



National Certificate of Educational Achievement
TAUMATA MĀTAURANGA Ā-MOTU KUA TĀEA

Exemplar for Internal Achievement Standard Design and Visual Communication Level 2

This exemplar supports assessment against:

Achievement Standard 91342

Develop a product design through graphics practice

An annotated exemplar is an extract of student evidence, with a commentary, to explain key aspects of the standard. It assists teachers to make assessment judgements at the grade boundaries.

New Zealand Qualifications Authority

To support internal assessment

	Grade Boundary: Low Excellence
1.	<p>For Excellence, the student needs to effectively develop a product design through graphics practice.</p> <p>This involves reviewing and refining well considered design ideas that integrate product design knowledge throughout the development.</p> <p>This student has integrated technical product design knowledge of fixtures, fittings and some assembly detail throughout the initial ideas and development (1) (2) (3) (4) (5). The student has also integrated product visual communication techniques and approaches such as product design drawings and rendering, to effectively develop a seating design (1) (2) (3) (4) (5).</p> <p>The skills used to present the ideas are effective, and the mock-up and modelling begin to contribute to the review and refinement of well-considered ideas (6) (7).</p> <p>For a more secure Excellence, the student could integrate further ergonomic and functional aspects (product design knowledge) in the development of the seating design. For example, integrating anthropometric data to establish optimal seat dimensions.</p>

CONCEPT 1

This chair is designed to suit an average adult with a weight of under 100kg, or the dimensions of the chair will suit this best as shown in the diagram below.

This is a deck chair which uses many slanted lines as the architect I researched (Gray Organick) uses slanted lines in their designs to create simple yet effective patterns and curves, which is what I used for inspiration of this chair.

I have used wood for this concept as Gray Organick architects like to use materials from their surrounding environment, and in New Zealand there is many forest surrounding us, so the use of wood fits in with our environment.

To get the pins of the chair together I would use glue and use glue, which would make the chair strong to sit on and you would not see the connections, so the final table would be professional.

This chair is made of slanted wood. If you were to look straight down or up at the chair, you would only see a grey slanted wood, which if you look on an angle you can see the bright orange in the middle of the chair.

CONCEPT 2

This ball chair and foot stool (or second seat) has been inspired by the shape of a light used in the tennis house design created by Gray Organick architects. The curved back of the seat is present those lights which stand out from the house as they are the only curved feature in the design, as in their chair design, so the back of the chair, which has an interesting shape, became very prominent to the rest of the chair design.

This chair design is made from steel as steel is strong and durable. The legs of the chair have a plain steel while the seat and footstool have a yellow painted coat over the top of the steel with a pattern painted in black over that.

The pattern painted on the top of the chair has slanted lines as what Gray Organick architects like to use to create shape and structure in their designs, which is what I have incorporated here to add some interest to the chair by adding simple line patterns.

For this chair to stand up it has to be screwed into the ground otherwise the weight of the chair and person would cause the chair to tip. While the legs of the chair are also screwed into the ground so they are secure and will hold the weight of a person.

The main chair, with the curved back, could be used as a bar stool or as a feature chair in a modern lounge with the foot stool, while the foot stool could be used as a small dining chair or in conjunction with the main chair.

CONCEPT 2

This is a chair which is made of many 'sticks' of painted wood. The point is a laser rotator, so it will stand out from the things around it.

Each piece of wood for this chair is connected to the main part to it by dovetailing so it is strong and secure. Glue is also used to keep the pieces at a 90 degree angle to each other.

This design is made out of straight wood because the architect I researched (Gray Organick architects) use straight lines in most of their designs. I decided to use straight lines to create simple yet effective patterns which is what I have done here to create the chair's structure.

This chair is meant to be used in either a lounge, where it will stand out from the curved shape and not looking out of place, or used in a dining room where it could be used for the head of the table creating an interesting look for that specific spot.

I have used wood for this design as it is using natural environment resources, which is one of the types of materials that Gray Organick architects like to use in their designs.

CONCEPT 4

This is a swing which has been inspired by the natural environment, which is what the architect I researched (Gray Organick architects) are inspired by the shape of their designs. The dip curve represents a mountain, like the dip shows a valley and the flat part shows a hill and the flattened end represents the coast.

The swing is connected to the tree by two pieces of rope. Each piece of rope is tied in a loop around a branch of the tree while the other end of the rope has you through a hole in the swing and tied to the swing chain.

The shell of the swing is made from a thick plastic as it is easy to maintain while the shell has small recessed joints for the legs. The plastic is also made of a material that is easy to clean and is a natural sound, something that Gray Organick architects would do.

DEVELOPMENT 5

I have developed my last idea to be by making the wood slats, evenly spaced and curved like the rope so that the swing is more comfortable and safer when used. I have also added a rope to the side of the seat to hold the seat together and make it easier to use. I have also added a pattern from Gray Organick architects (the architect I researched) when designing their buildings. By using wood for the seat I am using natural resources, which is one of the types of materials that Gray Organick architects like to use in their designs.

I used metal to connect the rope to the seat so that the rope is held together by the metal, even though they don't.

The use of the wooden rods comes from the use of wooden rods in their designs. I have used a wooden rod to connect the seat to the frame, which is a natural material and is easy to use.

FINAL DEVELOPMENT

The shape of the swing which represents a mountain, valley and a hill so it incorporates the shape of the natural environment into the design, which is what Gray Organick architects like to use in their designs. The dip curve represents a mountain, like the dip shows a valley and the flat part shows a hill and the flattened end represents the coast.

The rope is connected to the metal structure by using a metal rod to hold the rope together and make it easier to use. I have also added a pattern from Gray Organick architects (the architect I researched) when designing their buildings. By using wood for the seat I am using natural resources, which is one of the types of materials that Gray Organick architects like to use in their designs.

CONCEPT 5

This is a stool. It is made of wood (for the base and seat), Brown leather (for the sides) and metal springs (between the two pieces of wood). I have used wood and leather as they are natural environment materials which is what the architect I studied (Gray Organick architects) like to use a lot of in their designs.

The springs are strong (steel), so when you sit on them they only move slightly, so you get the sensation you are bouncing, though you are unlikely to actually fall off the stool.

This stool has been inspired by the packing shed Gray Organick architects designed as blocks of wood are stacked into squares, which reminds me of this chair.

The springs are connected to the wood with nails which do not go all the way through, while the leather is connected to itself (along the sides) by stitches and connected to the wood with staples.

There are four springs in this stool so it is stable and will not fall over if one spring breaks.

DEVELOPMENT 3

The rope for the swing is attached in four places so the swing is sturdy and does not tip. All the ropes connect together above your head so they do not get in your way, while the front two ropes are at a good place so you can hold onto them if necessary.

This swing has been developed from the last one, by taking the rope out, and the rope move like the cage and simple. The seat is now only one major curve with an extra piece (the dip in the seat). The seat is still inspired by Gray Organick architects as it is high on a hill and the foot is with a stream running through the middle, which is the natural environment that they like to be inspired for, for their designs.

The drawing on the right shows how the metal would look before it was curved and folded, it shows that just a long sheet of metal can be folded in a different way to create an interesting shaped chair/swing.

The dip in the stool can either be used for your feet or for things like books or dummies which are wanted or used when on the swing.

I have developed the last swing, into this swing, by using the triangle shapes create a cage for the seat, while I have changed the seat back to a curved shape as it looks more like mountains, valleys and hills when they are more natural shaped. This means that I am using the inspiration of Gray Organschi architects in two ways, the straight lines they like to use and the inspiration from the natural environment to create there designs.

There is a chain on this swing connecting it to tree, it is made of metal so it goes with the cage of the swing. The chain loops over the tree branch and back on itself, where a strong carabena can hold the chain together.

These two pictures of the swing show the different sizes there could be, a single size and a double size. The frame can be made from steel so it is sturdy and durable while the seat can be plastic so it is light and waterproof.

Fabric padding can be put on the swing to make it more comfortable, it can be tied down to the frame with ribbon and can be taken inside so it doesn't get wet.

DEVELOPMENT 2

The rope for the swing is attached in four places so the swing is sturdy and does not tip. All the ropes connect together above your head so they do not get in your way, while the front two ropes are at a good place so you can hold onto them if necessary.

This swing has been developed from the last one, by taking the cage out, make the rope move like the cage and simplify the seat into only one major curve with an extra piece (the dip in the seat). The seat is still inspired by Gray Organschi architects as it is how a hill and the coast with a stream running through the middle. Which is the natural environment that they like to be inspired for, for their designs.

The dip in the swing can either be used for your feet or for things like books or drinks which are wanted or used when on the swing.

DEVELOPMENT 2



This is an ergonomics of my swing. It shows how a person will sit on it. It also shows the approximate height as the yellow ruler shows 1 metre. So it is around 0.5 metres off the ground, which means you are able to swing easily without hitting your feet on the ground.

The picture below shows the dimensions of the swing its width is 60cm and its length is 80cm and its height is 60cm.

The pictures below show a diagonal view and a front view of the swing seat shape. The diagonal view shows how your legs sit on the swing, while the front view shows how wide the seat could be, as it needs to fit an average size adult and two pieces of rope not right on the edge of the swing.

6



MOCKUP PHOTOS

wooden swing mock-up, overlaid to create a crossing pattern of the sticks. This could be used as the base of a seat or as the side of a swing or chair. This would be used straight lines which Gray Organschi architects like to use in their designs.

The tracing is from the simple 'one plank swing', which is easy to make. I like curved the swing even, given it has to create less than the stool which does not use many materials so it is sustainable and economic.

MOCK-UP DEVELOPMENT

7

This is a tracing of all the mock-ups together and turned 90 degrees with the stand of the chair the tree shape which holds up all the back-ups. The chair only has feet, which points to your body. This gives an interesting look and feel to the chair and makes it economic.

This tracing is from a birds eye view of the 'one plank swing'. It is a side view of the chair that you can turn to make different places to sit. Depending on how you place the seat, depends on how many people you can sit on it.

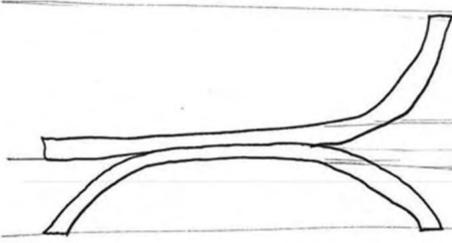
The tracing is at the back of the curved swing. The tracing shows the rope, which holds the seat, which has wood of different weights coming out of it to balance out the weight of a person when they sit on it. The back and the base of this swing are not connected.

MOCK-UP DEVELOPMENT

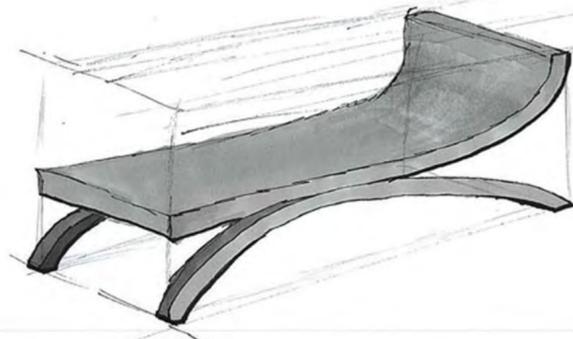
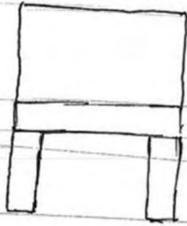
	Grade Boundary: High Merit
2.	<p>For Merit, the student needs to clearly develop a product design through graphics practice</p> <p>This involves:</p> <ul style="list-style-type: none">• reviewing and refining design ideas that incorporate product design knowledge• making design judgements on relevant features of the design, in response to the brief, that inform the progression of design ideas. <p>This student has shown review and refinement throughout most of the portfolio. This incorporates product design knowledge for the design of a chair (7) (8) (9) (10). Design judgements on relevant features of the design, in response to the brief, that inform the progression of design ideas are shown throughout the student annotation (1) (2) (3) (4) (5) (6).</p> <p>To reach Excellence, the student would need to show further evidence of the review, refinement and progression of the design ideas integrating product knowledge. For example, further construction and assembly knowledge would help to demonstrate progression that integrates product knowledge.</p>

Architects Chair Project Concepts

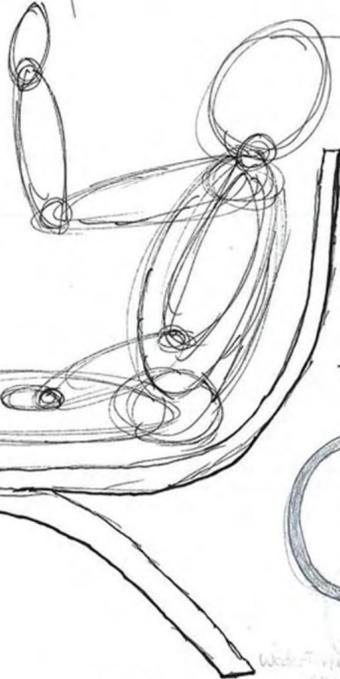
Left View



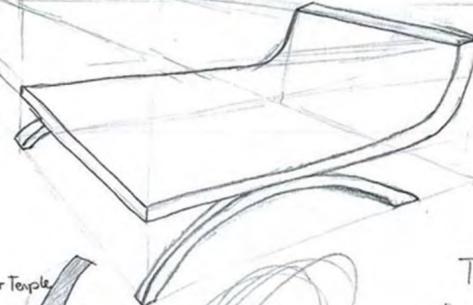
Front View



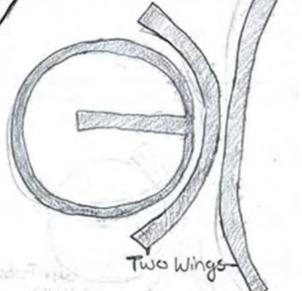
This is a lounging chair which in most of the sketches seats a person and is long enough to have their legs up as in the sketch below. The legs of the chair are symmetrical and finish at the same distance as the back of the chair and the leg end.



1

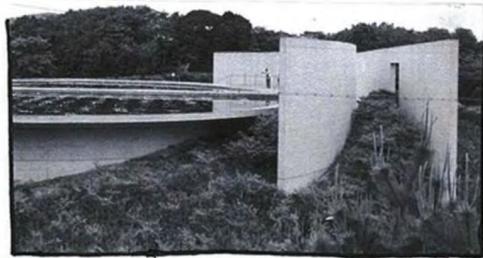


Top view of Water Temple

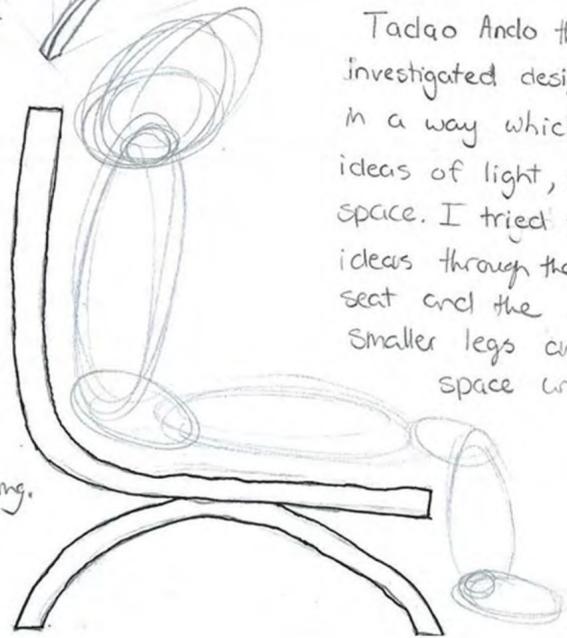


Two Wings

Tadao Ando the Architect who I investigated designed his buildings in a way which conveyed his ideas of light, spirituality and space. I tried to incorporate his ideas through the solid curved seat and the contrasting smaller legs and the negative space under the chair.

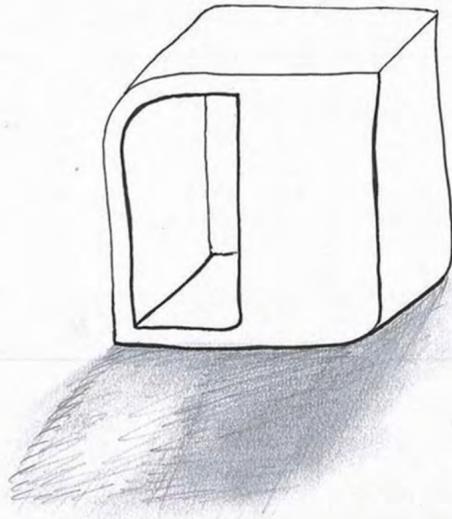


In my investigation I studied Tadao Ando's 'Water Temple' and this chair is inspired by the movement and line of the two large concrete wings at the entrance of the building. I wanted to use the wings in a way that forms a minimalist chair of two components joining together (the legs and seat).

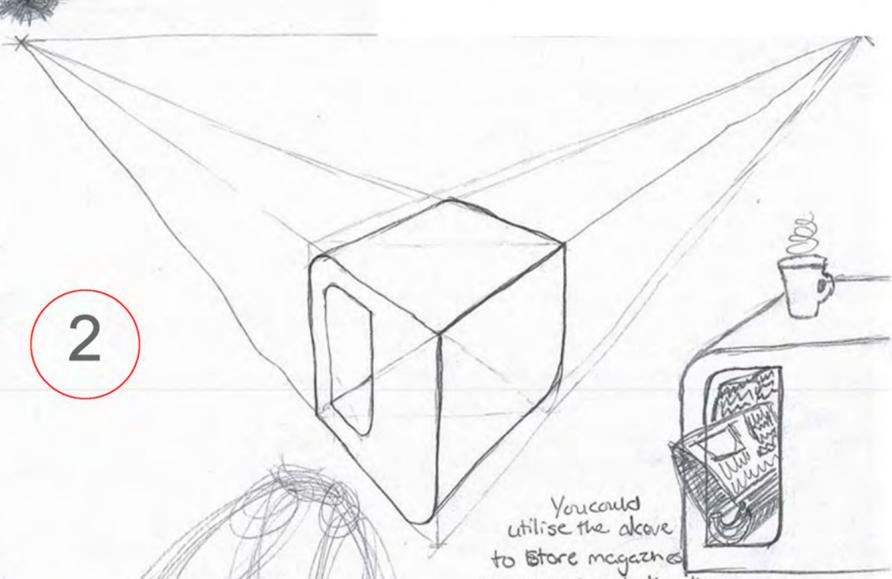


Architects Chair Project Concepts

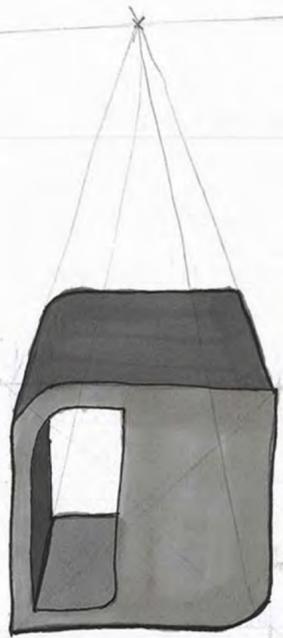
Architects Chair Project



2



You could utilise the above to store magazines, newspapers and other things.

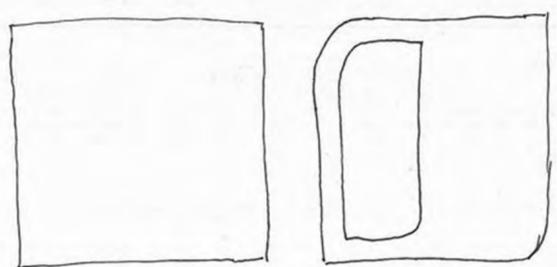


This stool is based on Tadao Ando's use of natural light, and the modern use of solid simple things. In the picture of Ando's 'Church of Light' the natural light flows in through the window as a feature. In my sketch above I have shown that light will filter through the hole and cast interesting shadows.



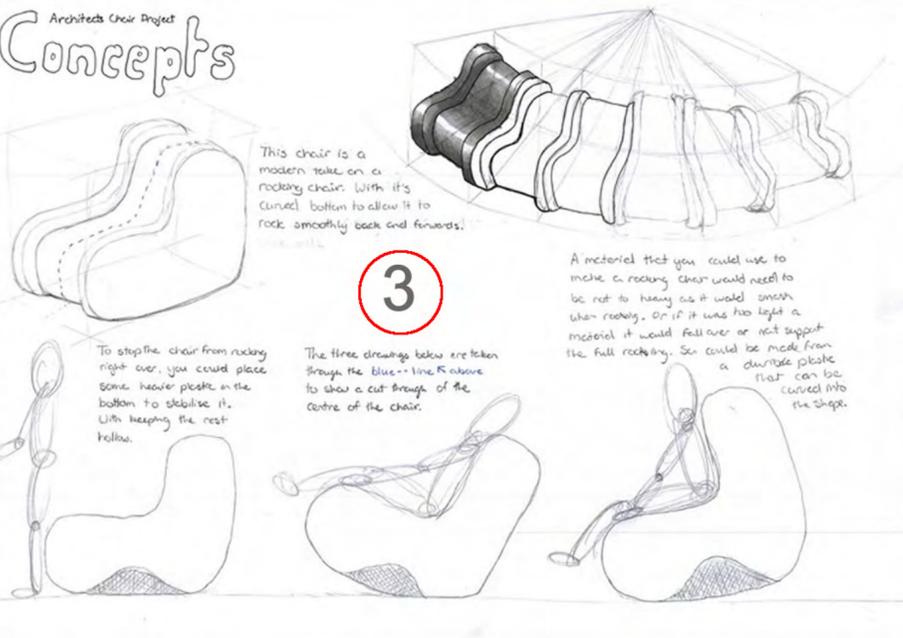
This stool is a simple solution to your extra seating needs. If you want a chair that won't take up much space this stool is great. You could pull it up to a table and be at the same height as dining chairs or as an extra chair in lounges. It could act as a side table or coffee table to sit drinks, etc. on.

The chair would be constructed from cast concrete that would be finished to a smooth texture. This would make the stool solid and heavy but still easy to move. You could lift it by holding through the hole, acting like a handle.



Architects Chair Project

Concepts



This chair is a modern take on a rocking chair. With its curved bottom to allow it to rock smoothly back and forwards.

3

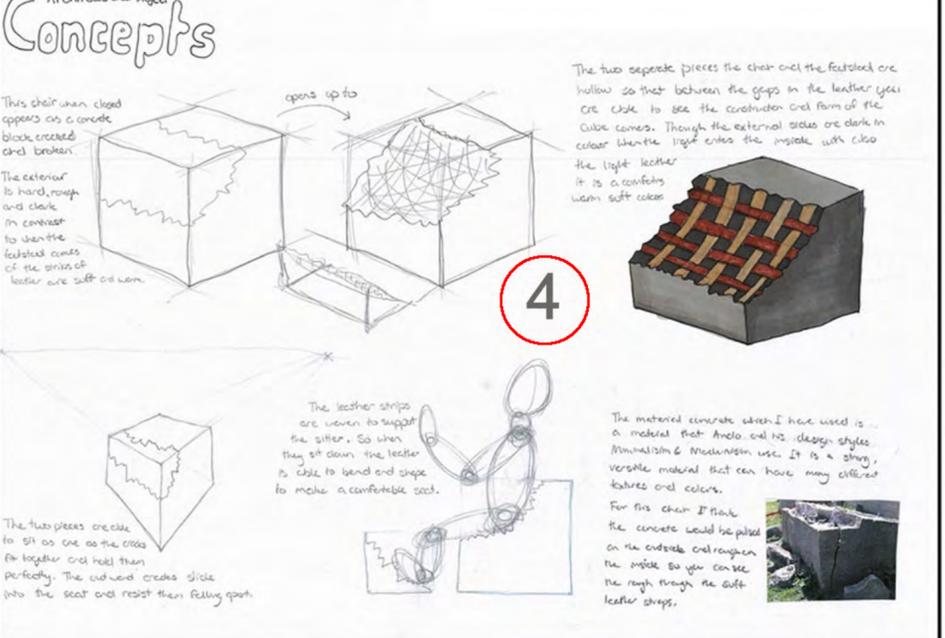
A material that you could use to make a rocking chair would need to be not too heavy as it would smother when rocking, or if it was too light a material it would fall over or not support the full rocking. So could be made from a durable plastic that can be curved into the shape.

To stop the chair from rocking right over, you could place some heavier plastic in the bottom to stabilise it. With keeping the rest hollow.

The three drawings below are taken through the blue line to show to show a cut through of the centre of the chair.

Architects Chair Project

Concepts



This chair when closed appears as a concrete block created and broken.

The exterior is hard, rough and dark in contrast to the interior. The exterior consists of the ends of leather are soft and warm.

opens up to

4

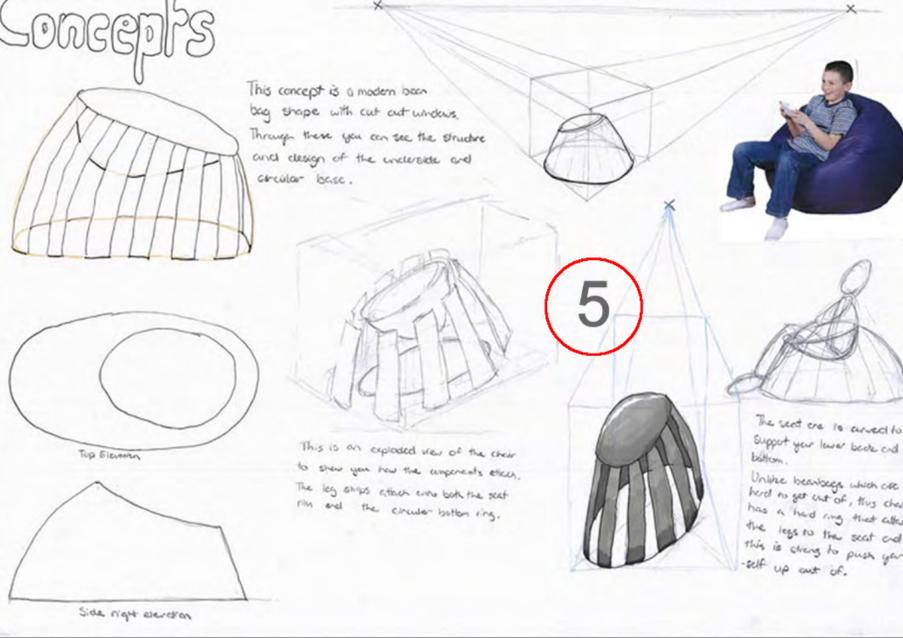
The two separate pieces the chair and the footblock are hollow so that between the gaps in the leather you are able to see the construction and form of the cube corners. Though the exterior sides are dark in colour the light enters the inside with also the light leather. It is a contrast warm soft colors.

The material concrete when I have used is a material that Anelo and his design styles Minimalism & Modernism use. It is a strong, versatile material that can have many different textures and colors.

For this chair I think the concrete would be polished on the outside and rough on the inside so you can see the rough through the soft leather strips.

Architects Chair Project

Concepts



This concept is a modern bean bag shape with cut out windows. Through these you can see the structure and design of the underside and circular base.

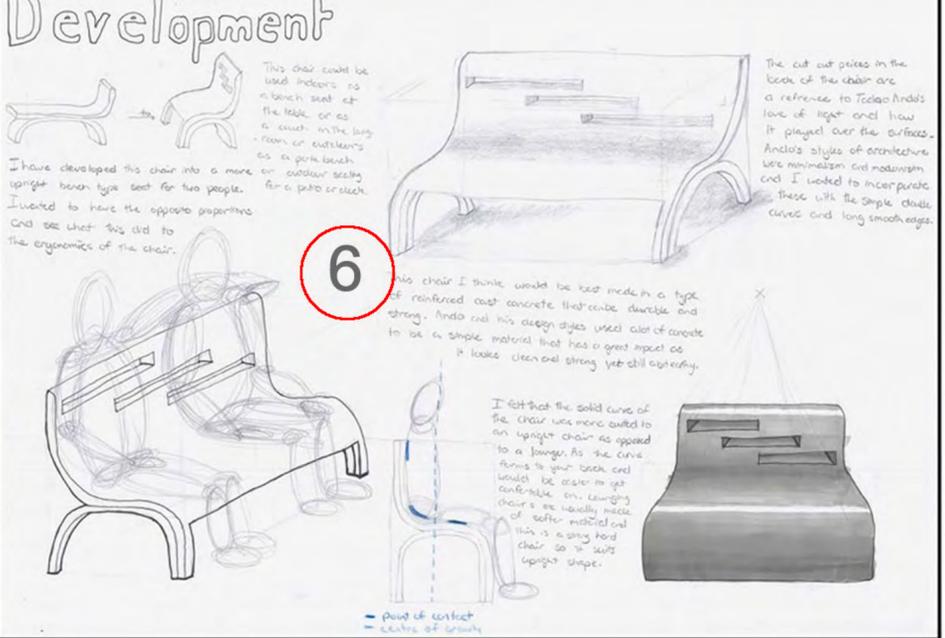
5

This is an exploded view of the chair to show you how the components fit. The leg strips attach into both the seat rim and the circular bottom ring.

The seat rim is curved to support your lower back and bottom. Unlike beanbags which are hard to get out of, this chair has a hard ring that catches the legs to the seat and this is strong to push yourself up out of.

Architects Chair Project

Development



This chair could be used indoors as a bench seat at the table, or as a chair in the living room or outdoors as a garden bench or outdoor seating for a patio deck.

I have developed this chair into a more upright bean bag type seat for two people. I wanted to have the opposite proportions and see what this did to the ergonomics of the chair.

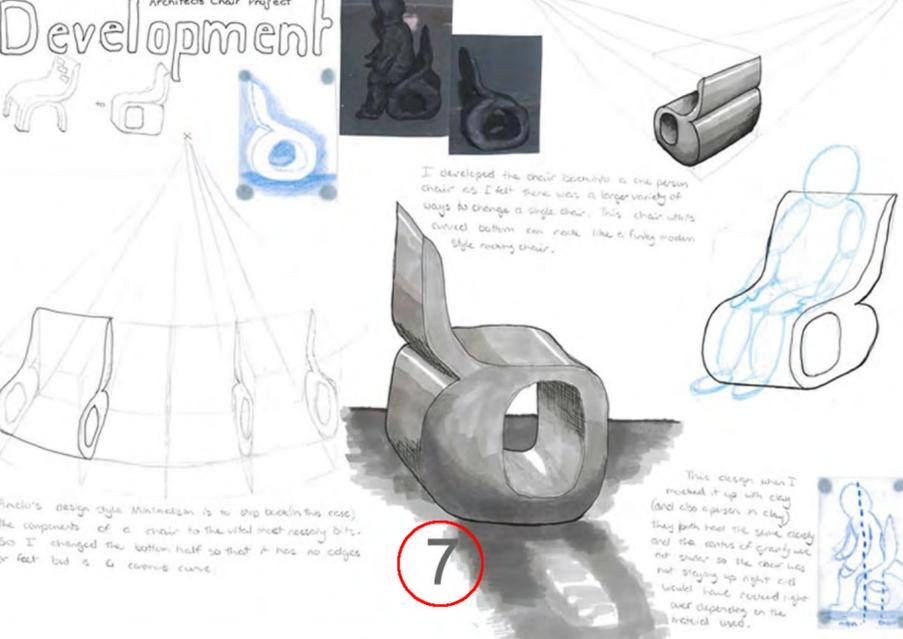
6

This chair I think would be best made in a type of reinforced cast concrete that is durable and strong. Anelo and his design styles used alot of concrete to be a simple material that has a great impact as it looks clean and strong yet still curvy.

I felt that the solid curve of the chair was more suited to an upright chair as opposed to a lounge. As the curve forms to your back and would be easier to get comfortable on. Lounge chairs are usually made of softer material and this is a strong hard chair so it sits upright shape.

Architects Chair Project

Development



I developed the chair backwards as one person chair as I felt there was a larger variety of ways to change a single chair. This chair with its curved bottom can rock like a fully modern style rocking chair.

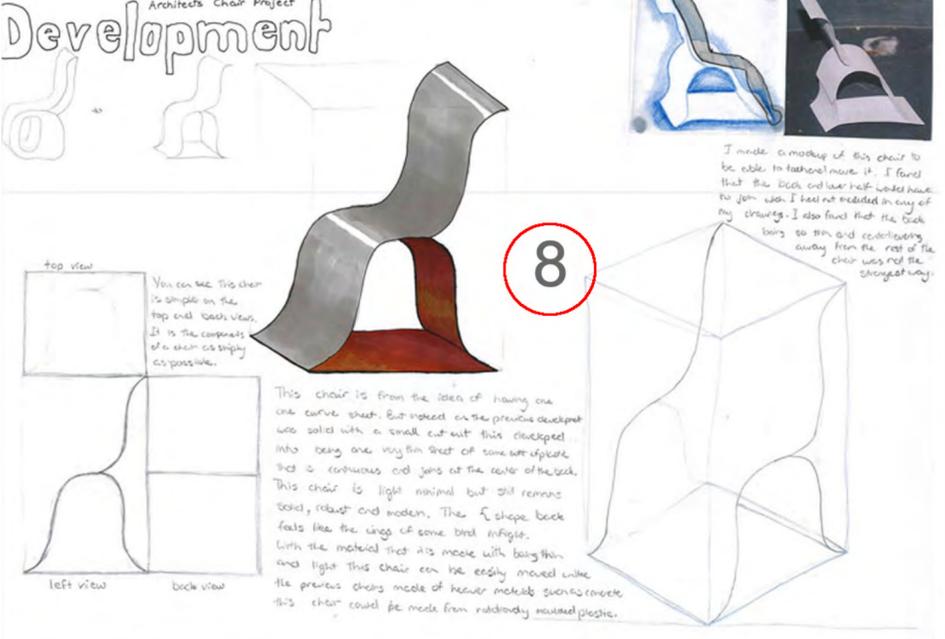
7

This design when I made it up with clay (and also paper in clay) they both had the same clarity and the ends of grain were not shown so the chair was not staying upright and would have rocked right over depending on the ground used.

Anelo's design style Minimalism is to strip back in this case the components of a chair to the vital most necessary bits. So I changed the bottom half so that it has no edges or feet but is a curved curve.

Architects Chair Project

Development



8

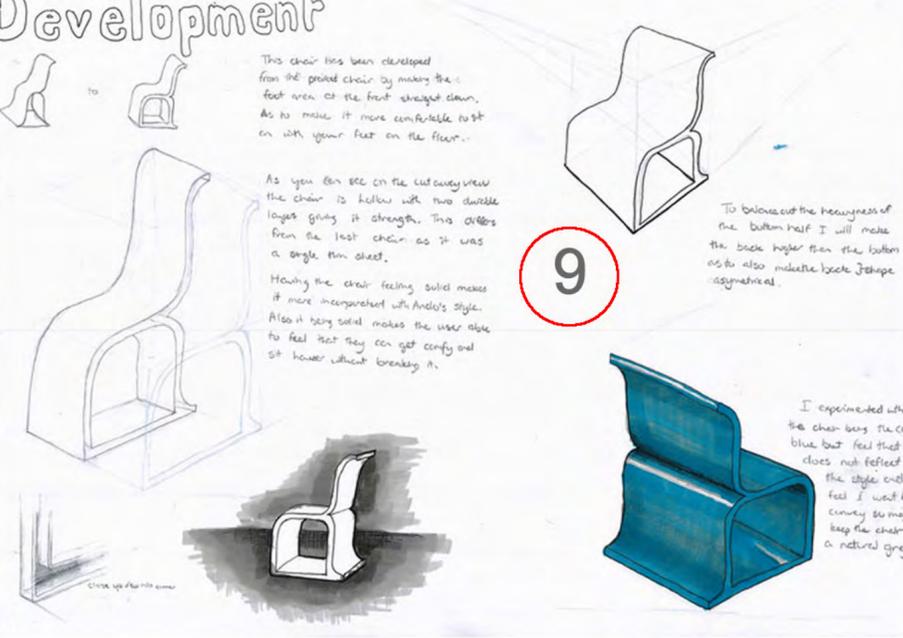
You can see this chair is simple on the top and back views. It is the contrast of a chair as simply as possible.

This chair is from the idea of having one one curve sheet. But instead on the previous development was solid with a small cut out this developed into being one very thin sheet of some sort of plastic that is continuous and joins at the center of the back.

This chair is light minimal but still remains bold, robust and modern. The A shape back feels like the wings of some bird in flight. With the material that its made with being thin and light this chair can be easily moved unlike the previous chairs made of heavier metals such as concrete. This chair could be made from recycled material plastic.

Architects Chair Project

Development



This chair has been developed from the previous chair by making the feet area at the front straight down. As to make it more comfortable to sit on with your feet on the floor.

9

As you can see on the cutaway view the chair is hollow with two double layers giving it strength. This differs from the last chair as it was a single thin sheet.

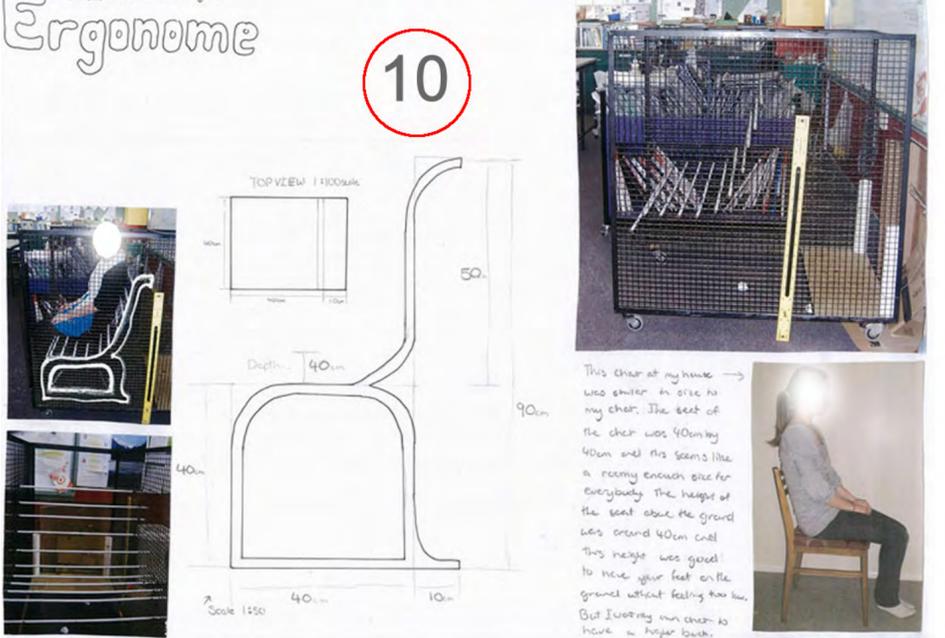
Having the chair feeling solid makes it more incorporated with Anelo's style. Also it being solid makes the user able to feel that they can get comfy and sit longer without breaking it.

To balance out the heaviness of the bottom half I will make the back higher than the bottom as to also make the back shape asymmetrical.

I experimented with the chair being the color blue but felt that it does not reflect the style and feel I want to convey so may keep the chair a natural grey.

Architects Chair Project

Ergonome



10

TOP VIEW 1400mm

50

90

40

40

10

Scale 1:50

This chair at my home was taller in size to my chair. The seat of the chair was 40cm by 40cm and this seems like a really enough size for everybody. The height of the seat above the ground was around 40cm and this height was good to have your feet on the ground without feeling too low. But I would not want to have a higher back.

	Grade Boundary: Low Merit
3.	<p>For Merit, the student needs to clearly develop a product design through graphics practice</p> <p>This involves:</p> <ul style="list-style-type: none">• reviewing and refining design ideas that incorporate product design knowledge• making design judgements on relevant features of the design, in response to the brief, that inform the progression of design ideas. <p>This student has reviewed and refined some of the details in a design for an insulated flask (1) (2) (3). The student has made some good design judgements on the relevant features, and these judgements mostly inform the progression of the insulated flask (2) (3).</p> <p>For a more secure Merit, the student could further review and refine overall shape and form, and incorporate justification of dimensions, shape and form based on ergonomic and anthropometric data.</p>

Concept {Design ideas}

RESEARCH

This is a normal grinder with a tower shape. Normally grinder usually shake during when grinding because of the machine inside that makes it shake. I think this grinder are not working very well because of the machine is at the bottom of the container so it usually grind first around their and leave some at the top. The good things is it is very handy and small.

This pan are work very good but because of it electric pan the power might not better than normal pan with gas. It is easy to clean and easy to use, but it is still top and not easy to carry.

For this mixer I chose the normal one with a big leg and also functional. Plus it can change the beat spin in many shape up to prepare of use. It has cover at the top of the container which is protect from food to bring out. Also has the blade to cover the container of use. You can't change the container. It is not very handy with shape and size. This one doesn't look very powerful it might not suitable for grinding hard things.

Jug with can contain hot and cold drink but it cannot heat up by itself because it doesn't has any machine inside. So it would suitable for using at home to keep the heat of liquid but not for carry outside.

Mixers

Bad things about this machine is not durable body with hand work machine. Locking leg couldn't easily to break if it is too thick but if I make it too thin it would be too big. If I make it too small for the body it is hard to put more function for its abilities.

Many mixers has base on its but it is not suitable for carrying. This machine got shaky when using it so I decide to make it hand-using so you have to control by yourself but I did put locked for locking container.

Pan

This pan is like a puzzle with you can change their composition. You can make it bigger or smaller size. But It has no electrical or mechanic system on it.

Electric thermos

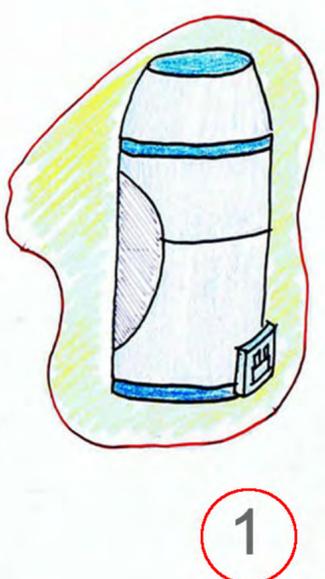
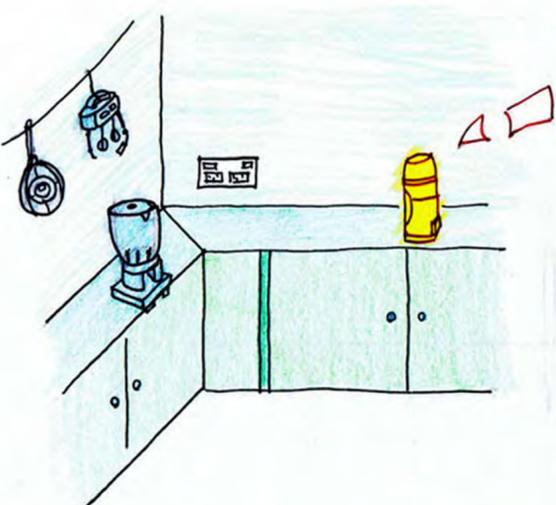
In this concept I put some electrical for this thermos at the base. It's working as a hot iron to keep this thermos hot temperature longer than normal thermos. I put battery and charger for system that can make iron in the middle heat up. For design I design as a normal thermos because a normal style still suitable for user. Material I could use still be the same like aluminium, plastic and good insulator. It is kind of thermos mixed with vacuum bottle. You can use it for boiling water or keep temperature inside the bottle stay longer.

Blenders

In this one is a normal blenders but I put more function on it. Put a glass base that easy to use underneath spinner and another function is lock under the base that solve the problem of shaking when using this machine.

the way that everything come down to glass base

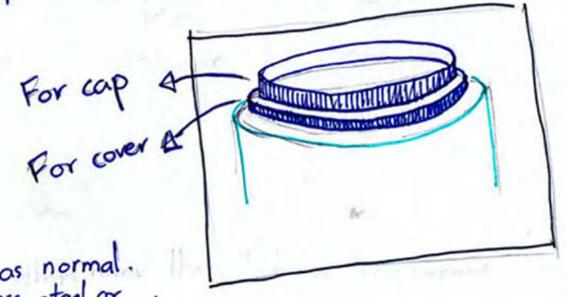
Design Development



For first start of my design development, I chose to develop the electric thermos which is one of my four ideas. I want to make this kitchenware more useful with put more mechanical system that not too complicate for me to design and make the design of thermos looks pretty. With the first design steps I used normal shape of bottle to start but I will design it more and more. Make it look pretty more suitable and useful. Modern style is the main point of my design as well.

For cover design I use it as a cup as normal. Material for cup are plastic and stainless steel or aluminium. It's up to the body that which materials I'm going to use.

At the neck of my bottle I need to put 2 rounds for lock the cap and cover like in the picture



Cover or cup

This is a normal cup that use as a cover or cup. For material it usually be plastic in side and at the edge and outer surface is aluminium or stainless to make it shiny and easy to clean up. I have an idea that I am going to put some mechanism system that you don't need to take this cup of when you want to get some drink. This system will appear in page 3 of my Design Development.

cap or insulated cap



For insulated cap I use a normal one with you have to push it to make it open. As I researched and used this cap it is working very well so I will skip it to other part.

Neck of the body

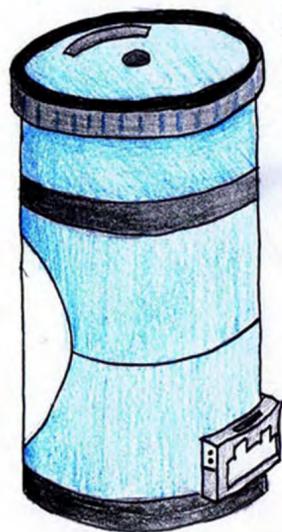
This part bit is an importance part that I will develop it carefully because it is the part that keep everything shut.

Design Development

Rendering

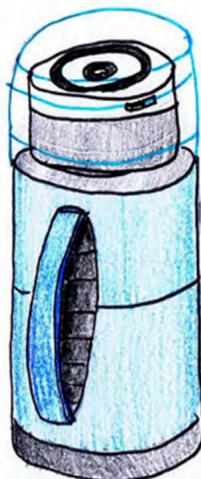
Body Design n. ~~sketching~~

From the other page of Design Development this design is the first from all part together



for me this design is fulfil every design cmd my idea but it is looks pretty ugly so with this page I will change all most every but still keep it functional.

2

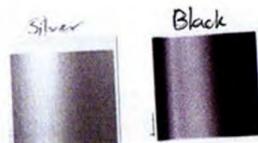


For body they are only two main parts which are body and holder.

For safety inside holder I leave space like in my drawing. I put cushion to protect user's hand from touching body part that may hot.

Final I detected to not put window in it because it may cause damage through my window and break the whole body by heat. It is a lot safter to put all stainless over the body. At least they are 2 or 3 coat inside the bottle that to keep temperature constant and to keep heat from users.

Normal thermos doesn't has many colour on it. It usually black, silver grey or blue but with colour apart from black, silver and grey are not coming as their much pattern colour.



But now technology has change we can put more colour in like orange green purple or yellow on surface like stainless or silvery..



The process of painting colour on aluminium we called 'Anodized aluminium' it will increase corrosion resistance, to increase hardness and to allow dyeing.



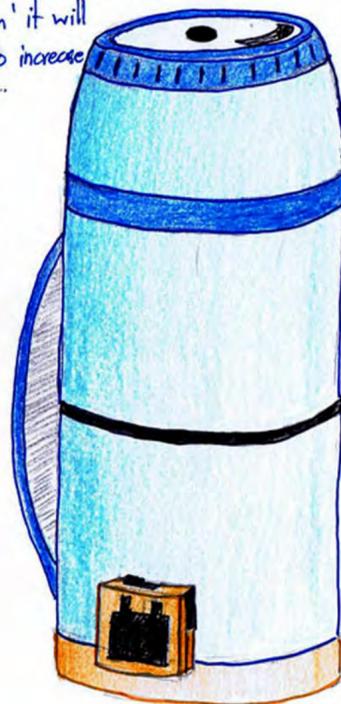
This is kind of process inside of this special cup that I explained in the other page



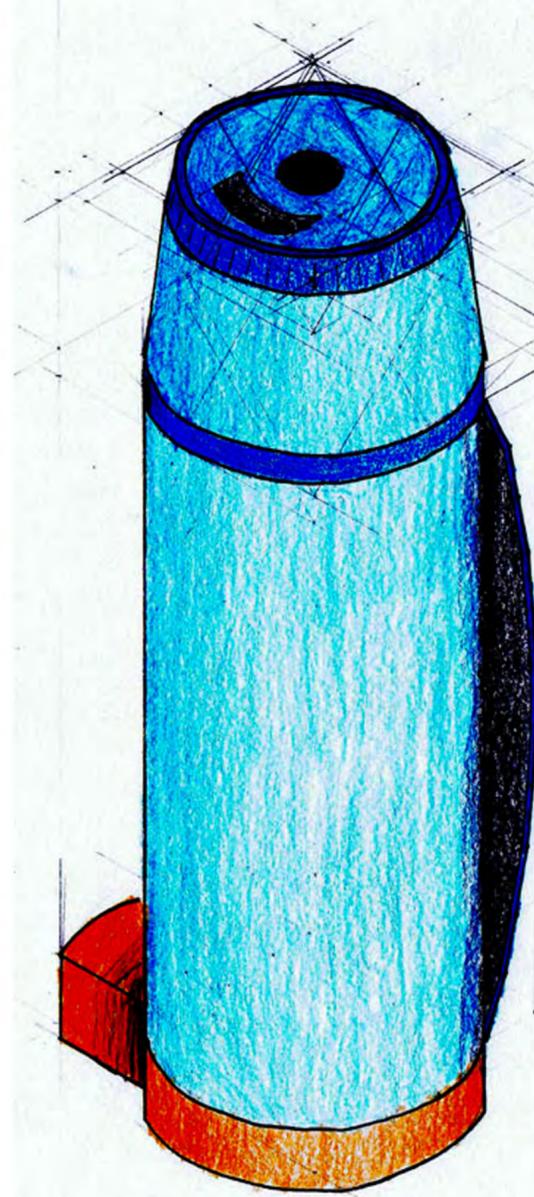
This part probably a bit thick because I have to put battery and plug which is big.

For this part it need to be followed the curve of the base and the body because it will fit only when it is the same shape.

3

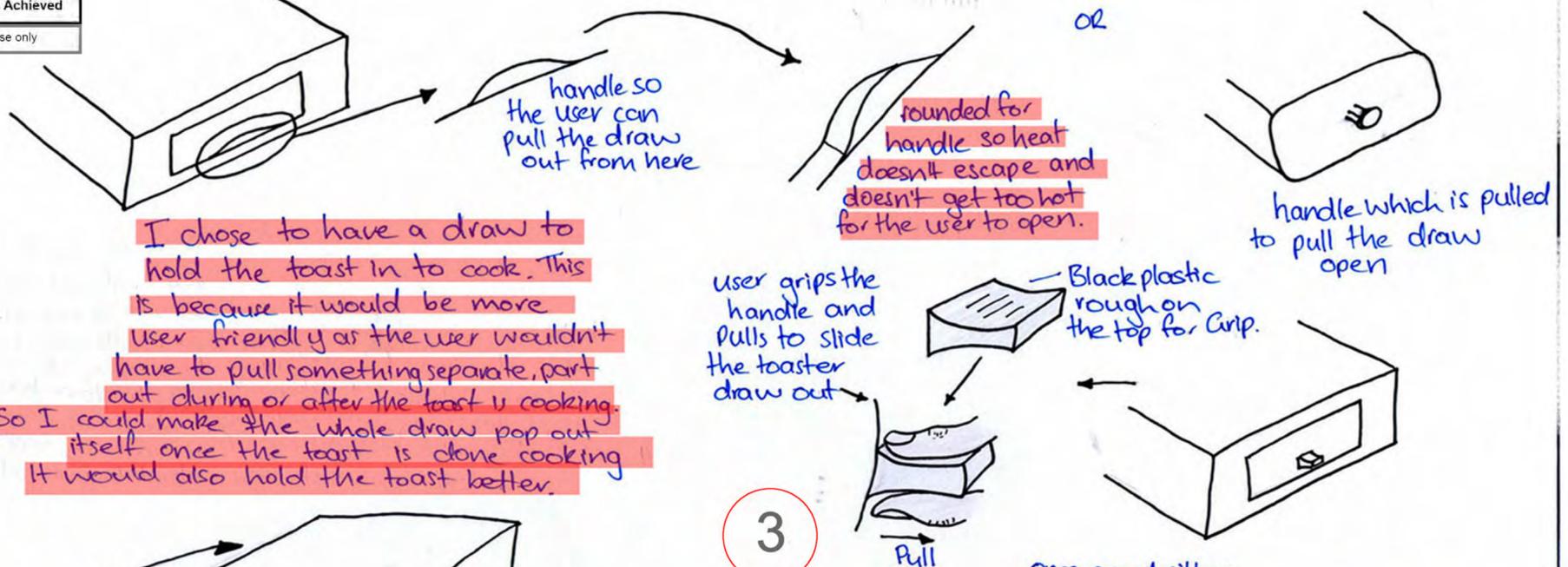


From every design I had developed it coming up like this drawing. Cup will take the edge at the top made it looks please to our eyes. Handle that attach to body and cover with cushion inside look modern. With colour I used dark blue, blue, black and orange to fill it. It is normal colour when it looks shiny with the surface it will look better than this drawing. Orange base looks very contrast to the body but looks like a style that can go together.

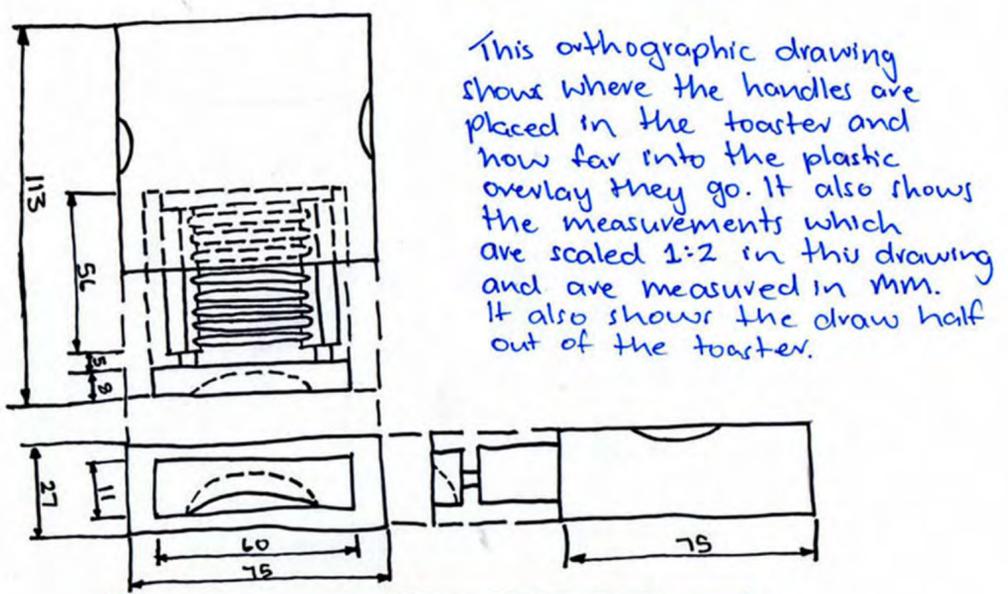
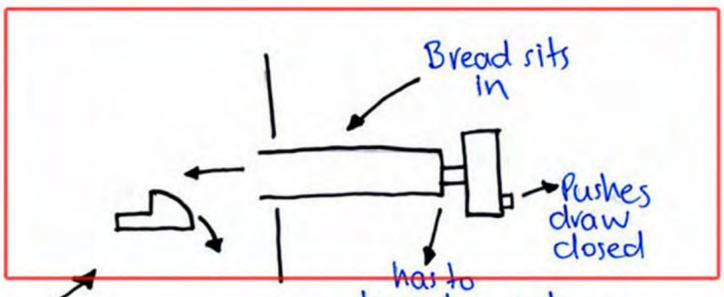
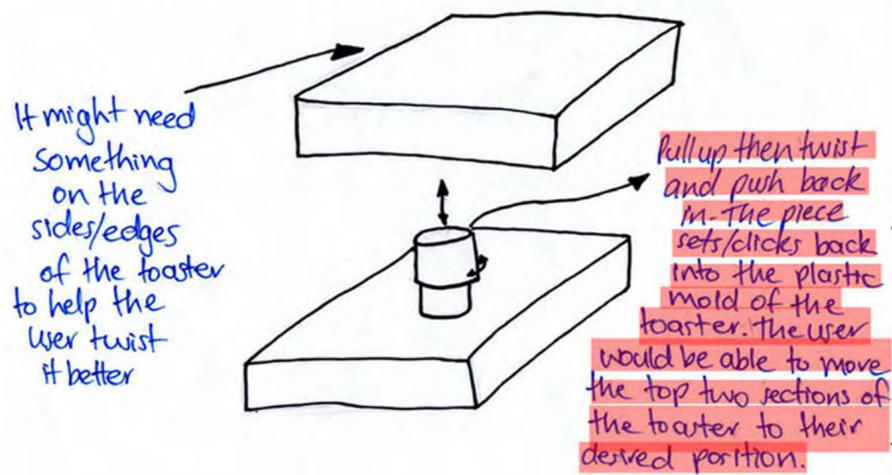
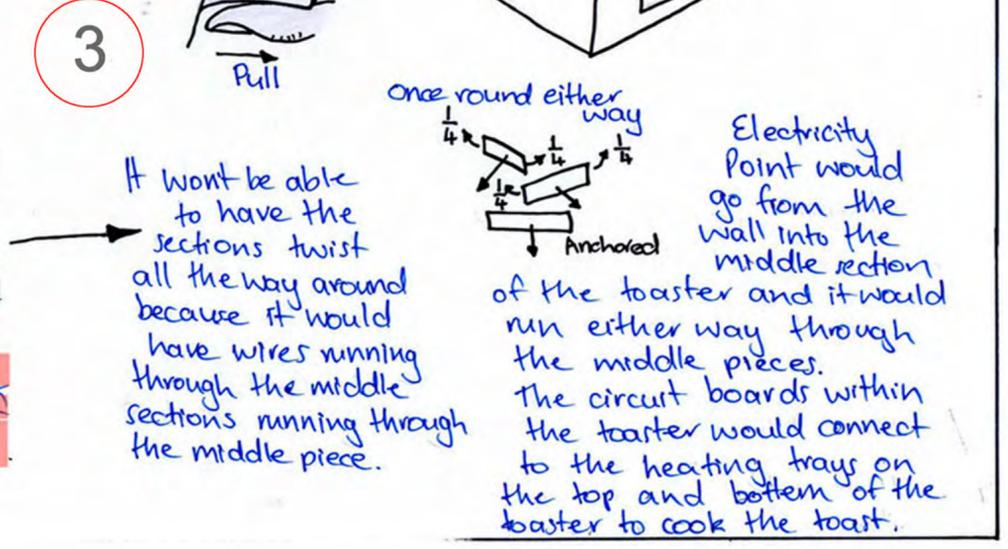


This is my new design up from the first design it is look like a machine but this one I put curve just a little bit to not effect to space inside the cup. I took the edge at the top out I think it still easy to use if take it out because material I used is very sticky to our hands and not sliperly and easy to clean up without smell after clean it.

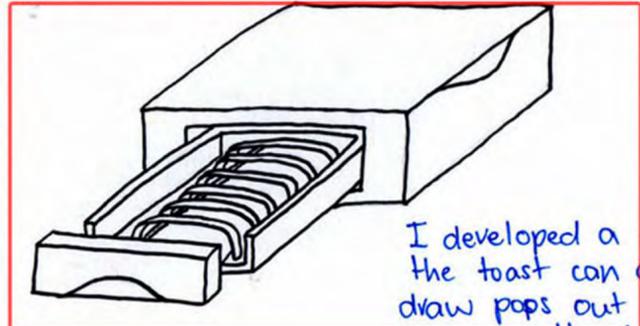
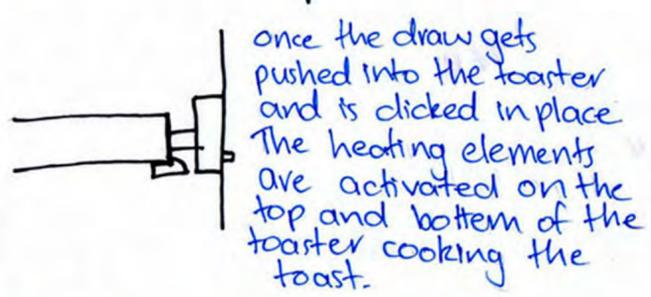
	Grade Boundary: High Achieved
4.	<p>For Achieved, the student needs to develop a product design through graphics.</p> <p>This involves:</p> <ul style="list-style-type: none">• exploring and refining design ideas that draw on product design knowledge• making design judgements on the positive and/or negative aspects of aesthetic and functional features of the design in response to a brief. <p>This student has explored the shape and form of a toaster (1) (2) and showed refinement which draws on some product knowledge (3) (4) (5). There are examples of design judgements on the positive and/or negative aspects of aesthetic and functional features throughout (3) (4) (5) (some of these examples are highlighted in red).</p> <p>To reach Merit, the student could show further development of the form of the design (its three dimensional nature) and progress the overall development of the toaster design. There could also be review of size requirements such as the toaster compartment and links to ergonomic principles.</p>



I chose to have a draw to hold the toast in to cook. This is because it would be more user friendly as the user wouldn't have to pull something separate, part out during or after the toast is cooking. So I could make the whole draw pop out itself once the toast is done cooking. It would also hold the toast better.

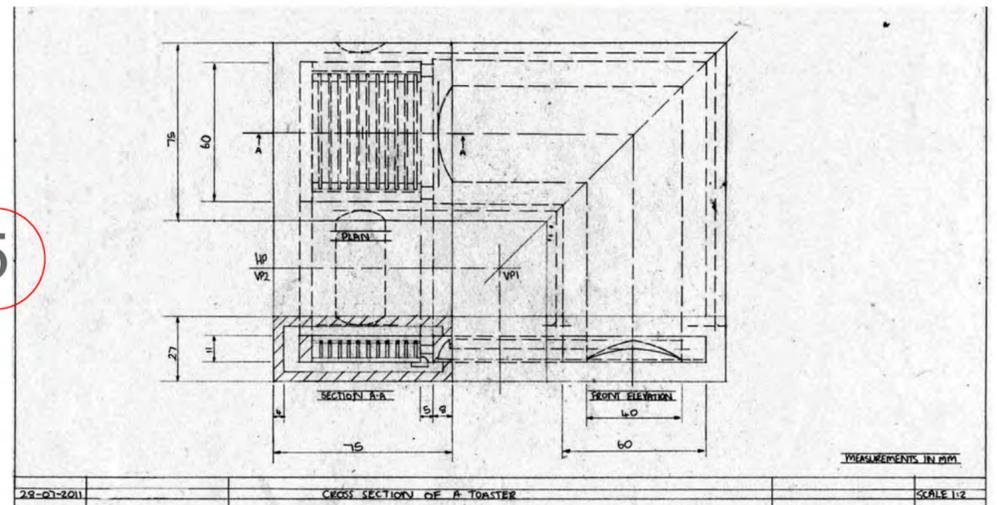
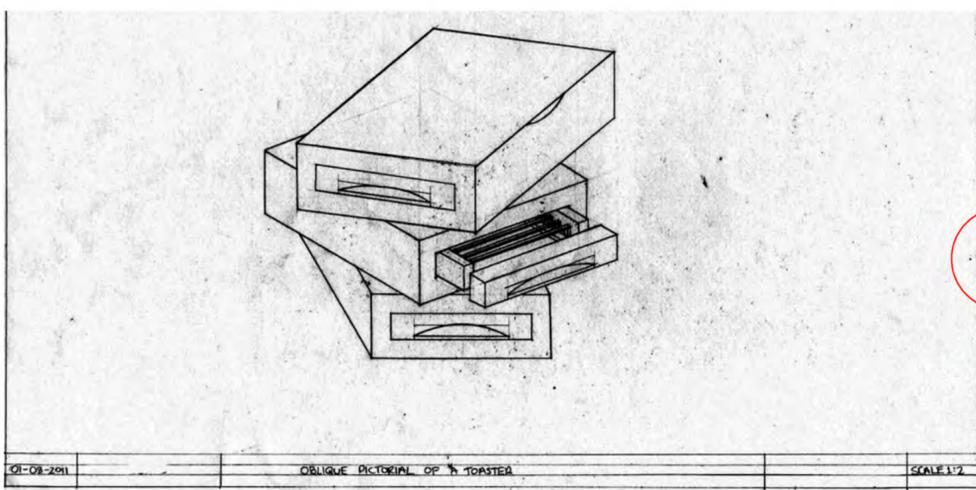
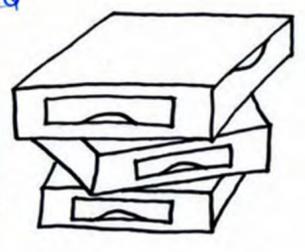


The draw runs over the lever until the first part gets clicked in place



I developed a draw that the toast can cook then, the draw pops out when the toast is done without the toast coming out of the toaster and onto the floor. I did this by creating a lever that holds the draw in place then when an in built timer goes off letting the draw go allowing it to pop out on its own, by a spring at the back.

In my final design, compared to my original I have developed a draw that the user can open and have the toast cooked in. I designed handles for the draws as well as handles on the side of the top and middle sections so the user can twist them to their desired position.



	Grade Boundary: Low Achieved
5.	<p>For Achieved, the student needs to develop a product design through graphics.</p> <p>This involves:</p> <ul style="list-style-type: none">• exploring and refining design ideas that draw on product design knowledge• making design judgements on the positive and/or negative aspects of aesthetic and functional features of the design in response to a brief. <p>This student has shown some exploration of 3D form (1). The student uses good visual communication skills to show technical refinement of a food mixer idea (2) (3) (4). Design judgements are on the positive and/or negative aspects of aesthetic, and functional features of the food mixer are shown throughout (2) (3) (4).</p> <p>For a more secure Achieved, the student could strengthen the exploration of shape and form and use design tools (anthropometrics, ergonomics, mock-ups, and models).</p>



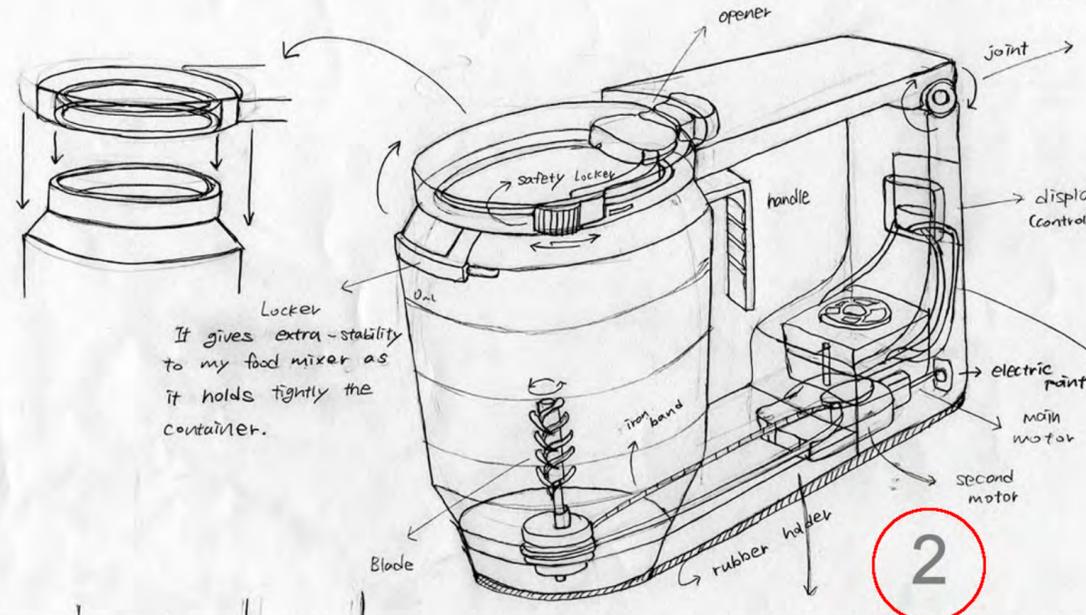
This is a piece of visible food processor. It will process the food in water. The processor will be connected to a power source and motor. The motor function is a supplier of electricity. Once the food processor get the electricity, it turns the motor. As it goes, the wire will connected it back to the side of the motor of the with the blade, resulting of food mixer. At the first picture, I have a traditional design of using it to mix the food mixer. The advantage of using it is more convenient. I would say it is suitable for the kitchen of restaurant. I consider the safety, the food processor must be secure than just one to think step the small the (2) but safety automatic switch.

It allows the users to open the cover a little harder, but it gives a secure to them. The users need to remove the safety first and then turn the cover clock-direction to separate from the container.

The joint makes it possible to open the my food mixer's cover. The users can bend the upper part maximum to 90° by using the joint.

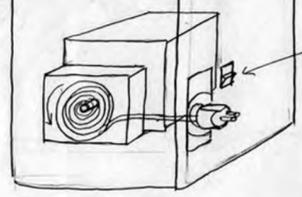
The screen will be touch-screen so this will increase the convenience of the users, from clicking the control buttons.

The display screen is connected to the motor. The electronic lines make possible to communicate between them. When the user send the message from the screen, it will reach to the motor through the electronic wires and work as what the user wanted.



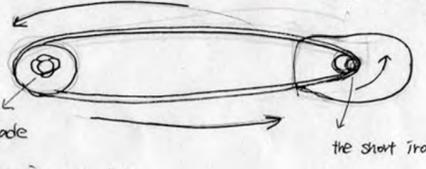
Locker
 It gives extra-stability to my food mixer as it holds tightly the container.

The detail of electric point

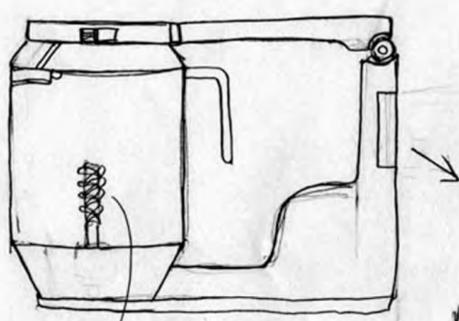


This is a button, pulling off the electric point. When the users click this button, it rolls the electronic wires automatically. The button is needed to be hold until it finishes the rolling. all the wires.

This explains how the blade mix the food. The long iron band perform as a jointer between the blade part and the motor. When the food mixer works, the short iron spins. As it spins, the blade part also spins because the rubber band connected them together.

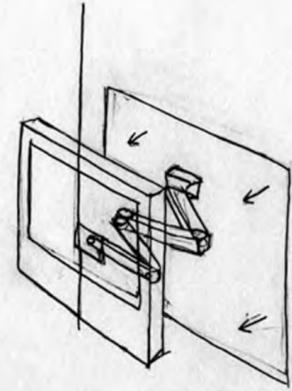
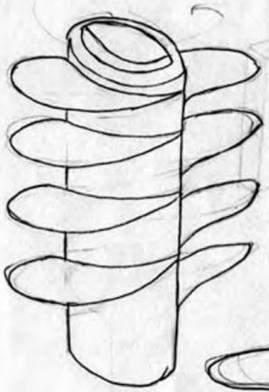


Side view



The blade

Overall view



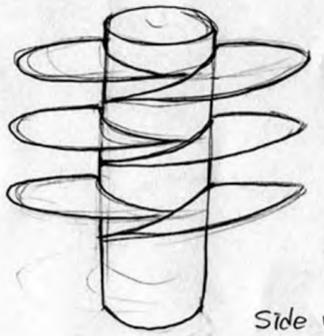
The users can separate the screen from the main body part so they can use it at every different angles. The extender makes it possible to move the screen freely. It's made up by many different parts, and the joints give them a flexibility which allow to extend and fold.

At the bottom side of the food mixer, it's all covered by a rubber band. This gives a stability and it prevent to get damaged on the surface of the food mixer.

Plan view



Side view

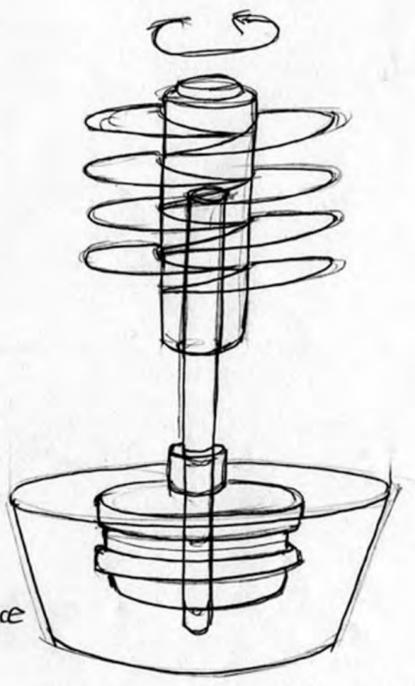


3



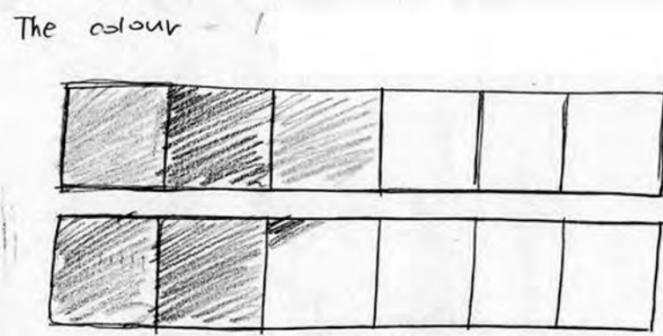
rubber band the blade.

This is a blade which I have designed for my food processor. The blade will be placed inside of the food container, and there are four cutting wings at the each sides of

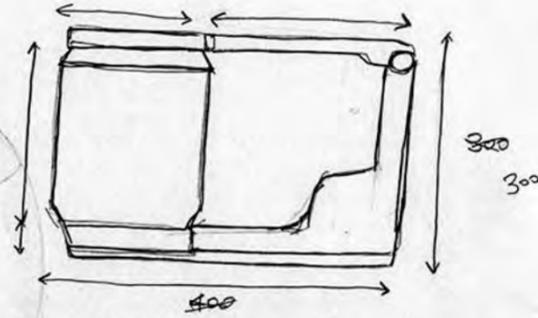


Development 3

This food mixer is chargeable. It's aspect says that the users don't need to be bothered by electronic wires. They can charge it through the wire (which the food mixer has), and they put it on the places they want, for example outside of the house. There is a system of rolling the wires inside of the food mixer so the users don't need to worry about carrying the wires with them.



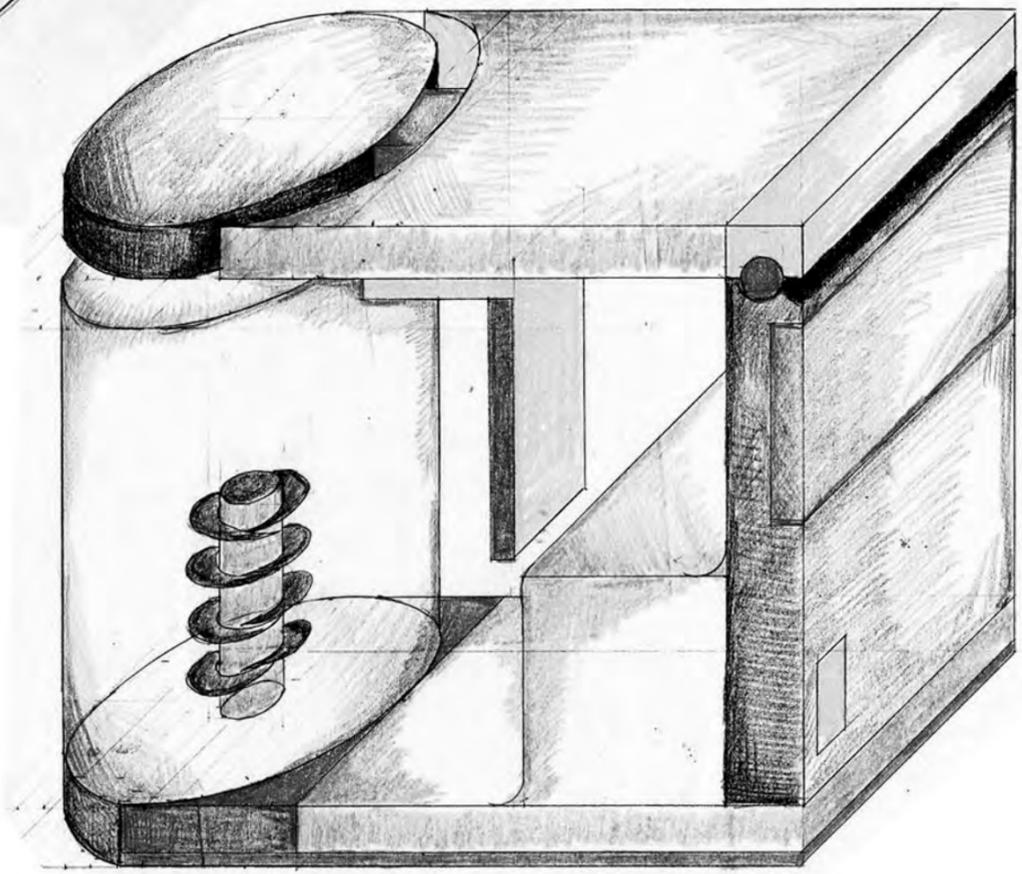
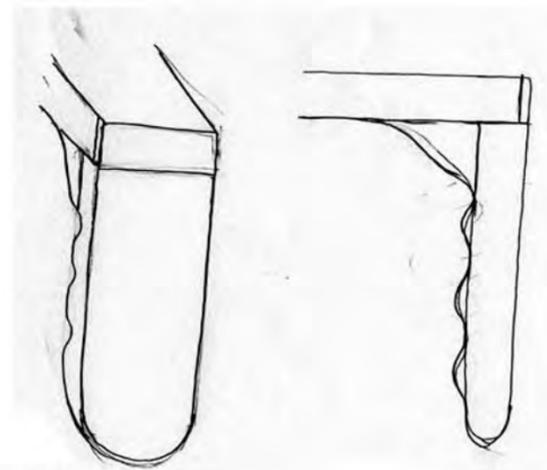
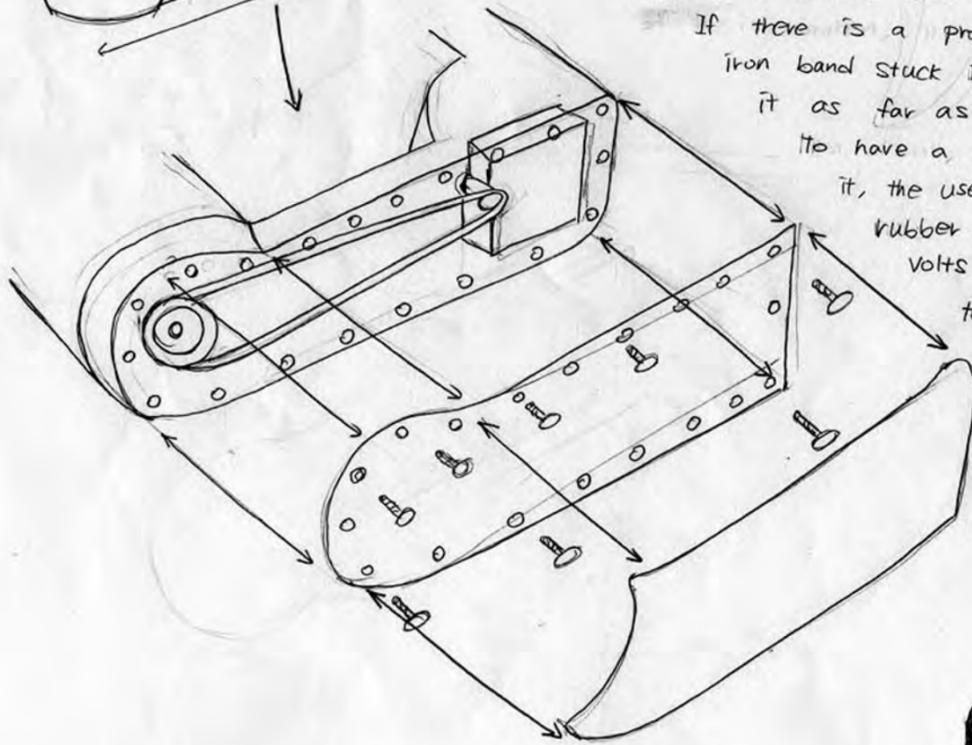
The size



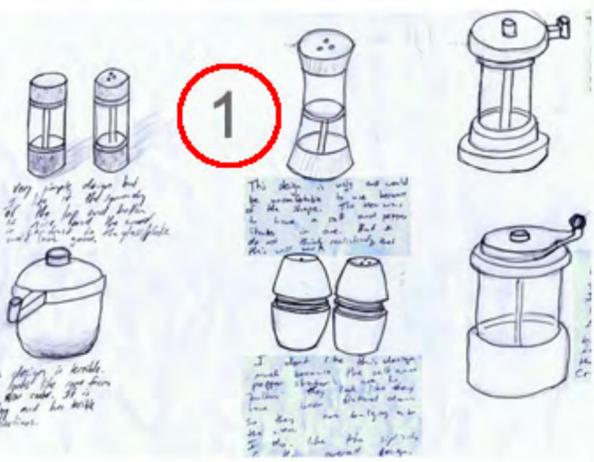
The handle

This is the handle which it is going to be placed at the food container. It has designed to consider people's grip. You can see the curved lines which it gives a comfort and tight-hold when they grip the handle. In general the design is modernistic and quite simple.

This drawing shows a bottom side of my food processor. If there is a problem with the motor or iron band stuck inside, the users can fix it as far as damage is not big. To have a look inside of it, the users need to remove the rubber holder and then all the volts. This whole idea suggest that this food mixer can be fixed so the users don't need to buy new one.



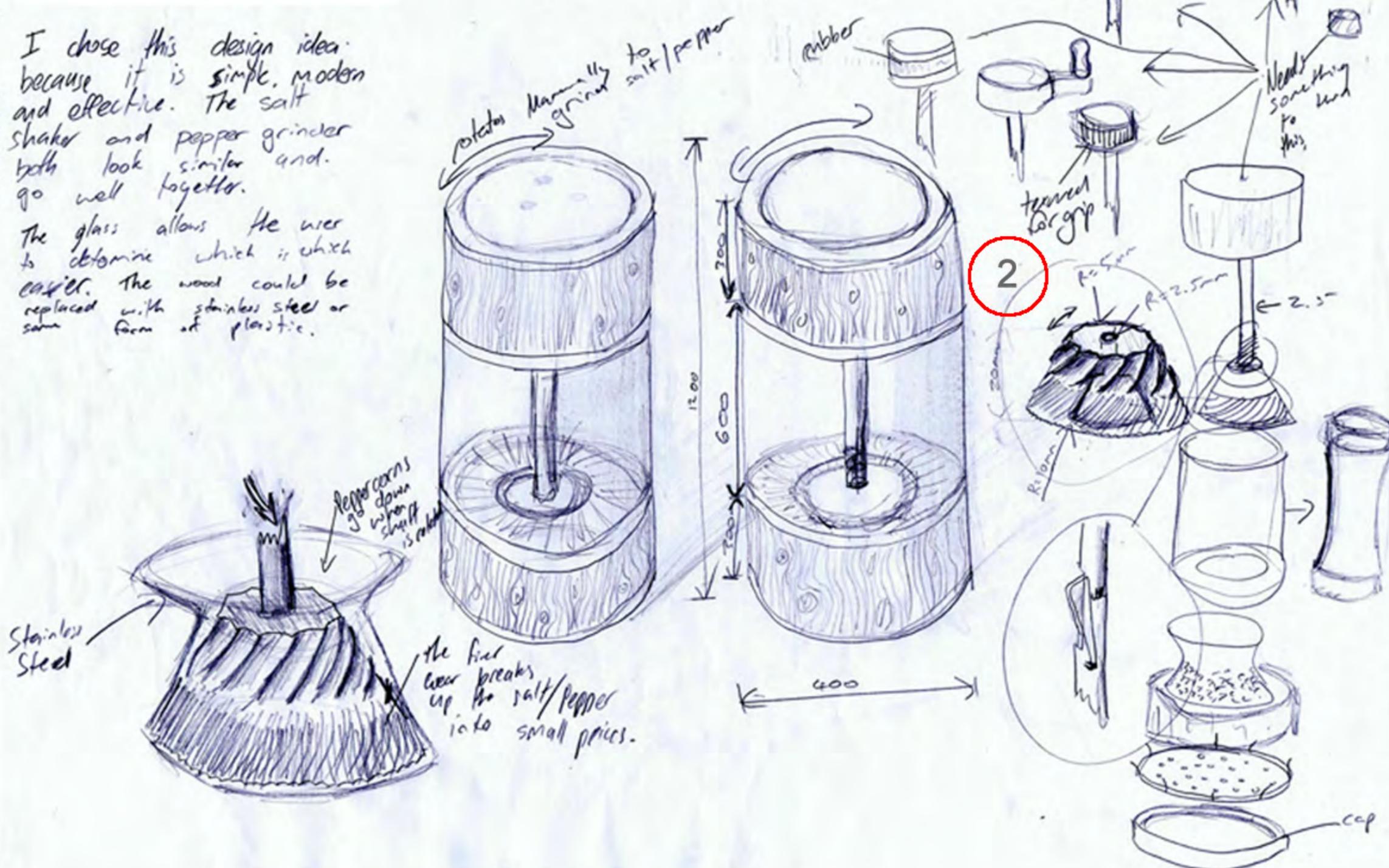
	Grade Boundary: High Not Achieved
6.	<p>For Achieved, the student needs to develop a product design through graphics.</p> <p>This involves:</p> <ul style="list-style-type: none">• exploring and refining design ideas that draw on product design knowledge• making design judgements on the positive and/or negative aspects of aesthetic and functional features of the design in response to a brief. <p>This student has explored design ideas which draw on some product knowledge (1) (2). There is refinement of the pepper mill that draws on some technical information (3) (4) (5).</p> <p>To reach Achieved, the student could draw on design tools such as anthropometric data and ergonomic principles to refine optimal comfort, grip, texture etc. There could also be further refinement of aesthetics in terms of the overall colour and materials.</p>



I chose this design idea because it is simple, modern and effective. The salt shaker and pepper grinder both look similar and go well together.

The glass allows the user to determine which is which easier. The wood could be replaced with stainless steel or some form of plastic.

Design Developments



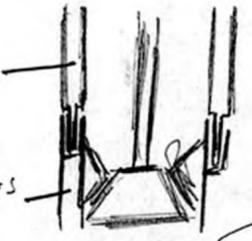
Design Developments

I am going to keep the look of the salt and pepper shaker very similar but I am developing the mechanism of the grinder such as how it will be assembled

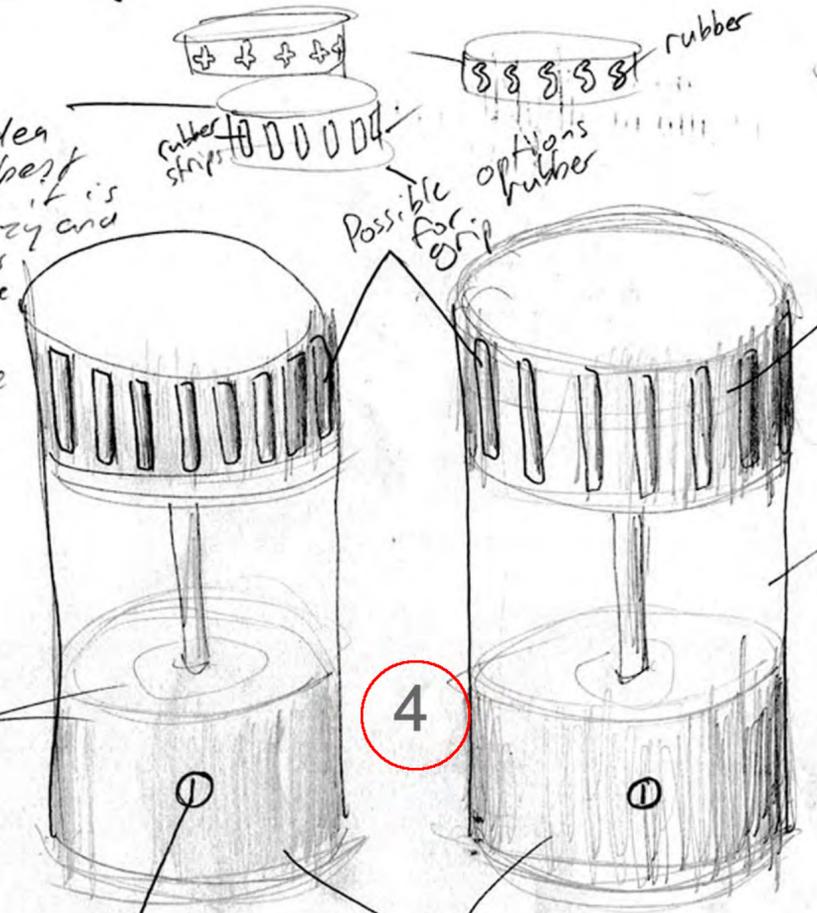
3

This is the idea I like best because it is not crazy and wild it is just simple and will appeal to a wider range of people

I may add plastic in some rubber into the design so that it does not slip in the users hand while they are using it

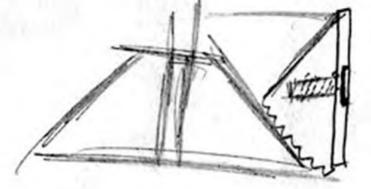


one piece joined by glue

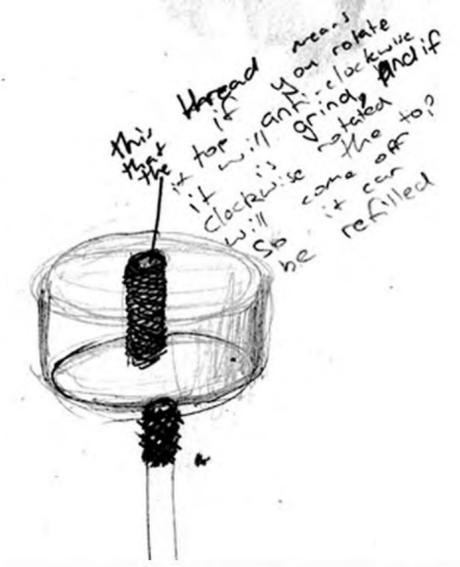
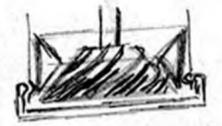


4

Screw holds the grinding ring in place

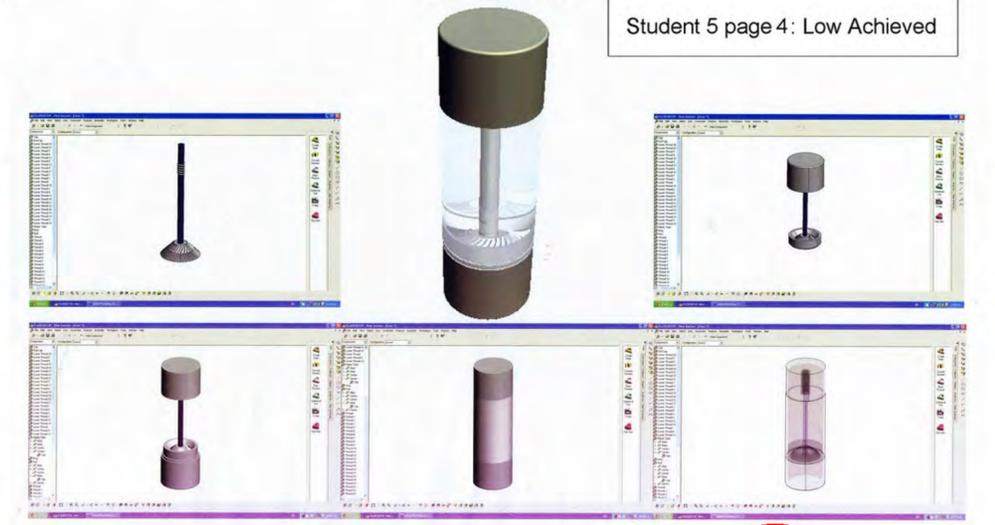


cap on the bottom that clips on



Salt/Pepper Grinder Pro DESKTOP

Student 5 page 4: Low Achieved



Making of Gear

5

