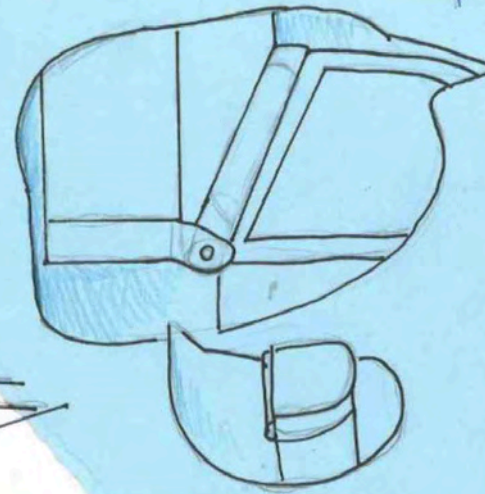
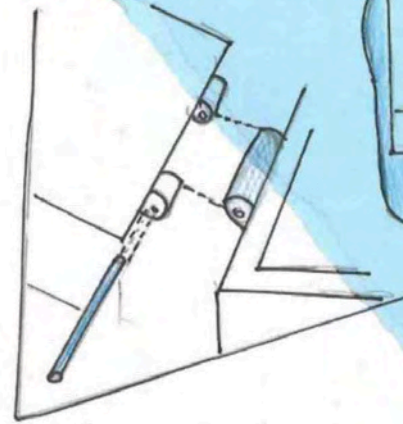
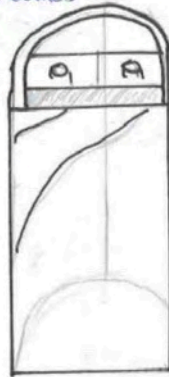
DEVELOPMENT 2

Lid

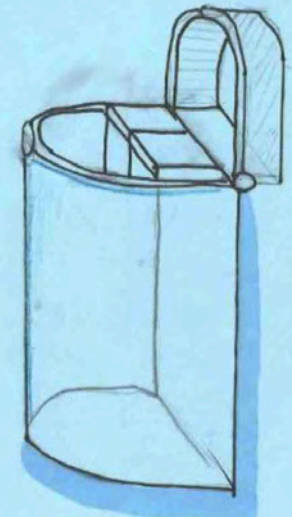
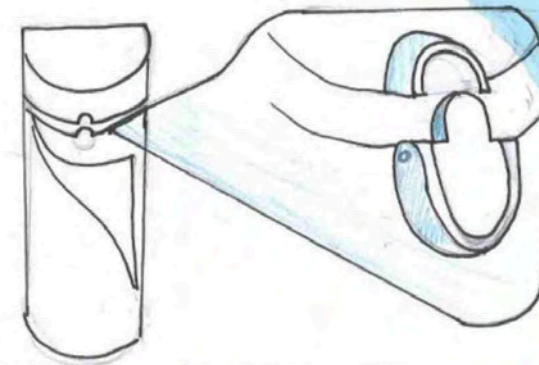
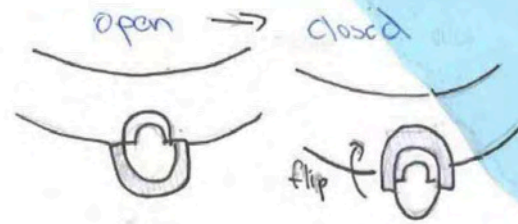
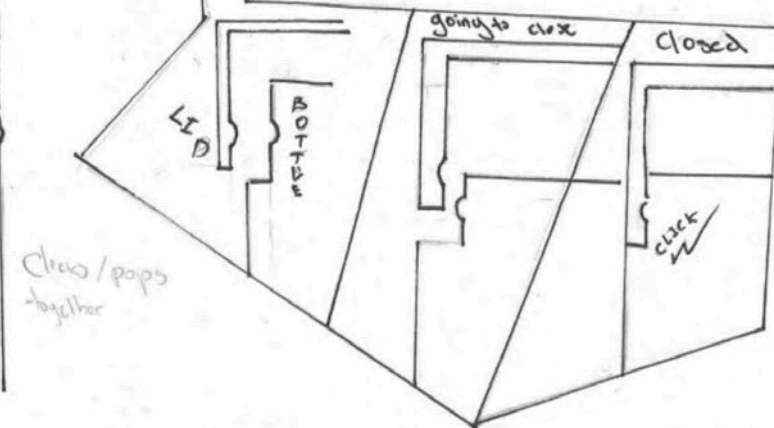
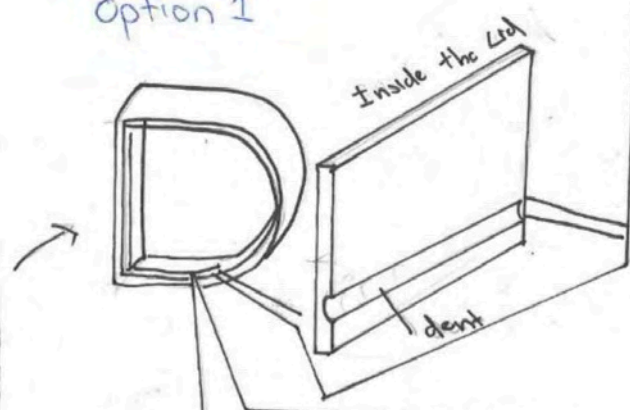
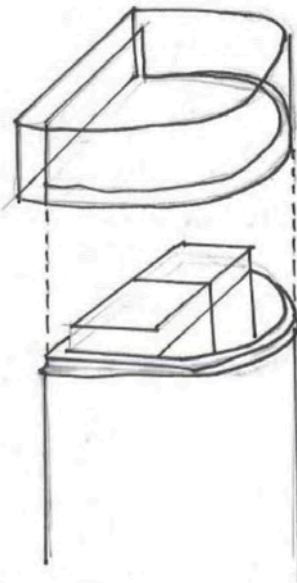
Option 2



This will make it easier to get the bottles
User friendly for everyone
especially for older and younger
individuals



Option 1



	Option 1	Option 2
Pros	- easy to open & close/user friendly	- more secure
Cons	- may fall off if it moves around - It could be very tight which is not user friendly	- extra parts to make

DEVELOPMENT 3

Extra Bottles

NOT DRAWN TO SCALE

One for toothpaste
another for mouth wash

Mouth Wash

- make it bigger, longer
so the easier for
travel in
Drama 1000
& easier to fill

Modelling and
Function

Turn / twist

easy & simple
design for travellers

Toothpaste

Tried many options & found
this is the best.

Without Lid
pushed up

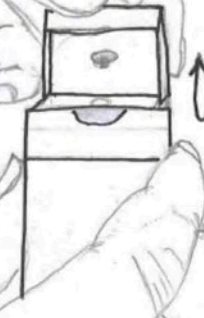
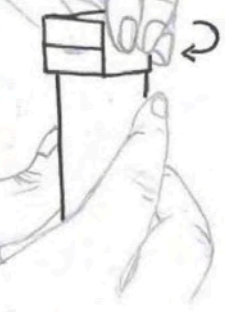
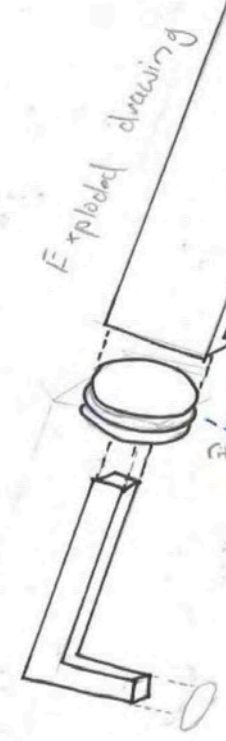
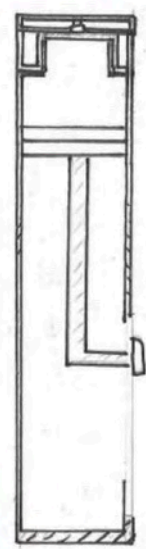
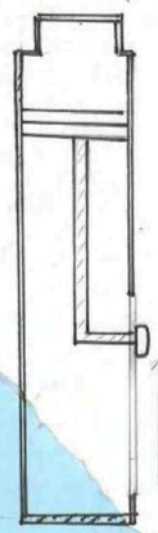
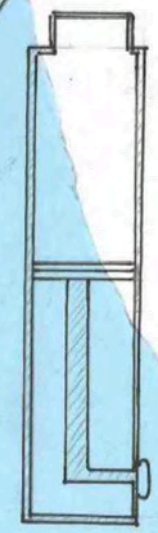
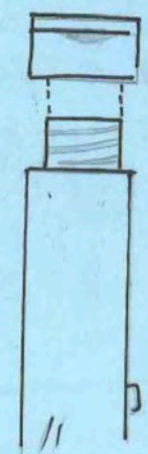
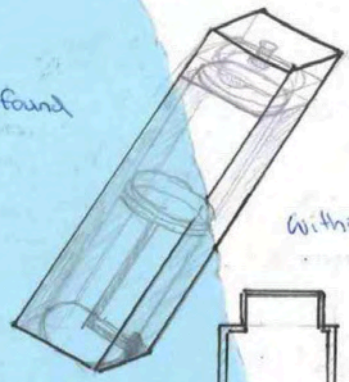
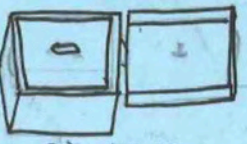
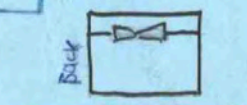
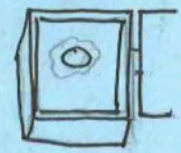
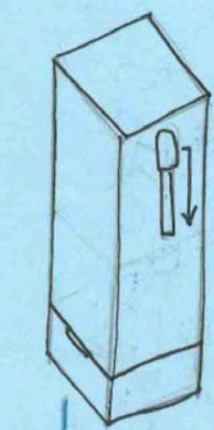
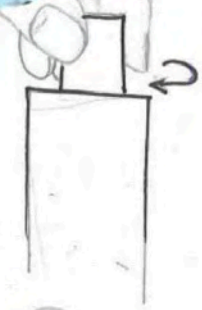
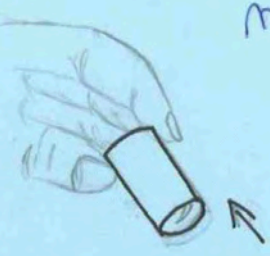
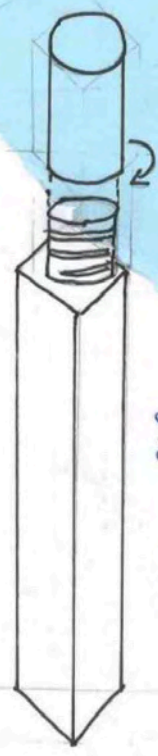
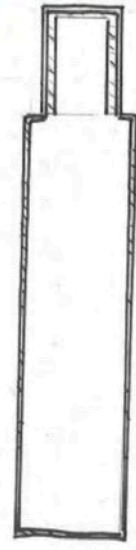
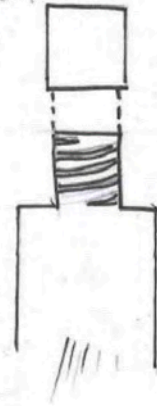
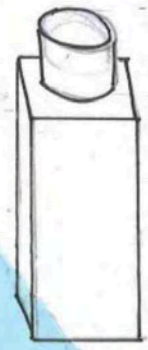
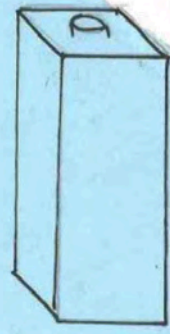
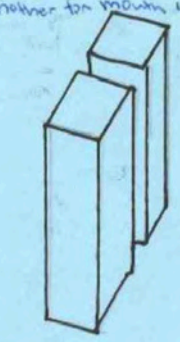
With Lid

Exploded drawing

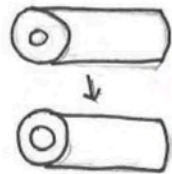
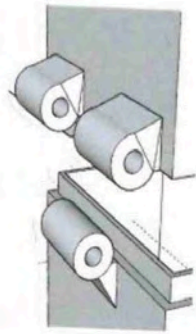
Turn /
twist to
refill

flip open

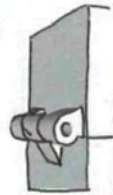
- the plunger
(its what its
syringe)



DEVELOPMENT



changed the size of the hole. Makes it stronger

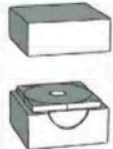
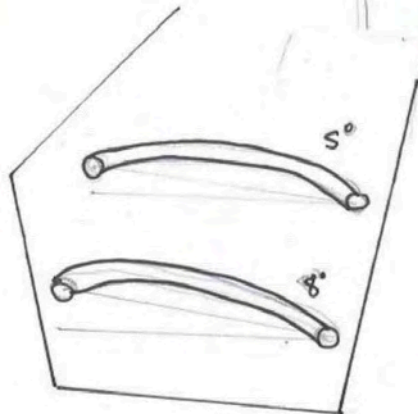
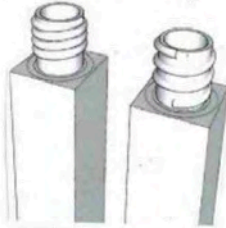


Initial design

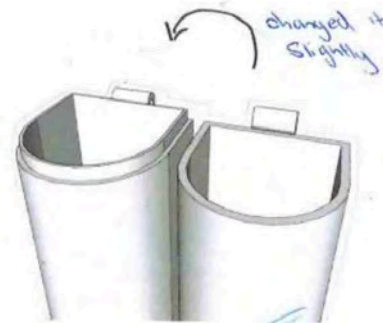
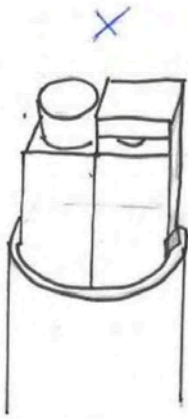
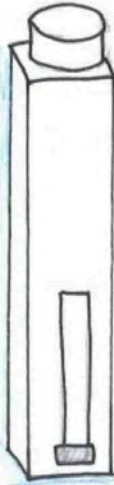
But it wouldn't function



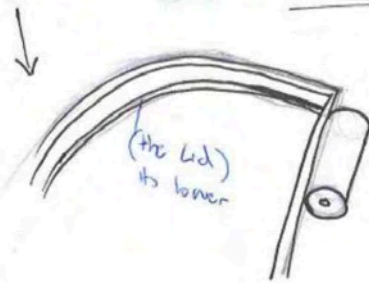
This was 5° so changed it to 8°



so then it fits into the bottle
moved it to the front



changed it slightly



(the lid) its lower



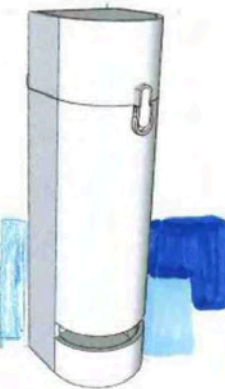
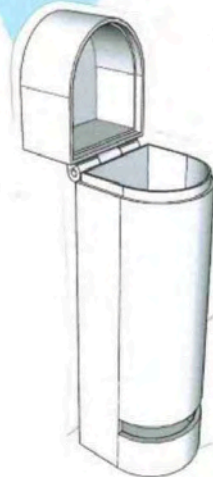
Flipped up



so then it fits

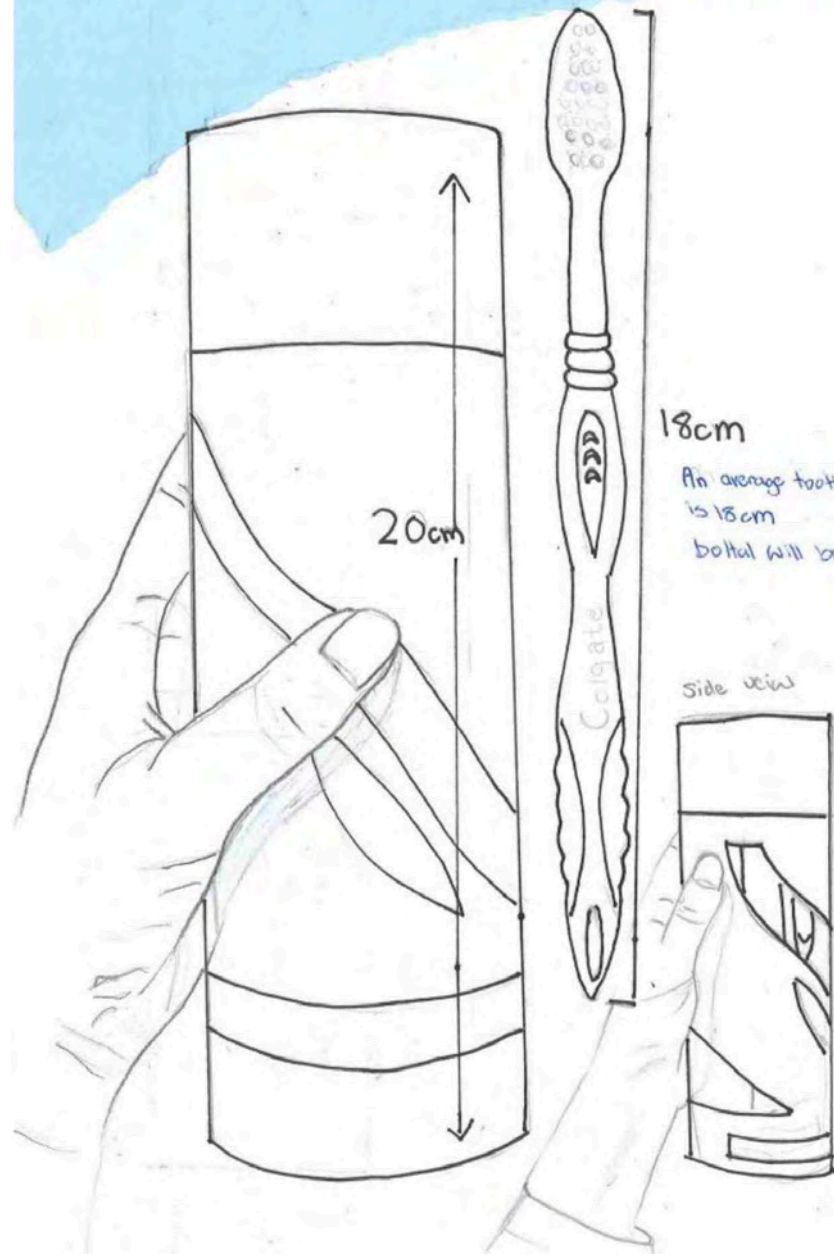


Final main bottle



DEVELOPMENT

Modelling

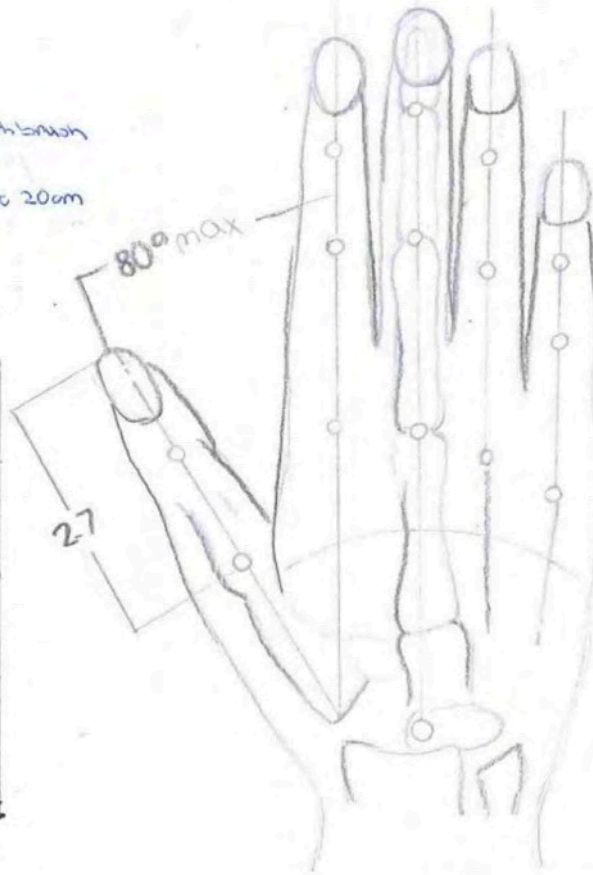


18cm

An average toothbrush
is 18cm
bottle will be 20cm

Side view

HAND
ERGONOMICS

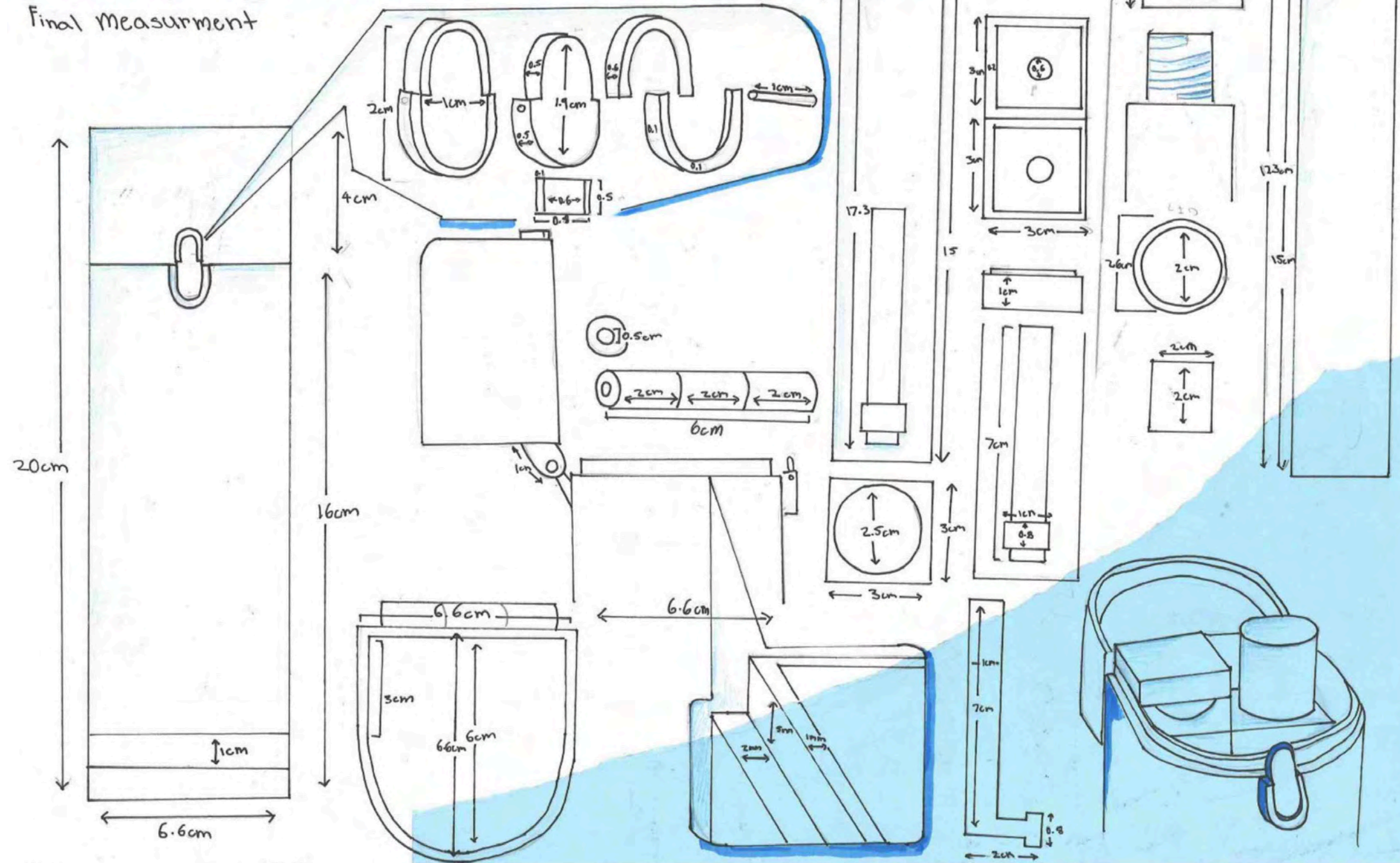


Refilling



DEVELOPMENT

Final measurment

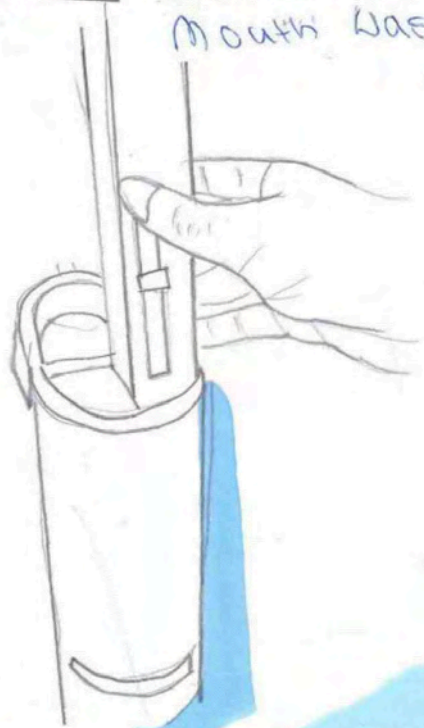


MODELLING

AND FUNCTION



Mouth Wash



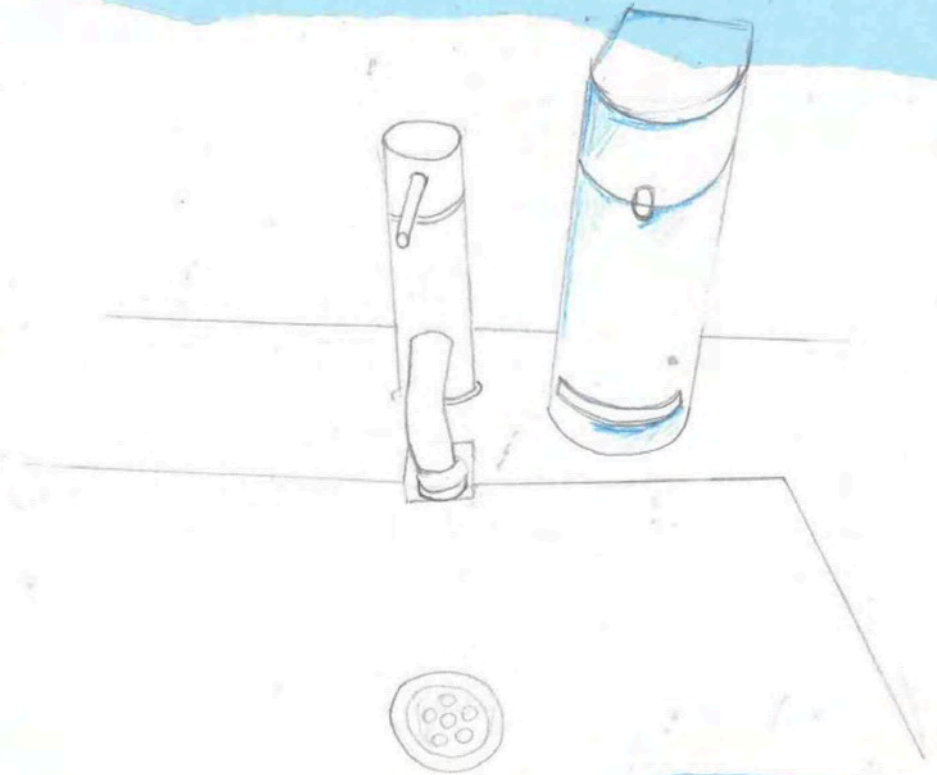
Can put my tooth-paste
OR
Any regular toothpaste
you can swap them out however you like



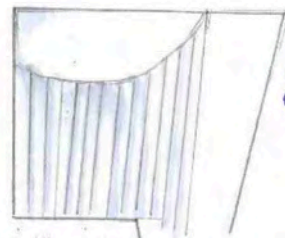
TOOTH PASTE



easy to
fit into
back pack



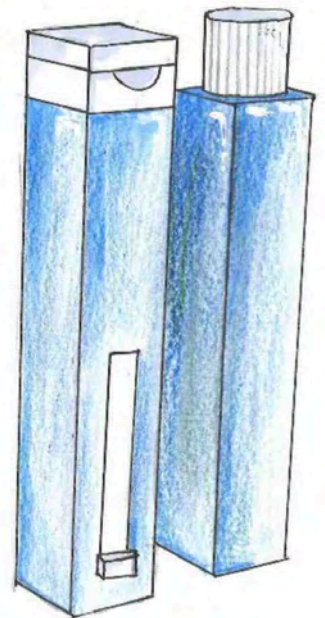
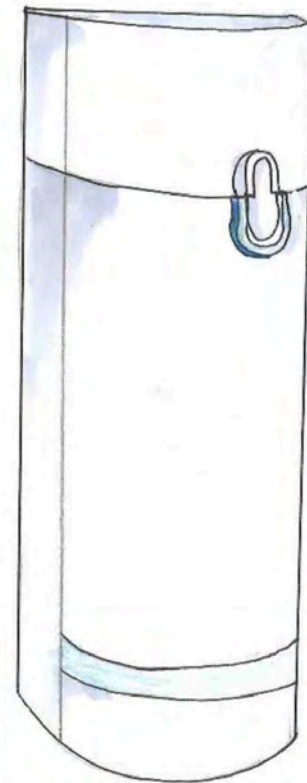
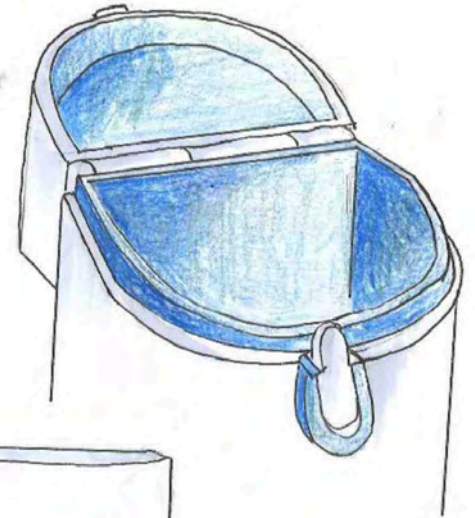
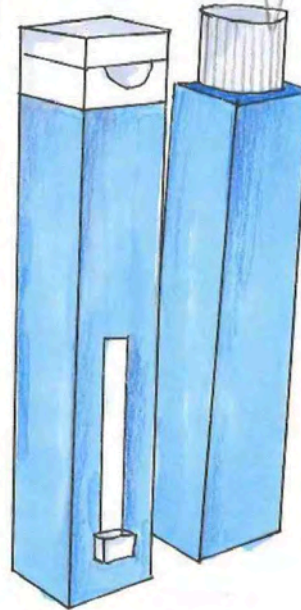
C O L O U R



Good Grip
easier for
users

Final colouring

Exploring with the
blue



Different colour options

Any colour looks nice but the blue
stood out to me.

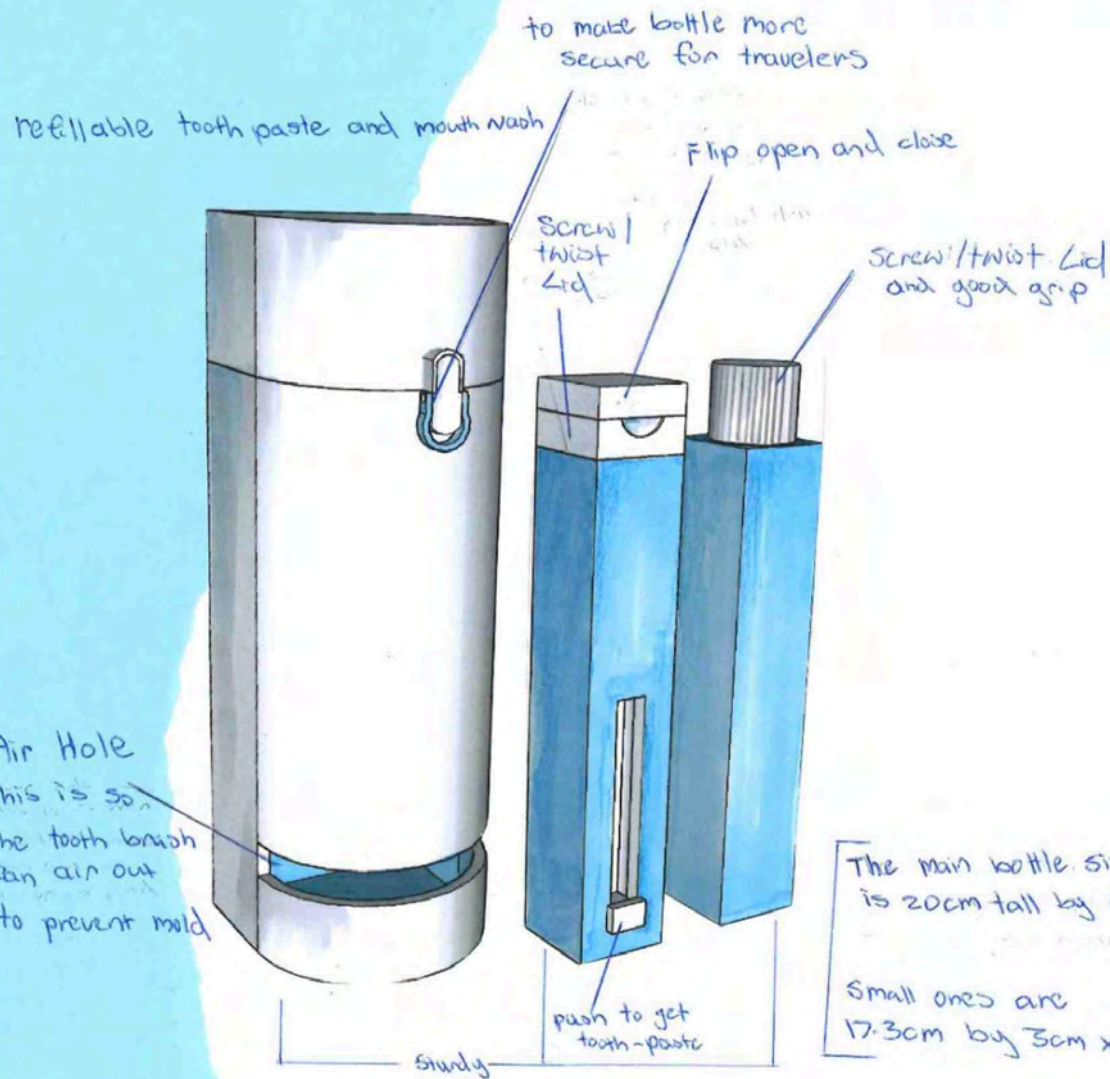
Artificial intelligence colour options

Material options

- Plastic
- Glass
- Metal
 - Stainless steel
 - Aluminium
- Silicone
- PET



FINAL DESIGN



The main bottle size
is 20cm tall by 6cm x 6cm

Small ones are
17.3cm by 3cm x 3cm

My bottle is compact and user friendly.
It can be bring on planes since it is
under the 100mL rule
Mouth Wash holds max 53mL

All the Parts



Being held



Fits into back pack

Material

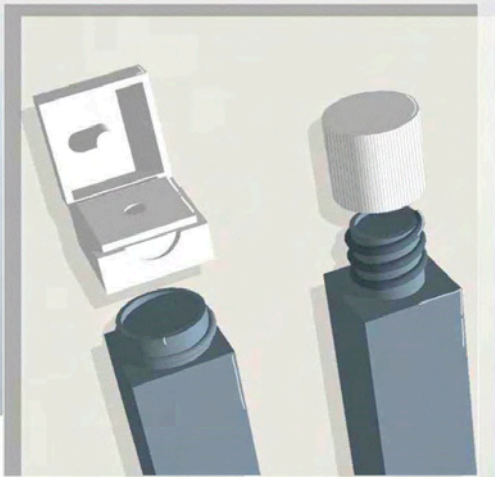
BPA free bottles
Eco friendly /
recyclable plastic

At a sink



BRAINSTORM

- What it opens
- On compact
- On plastic - showing highlights
- On filling
- On filling is a final background or surface





Excellence

Subject: Design and Visual Communication

Standard: 92002

Total score: 08

Grade score	Marker commentary
E8	<p>This project involves designing a travel kit that holds toothbrushing products. The visual communication used throughout the submission is clear. The submission shows a range of modes, including freehand sketches, CAD models, and physical models. Features and details of how users will interact with the product are shown from a range of angles and views.</p> <p>The submission explores a range of design ideas and demonstrates clear decision-making and continued development of an idea by exploring alternatives, changing the design, and adding features and details that improve the design for the user. Decisions to improve user experience are made at each stage of the project; this is communicated through notes and visually with the inclusion of hands to indicate how the user will interact with the kit and the products that will go in it. The final product is shown being used in various ways.</p>

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Mana Tohu Mātauranga o Aotearoa
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Level 1 Design and Visual Communication 2024

**92002 Develop product or spatial design ideas
informed by the consideration of people**

EXEMPLAR – SPATIAL DESIGN

Excellence

TOTAL 08

SITE ANALYSIS

LAKE MANGAMAHOE MOUNTAIN BIKE PARK

I am designing a tiny cabin which will be located at the Lake Mangamahoe MTB Park.
This cabin will be used for people to stay out at the park and ride their bikes.



1.



2.



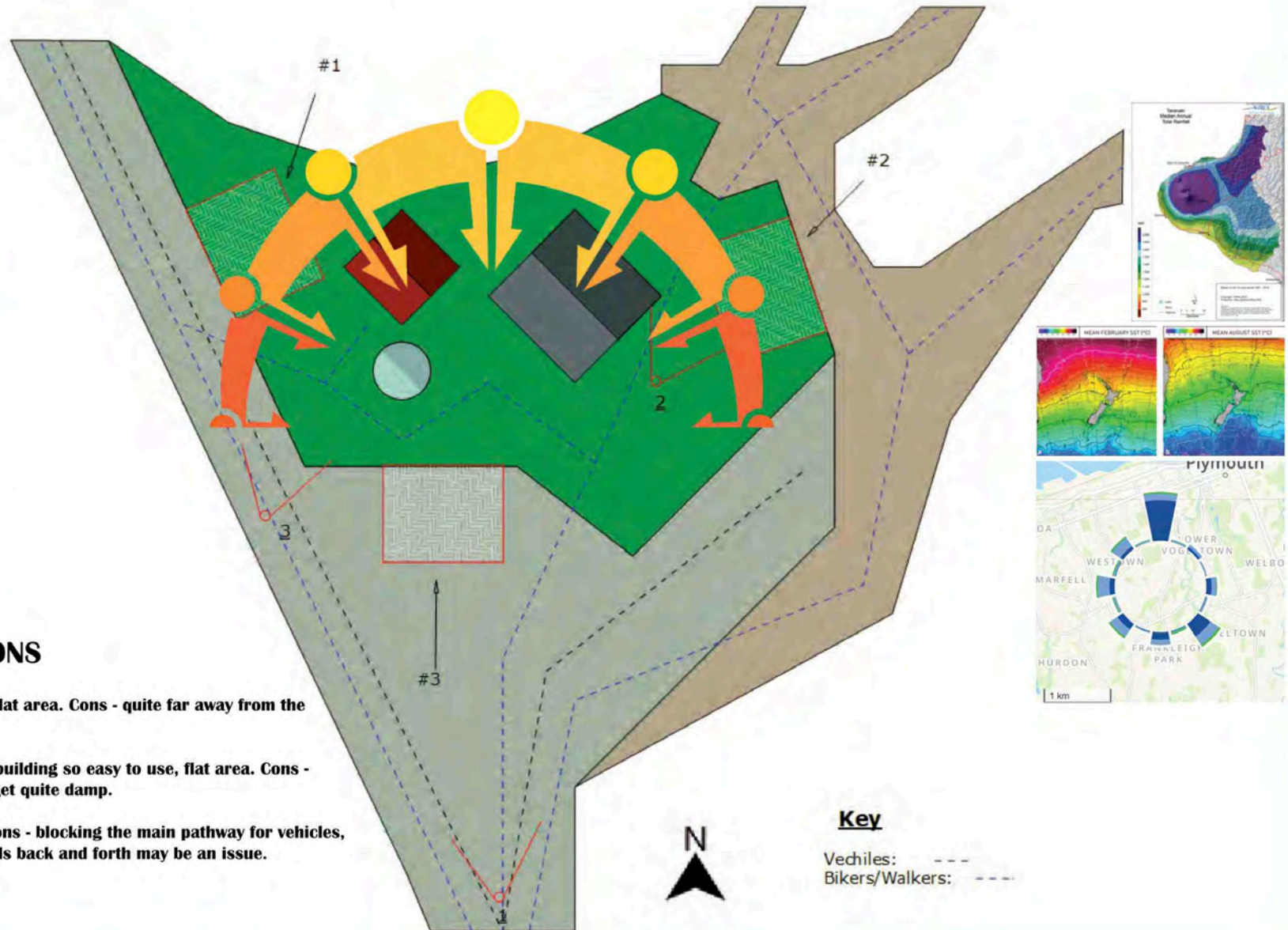
3.

PROS + CONS FOR LOCATIONS

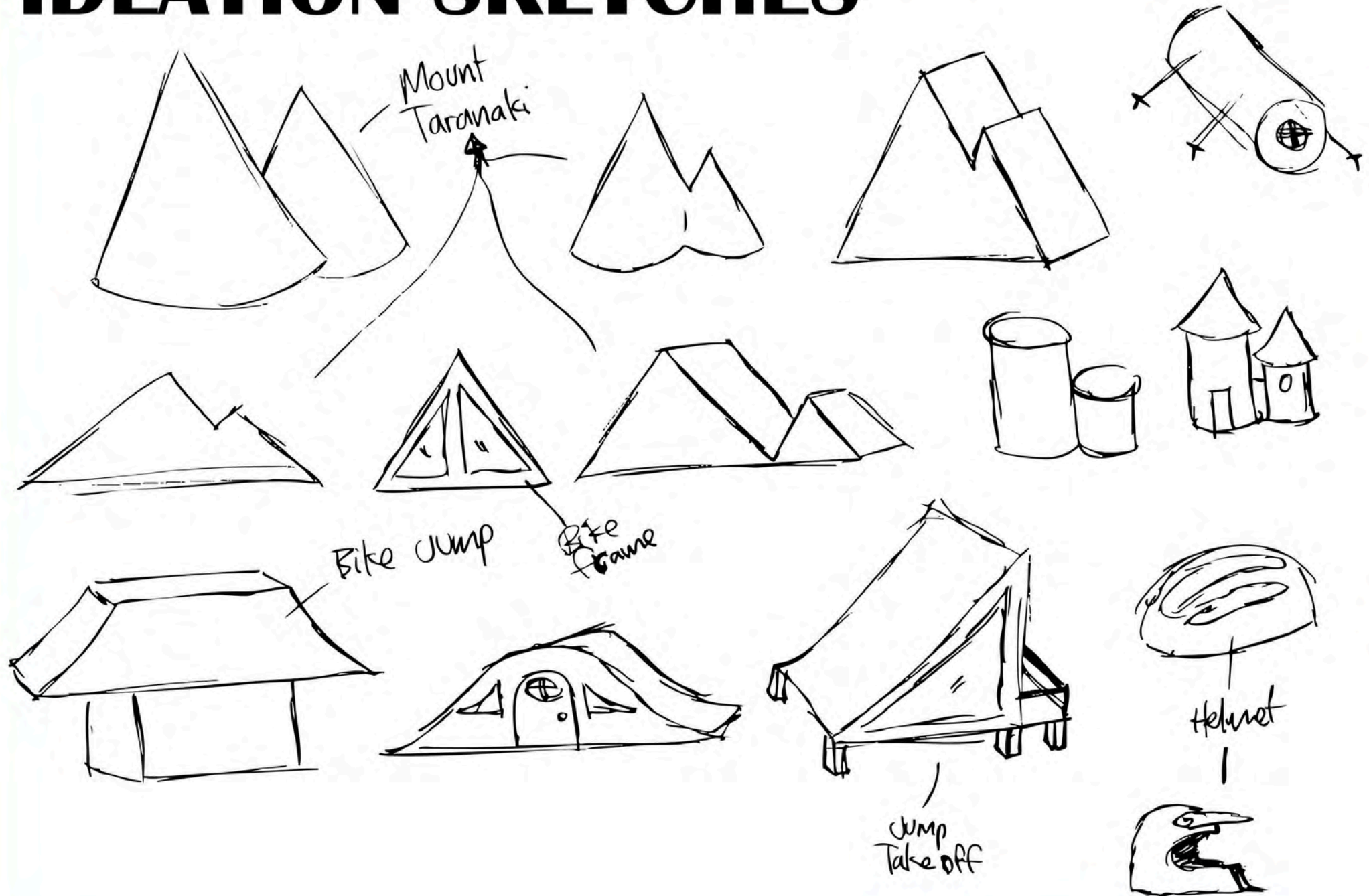
#1 Pros - easy to access, right on main path, flat area. **Cons** - quite far away from the trail network.

#2 Pros - Close to trail network, next to main building so easy to use, flat area. **Cons** - quite far from main gravel road, that area can get quite damp.

#3 Pros - right near the entrance, flat area. **Cons** - blocking the main pathway for vehicles, far away from the trail networks so getting tools back and forth may be an issue.

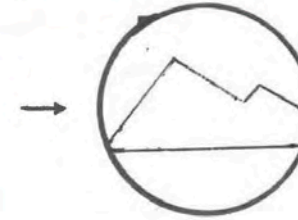


IDEATION SKETCHES

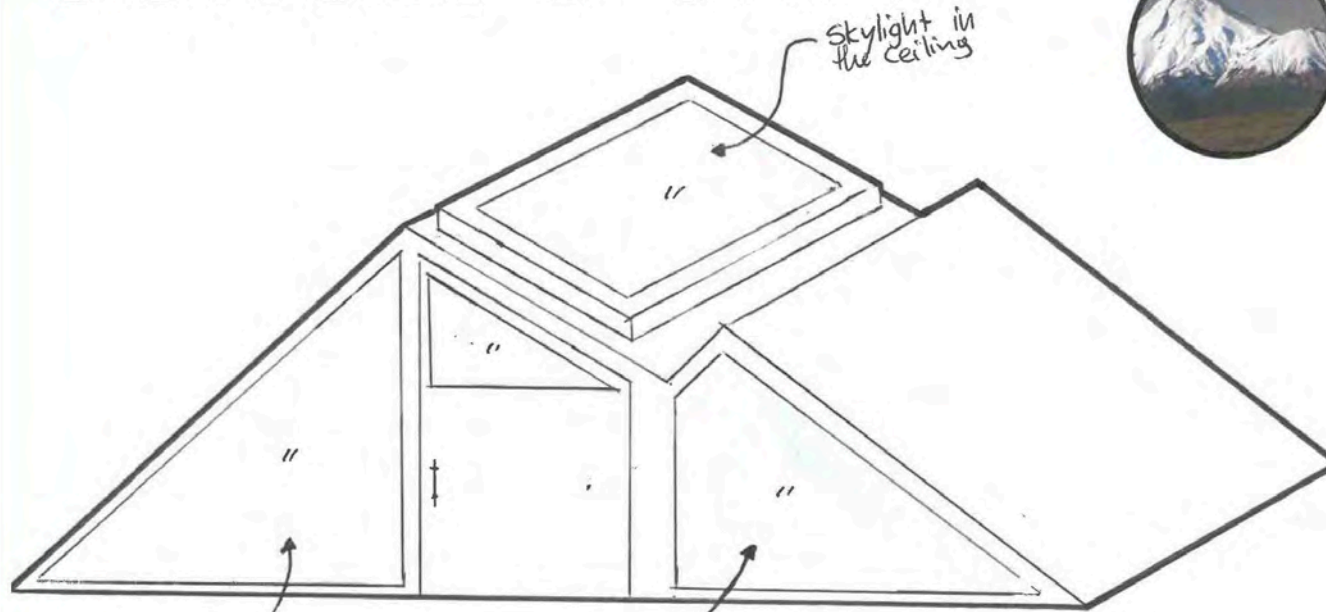


CONCEPT ONE

PITCH FORM



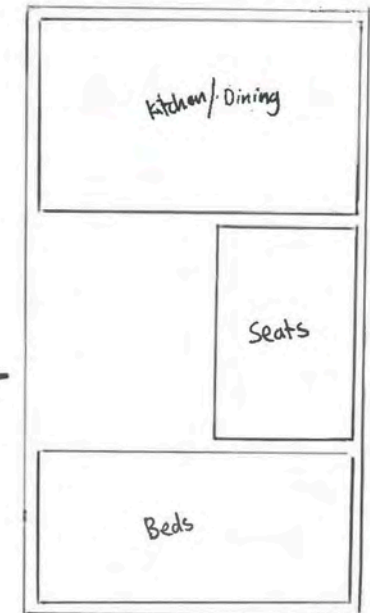
All my concepts are inspired by the location of the building and its connection to mountain biking and the Taranaki region. Concept 1 is inspired by Mt Taranaki, which is a dominating feature of the region and overlooks the Mangamahoe Bike Park (the build location). I have used the shape of the mountain to inspire the shape of the roof pitch.



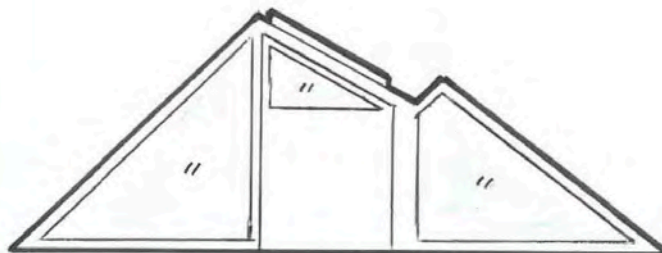
Skylight in the ceiling

Large open glazing frontage inspired by my research. Allowing lots of light to enter the building.

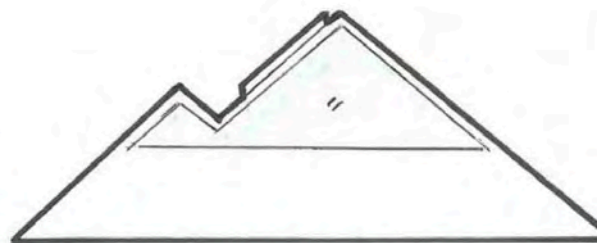
Cabin to have space for a couple of people to sleep, a small kitchen space for basic needs, an open plan living with seating and room for people to hang out.



NORTH ELEVATION



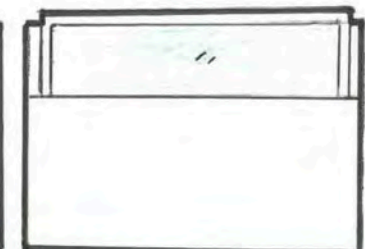
SOUTH ELEVATION



EAST ELEVATION

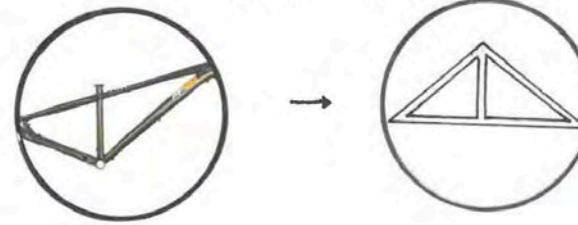


WEST ELEVATION

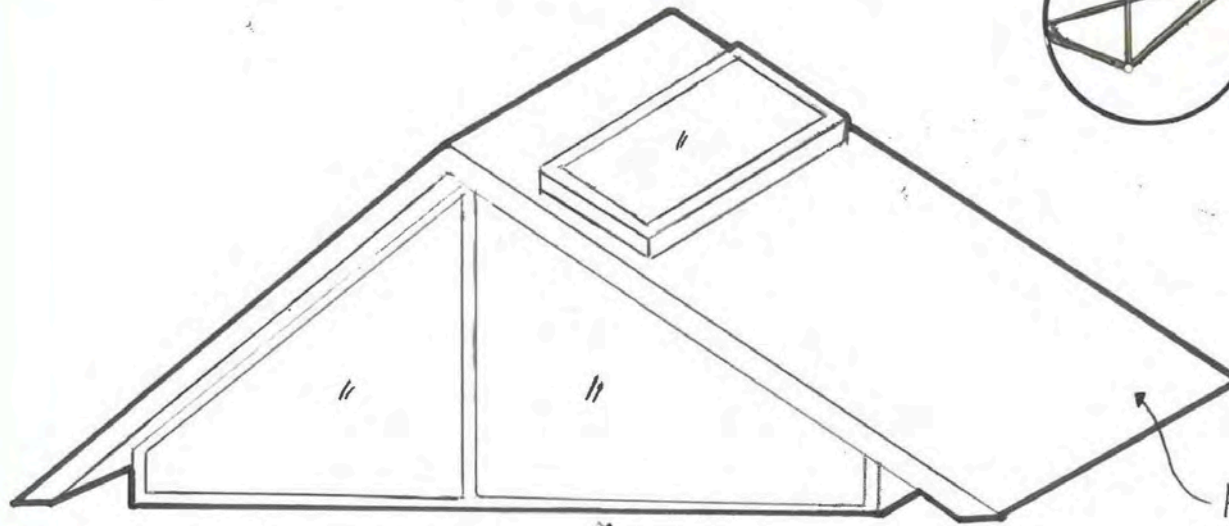


CONCEPT TWO

PITCH FORM

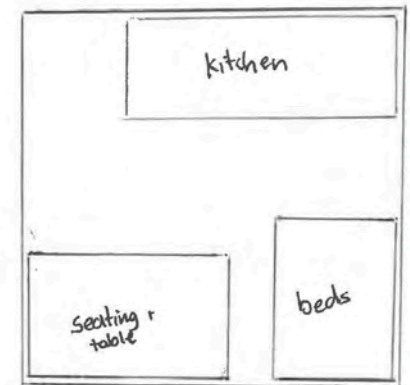


All my concepts are inspired by the location of the building and its connection to mountain biking and the Taranaki region. Concept 2 is inspired by a bike frame. I have used the shape of a bike frame and flipped it upside down to inspire the shape of the roof pitch.



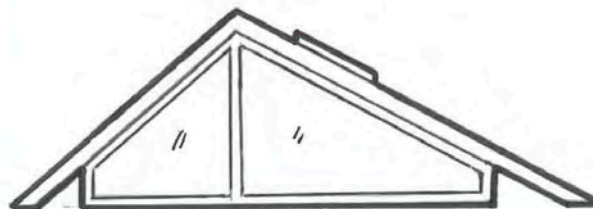
A-frame roof allows rain to run off, the overhang over the building protects it from heavy rain fall.

Large windows allow for lots of light to enter the building and allows for a good connection with the outside environment.



Sliding door allows for better flow into the building and ease to bring bikes into the inside space.

NORTH ELEVATION



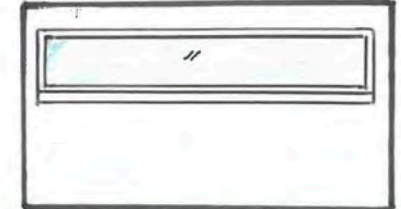
SOUTH ELEVATION



EAST ELEVATION

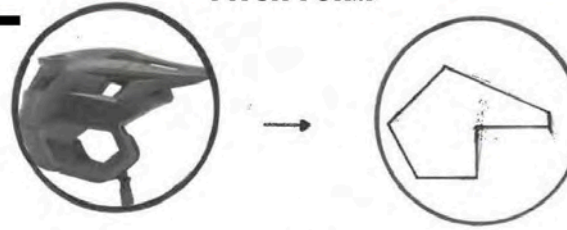


WEST ELEVATION

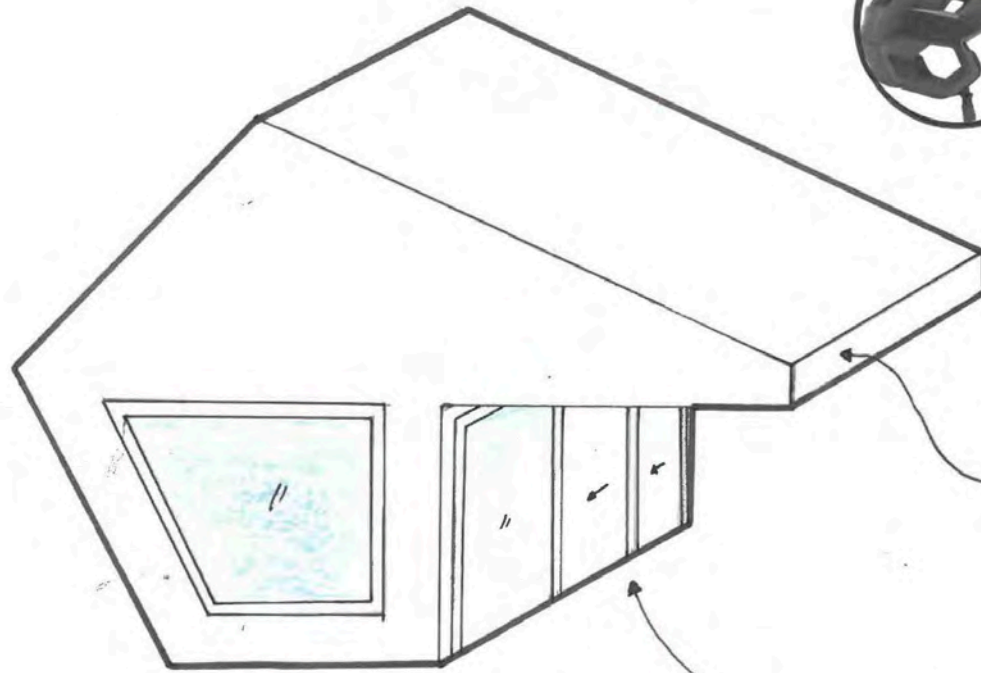


CONCEPT THREE

PITCH FORM



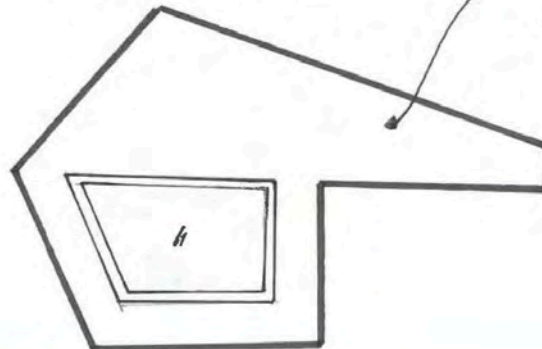
All my concepts are inspired by the location of the building and its connection to mountain biking and the Taranaki region. Concept 3 is inspired by a bike helmet. I have used the shape of a bike helmet and used the peak of the helmet to create a verandah space.



Overhang allows for undercover sheltering weather. space outside in road

Large glass sliding doors allow for greater access into the building and better inside-outside flow when they are open

NORTH ELEVATION



Sleep area can be located in this loft space accessed by ladder inside the cabin.

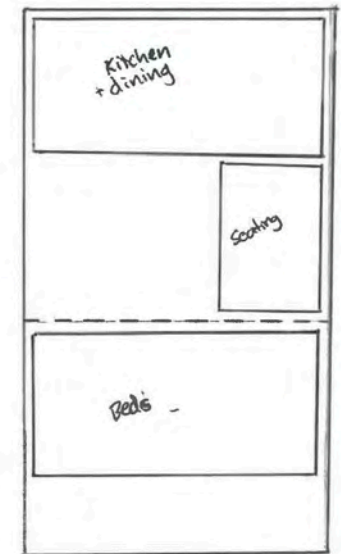
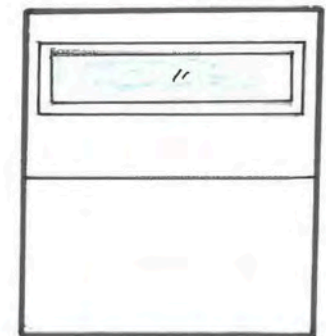
SOUTH ELEVATION



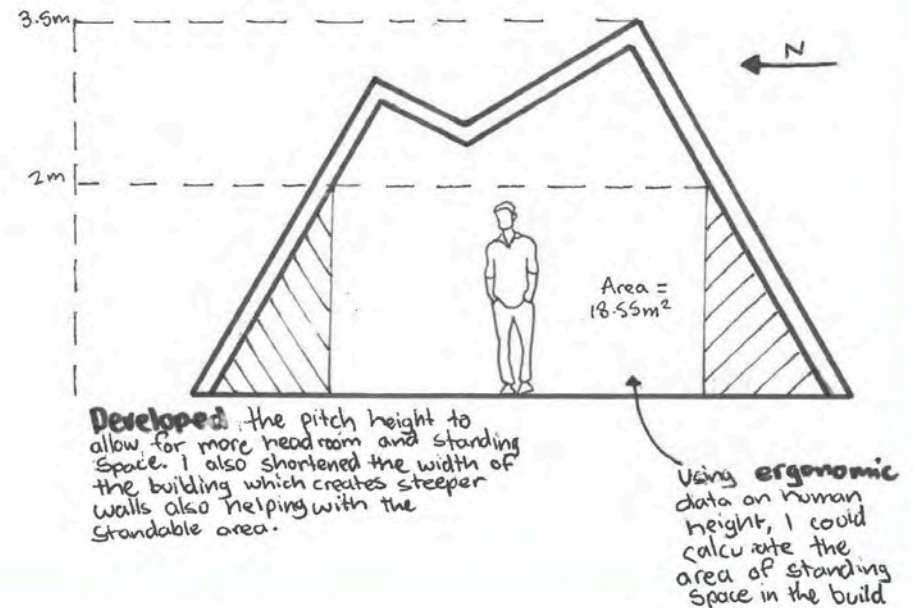
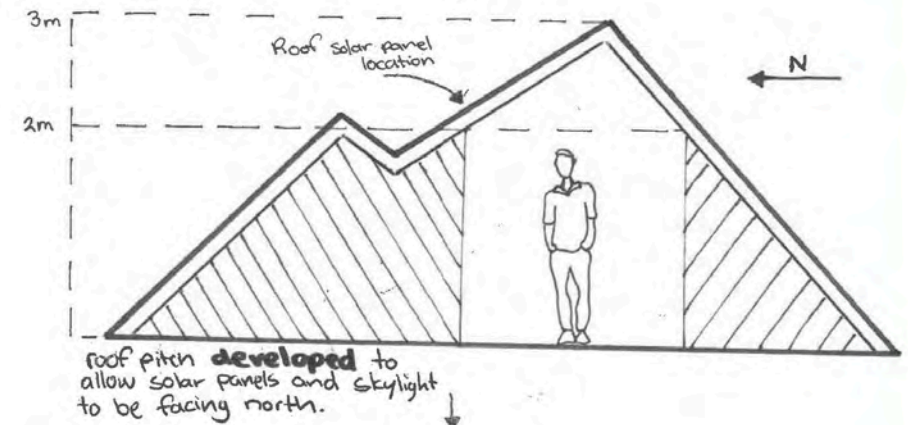
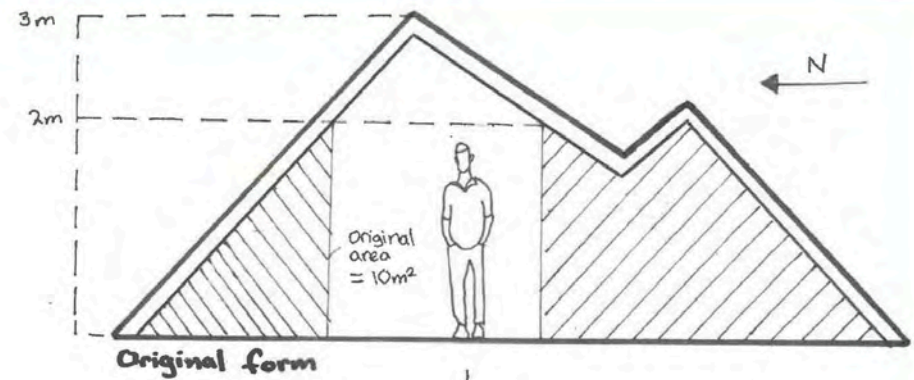
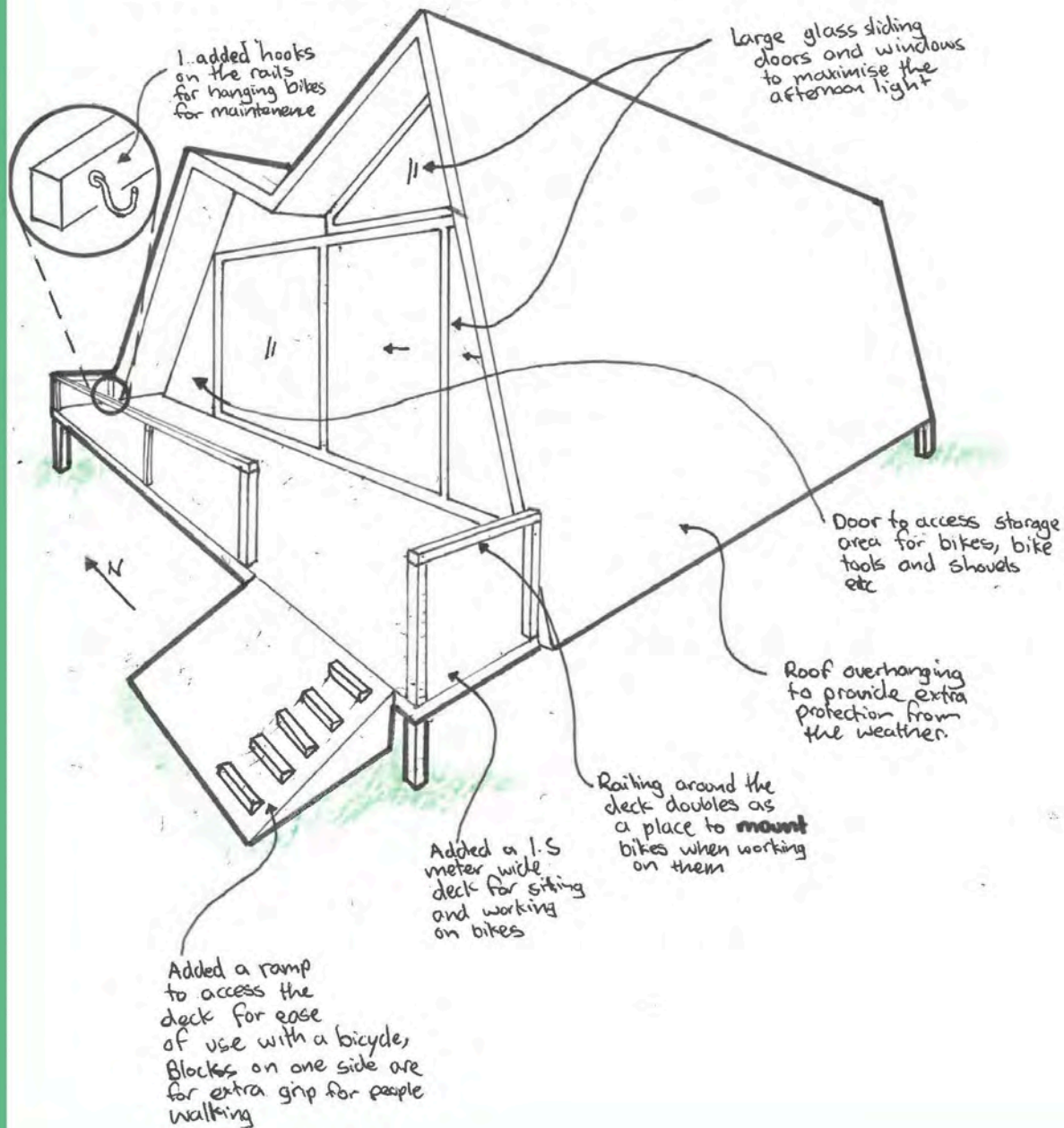
EAST ELEVATION



WEST ELEVATION

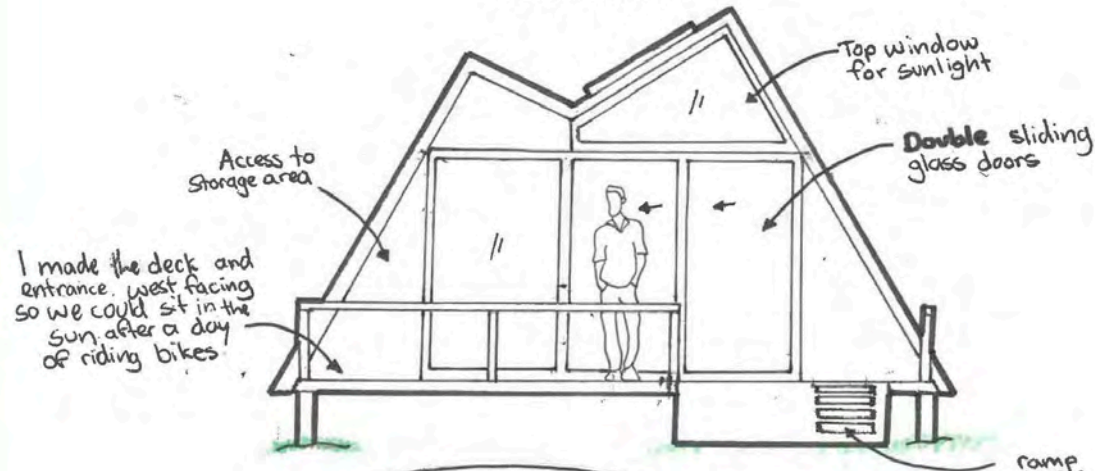


EXTERIOR FORM DEVELOPMENT



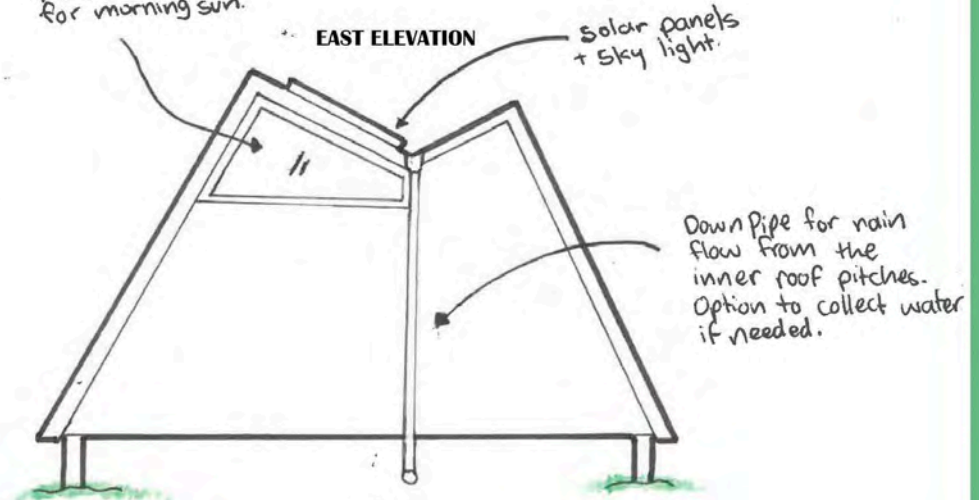
EXTERIOR FORM DEVELOPMENT

WEST ELEVATION

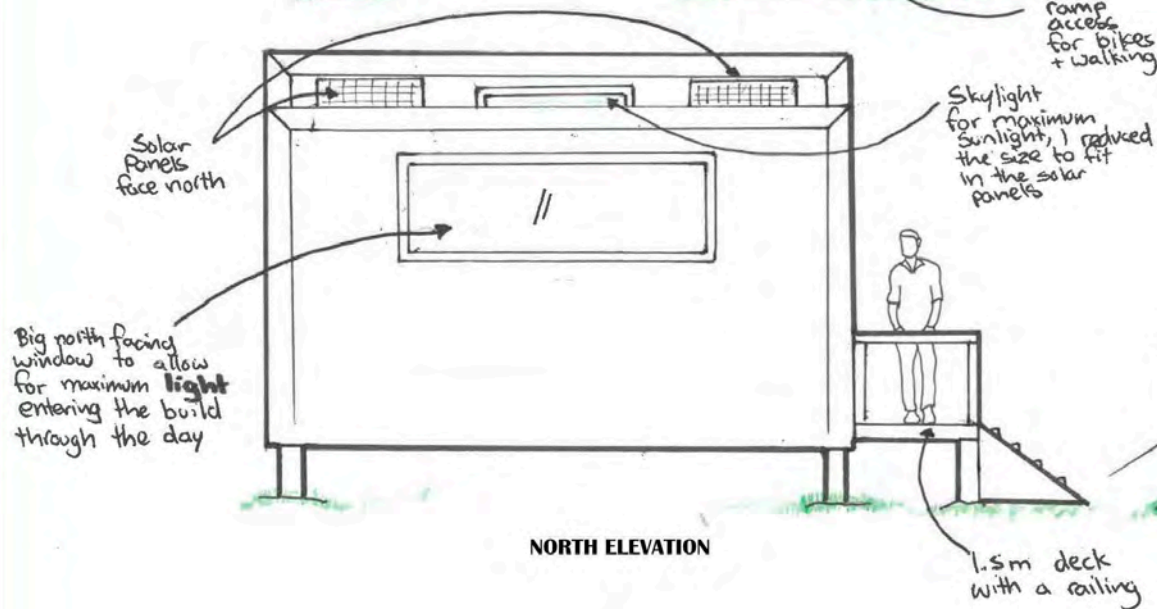


Window high on the east side for morning sun.

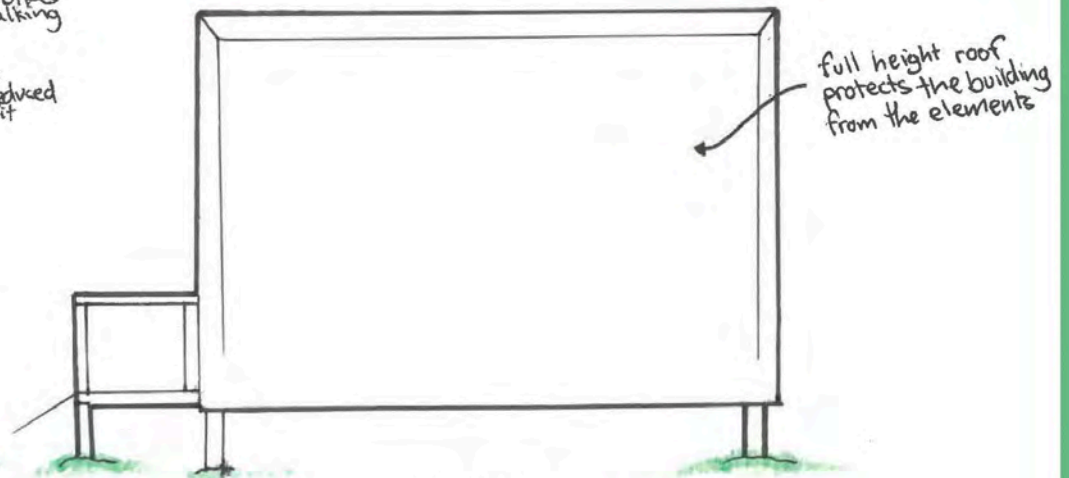
EAST ELEVATION



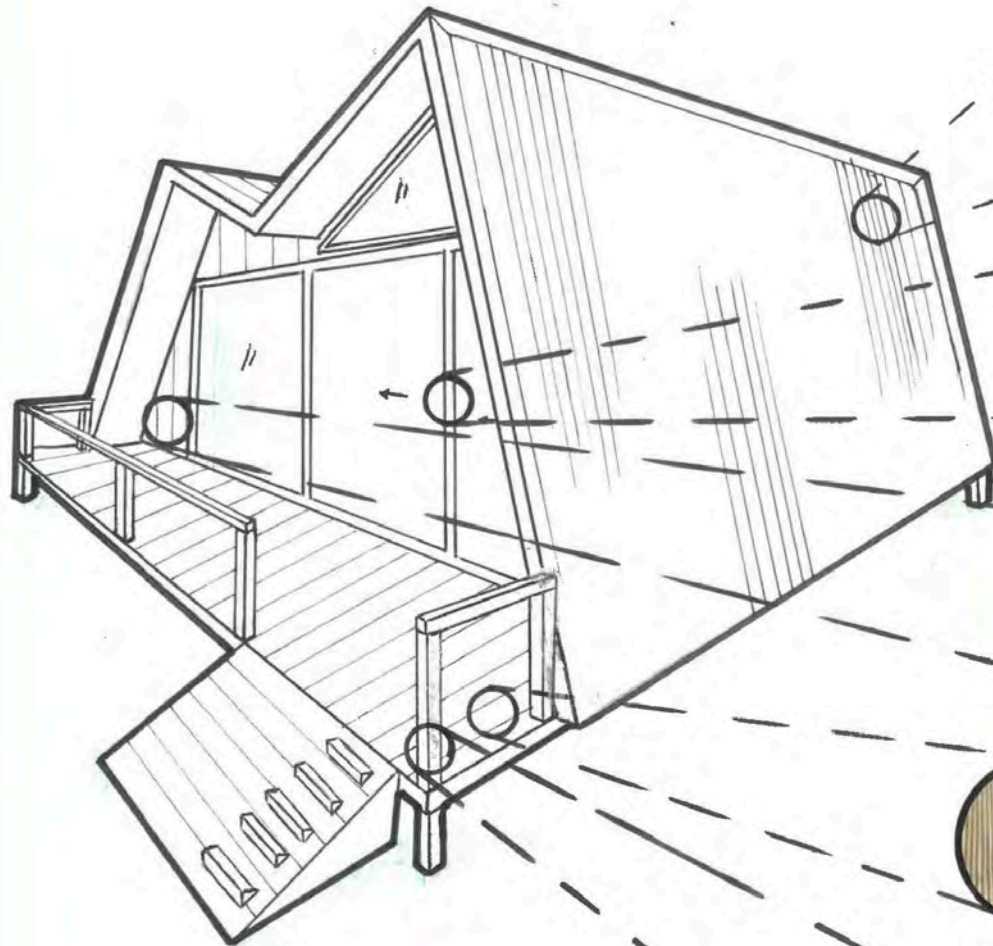
NORTH ELEVATION



SOUTH ELEVATION



EXTERIOR MATERIALS DEVELOPMENT



EBONY CORRUGATED IRON ROOFING

I chose the colour Ebony for my corrugated iron roofing. This colour is from the Flora collection, which I thought was good because it went with the bush location of the build. This decision was inspired by the build I researched, The bech Tiny home, in Raglan. I went with corrugated iron because it is strong and resistant towards the elements, plus it is more cost effective and will last longer than timber shingles.

BLACK ALUMINIUM DOOR/WINDOW FRAME

My windows and sliding doors will have a black aluminium frame and will be double glazed. These decisions were made because it will keep the building more insulated all year round and they are more energy efficient. The black frame was chosen to match the roof and it also contrasts well with the cladding on the walls. I was inspired by the builds on my research pages.

CEDAR CLADDING

I had two options for cladding on the walls, timber or corrugated iron, to match the roof. I decided to go with the timber, specifically Cedar. This is because I wanted the build to feel more natural and to match with the forest location. The red cedar complements the red pine colour of the trees around the building. It also contrasts with the black roof, windows and doors. I thought iron against iron would look dull.

PINE DECKING

I had to choose between pine and Cedar for my deck. I decided to go with the Pine because it added some variation to my build. The pine is more cost effective and comes with grooves to provide grip on the deck, if it was muddy or rainy after a ride. I also used pine because the build is also surrounded by pine trees.

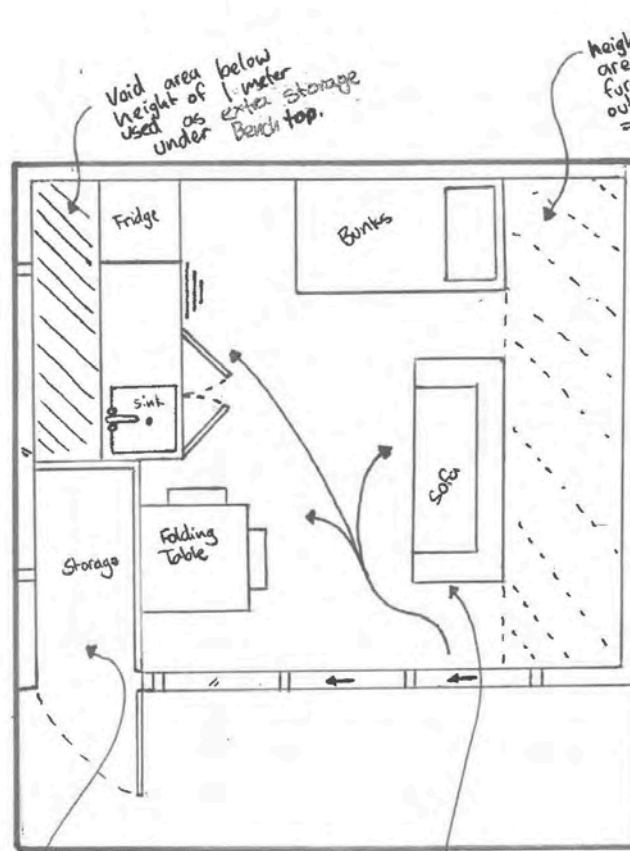
STAINED PINE RAILING

I wanted to keep the railing wooden so, I chose to use pine again. I thought the plain pine didn't look great as it was the same as the deck so I decided to stain it. I chose to stain it black as it matches with the roof, doors etc. This colour contrasts with the deck, also it gives weather resistance.

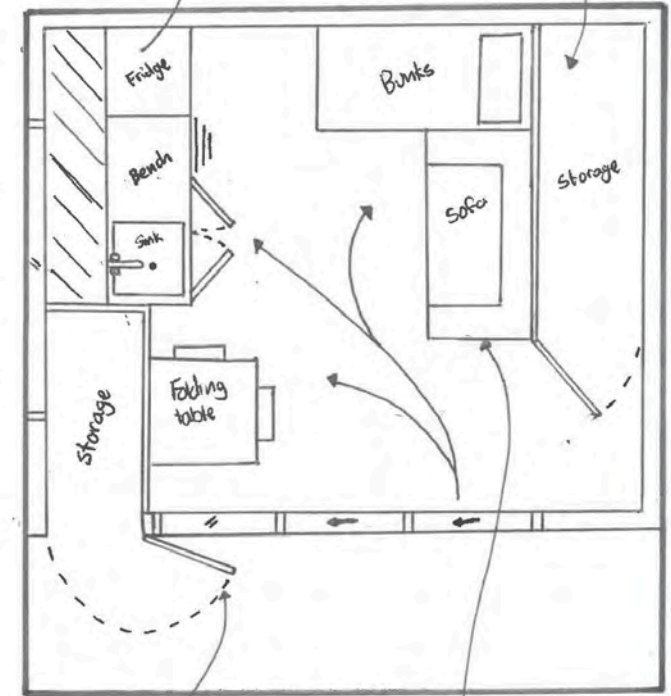
INTERIOR FORM DEVELOPMENT



#1



#2



#3

I CHOSE #3

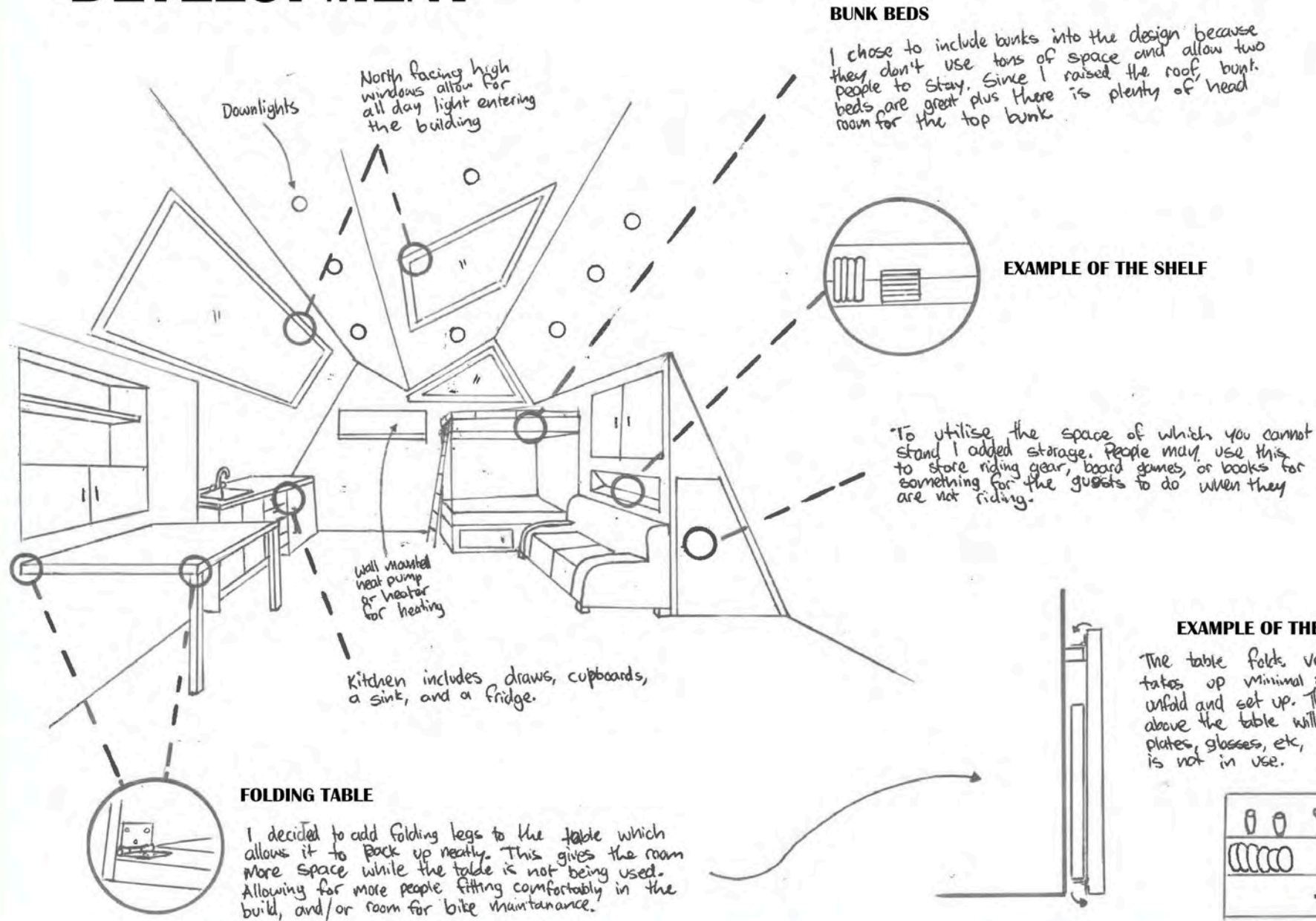
Storage area can be accessed from the outside for bike and tool storage as well as inside shelving for table accessories.

Flow is restricted into the cabin because of the location of the sofa.

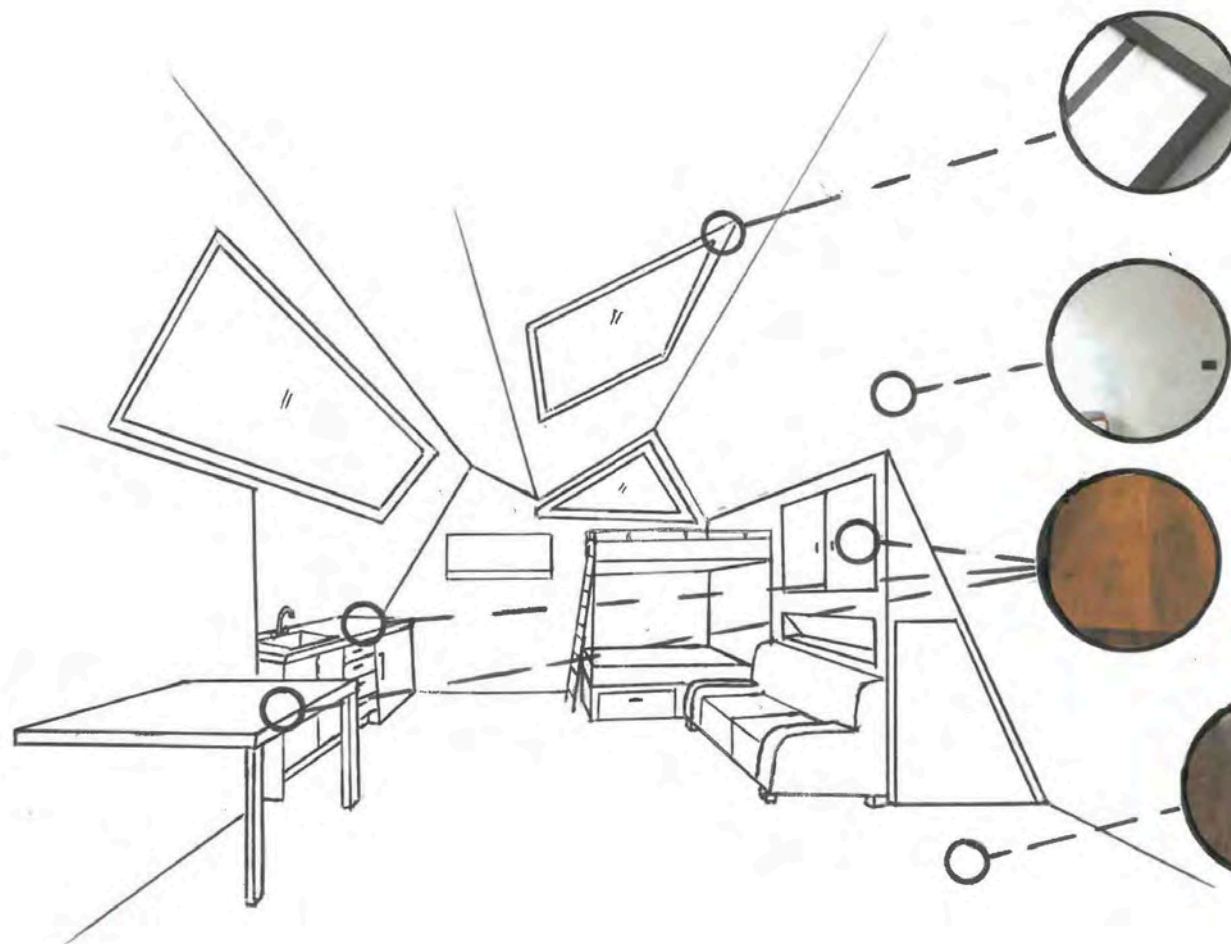
Storage door opens fully to allow ease of access on the deck space.

Sofa was moved further back to improve flow of movement into the cabin.

INTERIOR FEATURES DEVELOPMENT



INTERIOR MATERIALS DEVELOPMENT



BLACK ALUMINIUM FRAME

My windows will have a black aluminium frame, which matches with the exterior. This was also inspired by my research.

PLY CLADDING

I will paint this lighter to make the room feel more spacious and allow light to bounce around the room. This was inspired by my research build.

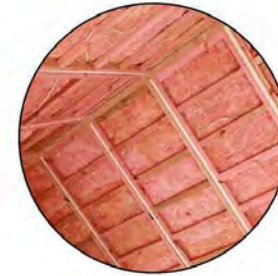
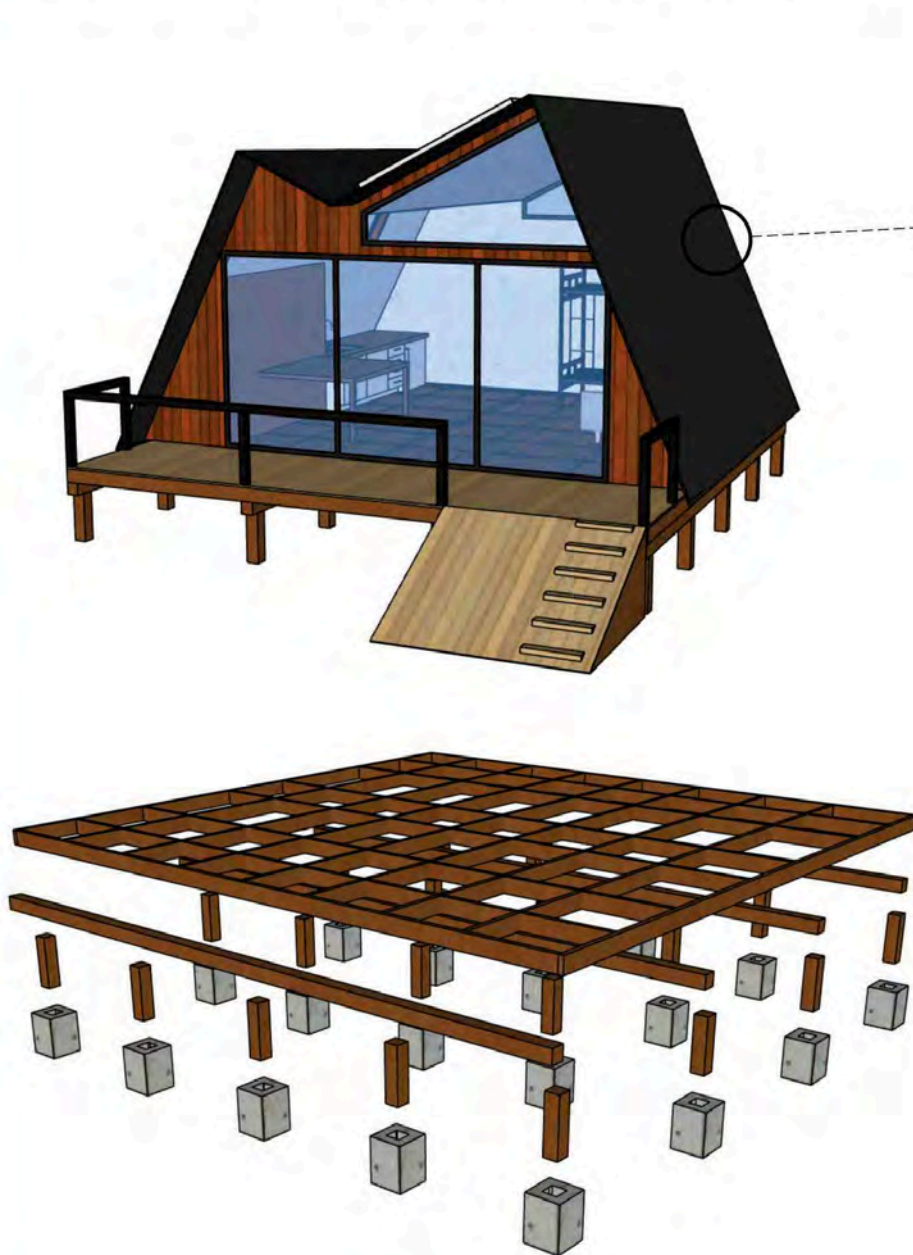
WOOD GRAIN FINISHING

Also per research inspiration I will add a timber finish to my bench tops and units, this also connects my building with the surrounding forest.

WOODEN FLOOR

I chose to use wood as the floor material because it also links to the surrounding forest. As well as being easy to clean if you spill oil etc. on it while doing bike maintenance or if you are muddy after a ride.

CONSTRUCTION DETAILS



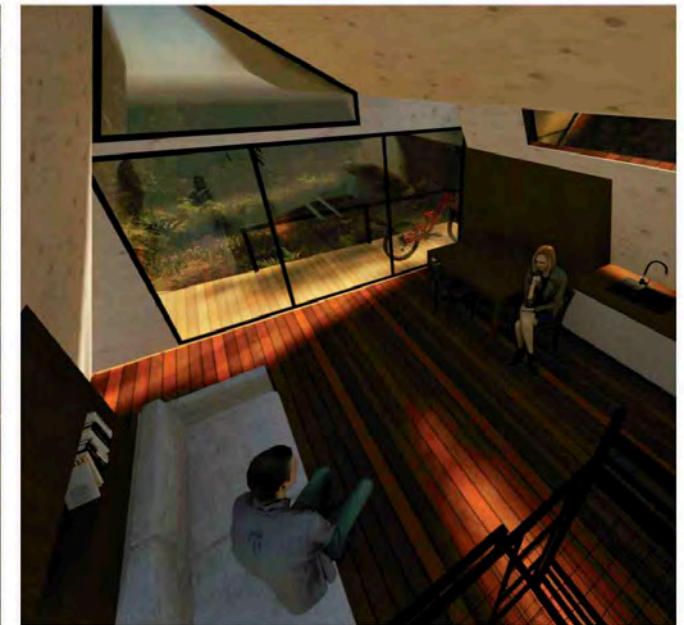
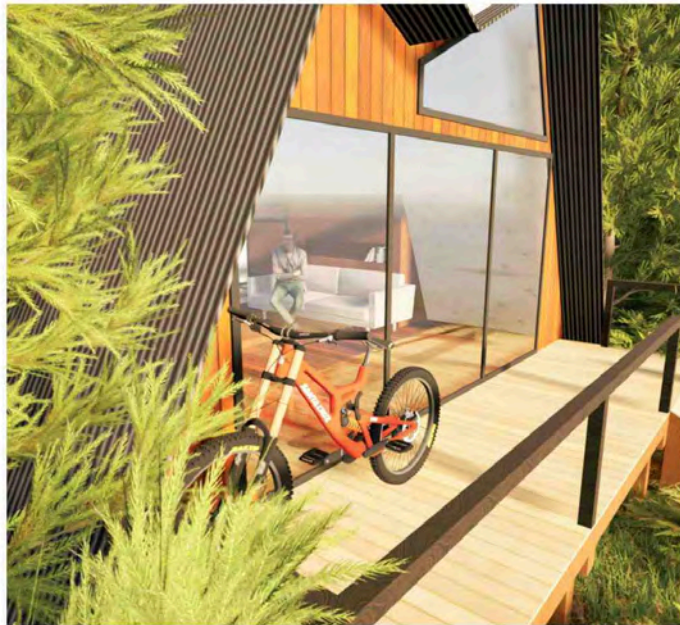
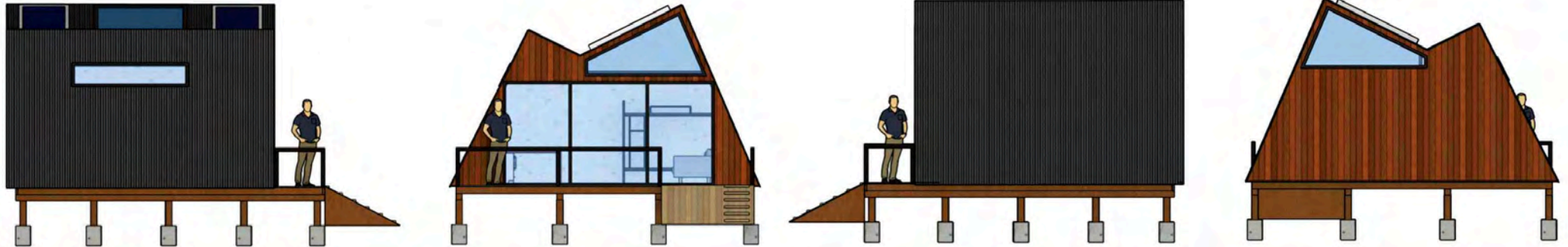
ROOFING/FRAMING/INSULATION

The use of corrugated iron roofing in my project ensures durability and low maintenance, making it ideal for the often damp conditions at Lake Mangamahoe. It efficiently sheds rain and snow, protecting the structure from harsh weather. The wooden frame was chosen for its natural aesthetic and sustainability, blending the cabin seamlessly into the surrounding environment while providing structural strength. Building wrap acts as a moisture barrier, preventing water infiltration while allowing the building to breathe, enhancing the longevity of the materials. Pink Batts insulation improves energy efficiency, keeping the cabin warm in winter and cool in summer, providing comfort to occupants and reducing energy costs. This combination of materials was carefully selected for resilience, environmental harmony, and occupant comfort.

SUBFLOOR/FOUNDATION

I chose a wooden subfloor for its flexibility and natural warmth, which contributes to a more comfortable interior feel. It also provides effective insulation, helping to maintain a consistent temperature within the cabin, important for a project focused on energy efficiency. The concrete foundations were selected for their strength and durability, ensuring the cabin remains stable and secure, particularly in the outdoor setting of Lake Mangamahoe, where weather conditions can vary. Concrete also offers protection against moisture and ground movement, ensuring the longevity of the structure while supporting the lightweight wooden subfloor above. Together, these elements create a solid yet comfortable foundation for the cabin.

FINAL DESIGN



EVALUATION

At the beginning of this design project, I focused on integrating both historical (Mount Taranaki), modern design influences, as well as objects that relate to Mountain Biking to create a compact, functional space at Lake Mangamahoe Mountain Bike Park. By studying modern architecture and sustainable design principles, I was able to combine practicality with a sleek, contemporary aesthetic. The choice of a triangular roofline in Concept One ensures efficient water drainage, which then can be caught to use within the build, while maintaining a strong visual impact.

Incorporating large windows across three elevations allows the building to maximize natural light, enhancing the relationship between the interior space and the surrounding natural environment. The positioning of the house on a flat, easily accessible area also ensures that visitors can fully enjoy the views and landscape while keeping the structure practical for daily use.

The material choices—such as the black aluminum frame and cedar cladding—are inspired by both modern trends and the natural environment. These materials are not only durable but are carefully selected to blend with the earthy tones of the forested surroundings, ensuring the cabin maintains a low environmental footprint while still offering a visually appealing design. The ebony corrugated iron roofing further enhances the structure's resilience against the elements, especially the often damp conditions of the park.

Finally, the open interior layout, combined with thoughtful finishes like plywood cladding and wood grain floors, ensures that the cabin feels spacious despite its compact size. These choices enhance both comfort and sustainability, creating an ideal cabin for Me and My friends to use. It also opens this build to be a get away for other cyclists if we decide to.

Excellence

Subject: Design and Visual Communication

Standard: 92002

Total score: 08

Grade score	Marker commentary
E8	<p>This project is for a tiny home located in a mountain bike park. The submission is clear, uses bold freehand sketches to explore a range of design ideas, and then selects one idea to develop further.</p> <p>The interior and exterior of the building are developed with consideration of both the user and the site. The submission includes a range of visual communication techniques (including 3D sketches and range of 2D sketches) and notes to improve the design based on a user's experience. People are shown throughout the project to show use and scale.</p> <p>Details of the design are shown through a detailed floor plan, zooming in on construction information, and an exploded drawing of the floor structure.</p> <p>Within the final design, users are shown interacting in the building, and the building in its location.</p>