OCR Advanced GCE

Design and Technology: Product Design F523
A2 Coursework
Design, Make and Evaluate

Coffee Table

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Design Brief

I have been looking at modern coffee tables with extra storage capabilities. I want to put a modern twist on a very common product, hopefully this will make it more saleable and marketable.

Problem 1

I have found that coffee tables are normally quite boring and it can be quite hard to find a reasonably priced modern design which is also practical. Many modern coffee tables can be expensive and they are mainly bought for their look and not their functionality.

Problem 2

I have also found through research that many coffee tables aren't flat pack and are often solid wood so are bought readily assembled. If the table were to be flat packed it would be easier for consumers to transport and therefore much more inclusive and ultimately more appealing to the target consumer.

Problem 3

Often coffee tables become cluttered with magazines and books and things like remote controls are lost beneath the stuff. There is a gap in the market for a coffee table with space especially for controls and storage for magazines etc.

The Client

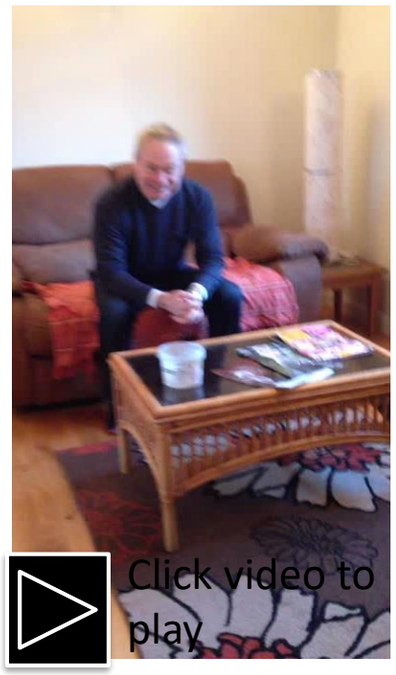
My proposed client would be a modern homeowner with not much space. They will be earning enough money to want to furnish their home but they still want to do it cheaply. They want quality products but they need it to be affordable at the same time. They are a busy worker so don't have time to wait around for deliveries in the week so they need to have a product which is flat pack that they can build in their own time. My client reads a lot and spends a lot of time entertaining friends so they need a table which can store magazines and their possessions when they have guests. The top surface needs to be useable which is why space around and on the table needs to be utilised for storage.

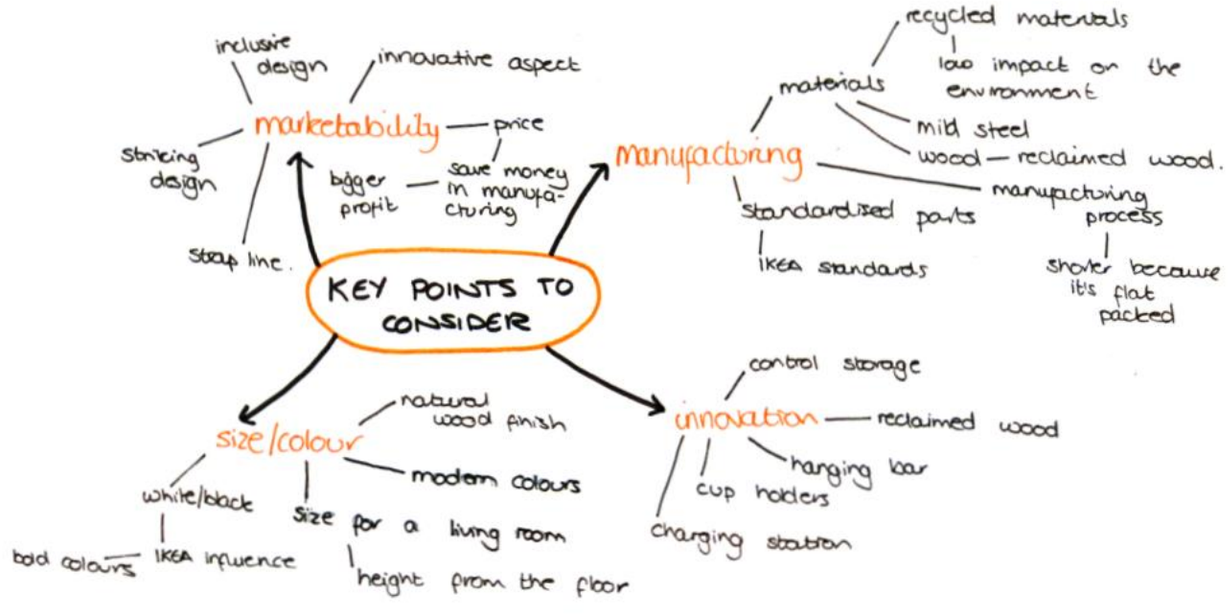
Design Brief

I am intending to design and make a stylish yet functional coffee table that would be located in a modern living room or bedroom. It will have space to store things and will also have a useable top surface. The table will also ideally be flat packed and be sold in IKEA.

Client:

Paul is 55 years old and has a job in the city. He drives a BMW and spends his spare time going to football matches and socialising. He lives in a 2 bedroom house which has been recently refurbished. He is looking for a coffee table to replace his old one. He doesn't have much spare time to go out and look round furniture shops so is looking for a product he can buy online and assemble in his own time. He aims to remain in his small budget of £200 but he still wants a modern and sophisticated design.





When researching IKEA products I found out about some policies they have when designing products.

IKEA and the new EU legislation on chemicals, REACH

IKEA aims to refrain from the use of chemicals and substances that can be harmful to people and the environment. IKEA welcomes the new EU REACH legislation on chemicals and substances which is in line with the IKEA precautionary approach to chemicals. All IKEA products for all markets, globally, shall comply with the chemical restrictions in the REACH legislation.

selling in lots of EU countries → large client base → bigger income

If they didnt stick to regulations they wouldnt be able to sell their products. The extra money used to stick to regulations is worth it.

Environmental design

This gives designers a budget so that they ensure they keep costs down during the designing process.

When developing products, we first decide on the price tag the item will have when sold in IKEA stores. However, in offering low prices we must never compromise the quality or safety of IKEA products. Designers, product developers and technicians must consider a product's safety, quality and environmental aspects, from the initial design stage throughout its life cycle.

IKEA has a clear strategy to decrease the environmental impact from our entire range over time. We use a set of different tools and processes to ensure the improvement in all the phases of a products life cycle; raw material, manufacturing, distribution, product use and end of life.

manufacturing processes which use as little energy as possible.

products which can be recycled after their use so that they don't leave a lasting damaging effect.

However the products should be designed with a long life span so they dont need to be replaced often.

The company are taking responsibility for their effect on the environment.

Efficient use of materials

IKEA believes in using the fewest resources to make the best possible products, without having a negative impact on their functionality or appearance. The main raw materials used in IKEA products are wood, cotton, metal, plastic, glass and rattan and we work towards using as many renewable and recyclable materials as possible.

they are still making good quality products to maintain their customers

morals again → positive view by customers → more sales → bigger profit.

Minimising waste

IKEA works actively to reduce waste in manufacturing. Where possible, waste from one manufacturing process should be used in the production of other items. IKEA recycles large quantities of material, such as cardboard, paper, plastic, wood, metal and glass.

Most IKEA stores provide collection points for customers to return waste, such as electrical and electronic equipment, discarded packaging, spent batteries and low-energy bulbs, for recycling.

IKEA attempts to repair products rather than simply discarding them. These products are used as spare parts or sold at reduced prices in specially designated areas of the store.

utilising materials to get the most out of them

MINIMISING WASTE BUT NOT LOSING OUT.

appeals to the customer because this is good morals and the customer feels at ease with the company.

gives the customer confidence in what they're buying.

Making home furnishing products safe

IKEA applies the precautionary principle with regards to the use of chemicals and other potentially hazardous substances in our products and their impact on the health of our customers and the environment. For example, in instances where local laws are strengthened regarding the use of chemicals, we strive to adopt the new requirements in other countries where we do business.

better safe than sorry, if there is any risk whatsoever they wont use that product because it's not worth the risk.

Good morals appeal to customers and makes it a more attractive place to shop.

Risk assessment and product testing

Each year thousands of tests are carried out on IKEA products during the development stage. Even more tests are conducted during production. Once a product is approved for production, any proposed changes to the product or to the production method are reviewed by IKEA to decide whether additional risk assessment testing is required.

must also ensure that banned chemicals such as maldehyde and phthalates don't exceed IKEA quirements. IKEA has a third-party accredited test boratory that is certified each year by external auditors and rd-party accredited test laboratories perform random tests. EA requires suppliers to order certified products testing by rd party auditors.

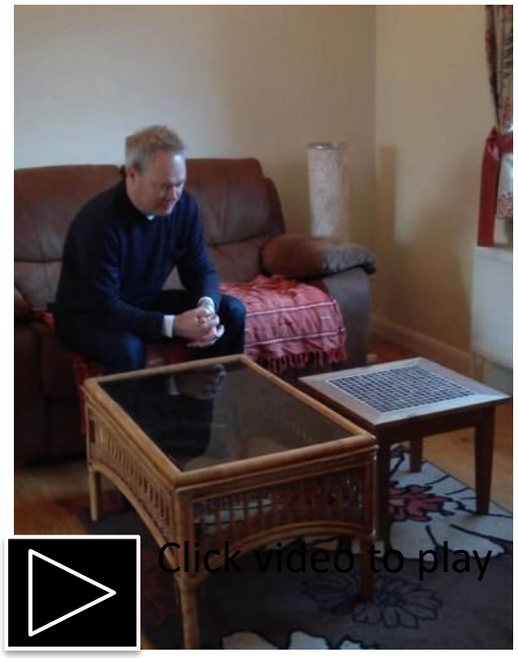
extra cost to ensure safety

duty of care to customer

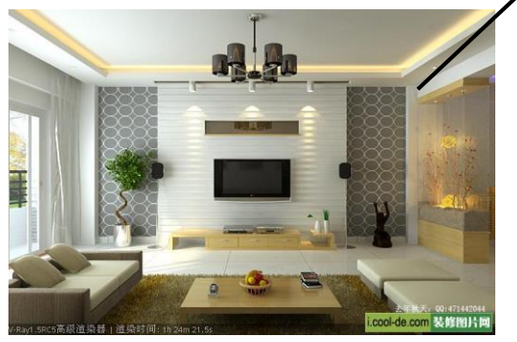
RESPONSIBILITY

Inspiration

This is my end user analysing two coffee tables he already has. He says about the heights and that one is too low but the other is the right height. He wants somewhere where he can store things so that the top can be clear. He also mentions the use of metal and wood together to give a contemporary look.



These are the kind of modern living rooms I would expect my table to be in. As you can see they are simple and tidy. The fact that my table could potentially have a storage function will make it more appealing so the sleek look can be kept in the lounge area.



The main designer I have taken inspiration from is Le Corbusier. He was a pioneer in modern architecture and furniture design in the 1920's. He designed buildings which were seen as very modern at the time and are still held in high regard today.
He also designed furniture which was simplistic but stylish.

Knock Down Fittings

As my product will ideally need to be flat packed to be sold in IKEA I have found out about what knock down fittings are available.

These toggles are usually used when there is string which needs to be held taught. However I could incorporate them in my design. This would give the user something they can use and change about the product.

This component is used in wood. As you can see as you screw it in, it grips into the sides. It is very quick and easy to use and only requires there to be pre drilled holes in the wood.

These metal brackets would probably not be suitable for all materials because they are quite heavy. However, they work by simply interlocking with each other.

These blocks allow the user to create a solid corner. It gives support to 2 pieces of wood and hold them in place.

This is my end user talking about flat pack furniture. He says that its normally easy to put together if there are good instructions and the tools are supplied with all the parts.

Material Research

There are certain materials which flat pack furniture is usually made from. Theses are:

- Partcicle board – this is made from wood particles, shavings, chippings and sawdust. They are compounded together and then stuck. These boards are cheap materials and are flatter so need less machining.
- MDF – this is made from wood fibres which are bound together with wax and resin. The advantages is that MDF is cheaper than solid wood, easier to machine and more reliable in strength and size. However it is heavy and will need painting or covering which can lead to warping.
- Solid wood – this is the most expensive but does give the best finish. It needs money to machine and is heavy. The uniqueness of the wood and the grain is a selling point.

Information, Inspiration and Influences

Pictorial Inspiration

I like the design of this however it is quite chunky and wouldn't come flat packed. I like the innovative way the legs have been put together because they cross.

I think the shape of this one is modern because its not the traditional design with 4 legs. However I think it would stick out a bit and isn't actually very practical.

I like the curves of this design, it makes it look modern yet its still very sophisticated. I think the glass top makes it look sophisticated.

This product stands out quite a bit but the glass top does make it look quite nice. I don't really think it is very practical because there isn't much storage, also it wouldn't come flat packed.

The two colours on this table make it quite attractive. I also think it utilises the space quite well because there are areas available for storage as well as having decent surface space for things such as mugs and laptops.

I went to IKEA and these were some of the coffee tables I saw. They were all flat pack and easy to construct in about 20minutes. They all used knock down fittings.

This is the kind of height I would be going for on my coffee table, I don't want it to be too intrusive in the room and I want it to blend in like this one does.

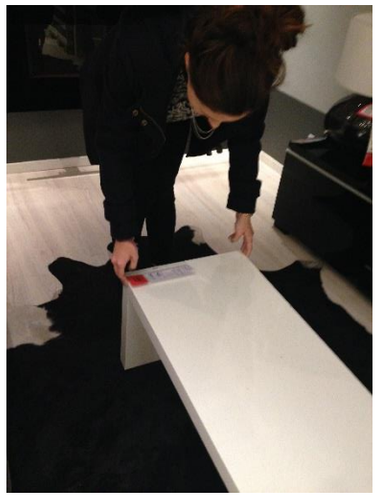
The STOCKHOLM range at IKEA is designed with influence from the 1970's but with a modern aspect. I like the fact that the top of this table is walnut veneer because it gives it texture and gives the room a warm feeling. I also like the way that the shelf is a woven wood material because this adds something different which lots of tables don't have. It's a simple table but the design is very effective and its very appealing to me. The legs are mild steel but have been powder coated to give them a natural look.

This VEJMON table is made from a beech veneer and comes in lots of different colours. The way that it is put together is innovative because it uses a slotting mechanism so that as little fixing components are needed as possible. This minimises construction time for the user at home and also make the manufacturing process cheaper because not as many materials are needed. I do think it is quite boring, however it is quite cheap and this can be appealing when people need a table and don't have much money.

This table has focussed on the design and doesn't really cover the functional aspect of a coffee table because it is quite plain and boring. It would also be heavy and not flat packed.

The ISALA table is more of a decorative piece. It has a free running draw which is good for storage of remotes but isn't really big enough to store anything else. However, the draw is self closing meaning that it wont ever be open and at risk of being in the way if someone were walking. The legs are solid beech which makes them durable and means they can be shaped the way they are. There is no metal in the design which means that it will use the same fixing components all over which will minimise manufacturing costs because there wont need to be as many different materials.

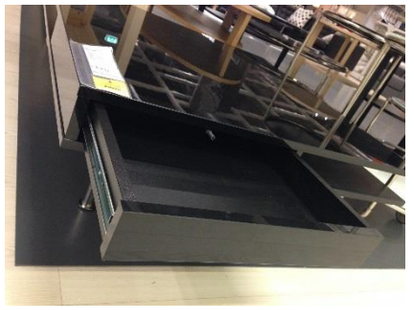
The LÖVBACKEN side table is very distinctive. The unique veneer gives the table top a modern yet retro feel. It adds character along with the gold tipped legs which are actually plastic and allow the table to be moved with no fear of it scratching the floor. The veneered surface is really durable and easy to clean making it appealing to a wide market. The table isn't a symmetrical shape which might make it look out of place in a modern home however I think it brings character and is a really nice piece of furniture especially for the price

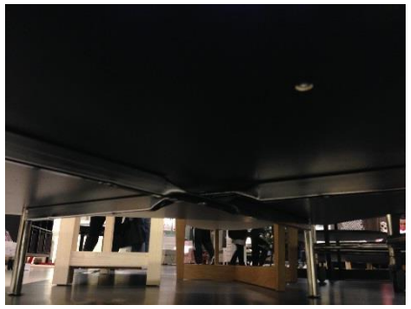


When I visited IKEA I spent some time looking at the Lack range. The interesting thing about this range was that the table was really simple and this made it a very good seller because it was cheap and there were no features which would make it unsuitable for a room. It was available in a range of sizes and colours which made it marketable and more inclusive for more people.

LACK (IKEA)

Durability	The product is mainly made from particleboard and is held together with knock down fittings. The top has been treated to make it stain resistant and therefore more durable to everyday use. However for the price you wouldn't expect this table to last forever.
Aesthetics	The simple design of this table makes it look quite modern but it also would fit into any living room environment. I like the way it looks and the fact that its in block colours makes it more inclusive.
Mechanisms	The mechanisms of this product are simple because there are none. The product doesn't have any moving parts which makes it easier to assemble and also makes it cheaper.
Materials	The materials used in the making of this product are particleboard, fibreboard, ABS plastic, paper, melamine foil and acrylic paint. IKEA have lots of policies surrounding materials and the environment, they try their best to use renewable materials and as little energy as possible during manufacture.
User Friendliness	The table is user friendly because there isn't really anything that could go wrong. It's easy to put stuff on and to take things off of it.
Safety	The only safety aspect that I would reconsider when designing this product would be the corners because they appear to be quite sharp and if someone where to fall they could catch their head on it.
Weight and Size	The product weighs about 22kg, it is important for it to be light because it is flat packed and will need o be carried. When it comes to dimensions the product is 45cm high, 78cm wide and 118cm in length. However like many other IKEA products there are a variation of other sizes available.
Economics	The product is very cheap and therefore probably sells a lot. It is retailed at £23. This means that the manufacturing costs must have been very low. It is a very reasonable price for the product you are getting.





When I went to look at this product I was very surprised about the quality and how good it was. For a flat pack piece of furniture the table was really sturdy and really nice. I liked the way the draws were push operated because this meant that there were no handles to ruin the fluidity and simplicity of the design. I also really liked the fact that the legs underneath were crossed to support the weight of the table and so that as little fixings as possible were needed for the user to make the table when they go it home.

TOFTERYD (IKEA)

Durability	This table is made from particleboard and has chrome plated steel legs which means that it is quite durable. The legs will be able to withstand weight and make the product have quite a long lifetime.
Aesthetics	Aesthetically the product is nice to look at, the shiny exterior gives off a sophisticated feel. Also, the simplicity of the design makes it look modern and therefore more to the potential end user.
Mechanisms	The mechanisms present in this product are the drawers, they allow storage for things such as remotes. #The only problem is over time the runners may break and this could cause problems.
Materials	The materials used in this product are particleboard, foil, ABS plastic, melamine foil, steel, chrome plating and fibreboard. Once again because this is an IKEA product they pride themselves upon providing materials with a low environmental impact and using manufacturing methods which effect the environment in the smallest way possible.
User Friendliness	The only aspect that might confuse some users is the drawers because they have no visible handles. This allows the table to keep its fluidity in the shape but still allows there to be a functionality aspect of the drawers.
Safety	The product looks safe but my only fear would be the sharp corners but its quite hard to create any product which wont have corners.
Weight and Size	The product weighs about 36kg, this allows it to be easily transported which is essential for a flat pack product. Once assembled the products dimensions are as follows, 95cm in length, 95cm in width and 31cm in height.
Economics	The table uses more materials that the LACK and this reflects in the price of £170. However, this table is durable and will last a long time and I don't think the price is too bad.

Information, Inspiration and Influences

This is my end user talking about what he looks for in a coffee table and what it needs to be able to hold. He says that he would put mugs, magazines, remotes and other things on the table. He also talks about the height. He says he would want it about 450mm tall because its sofa height.

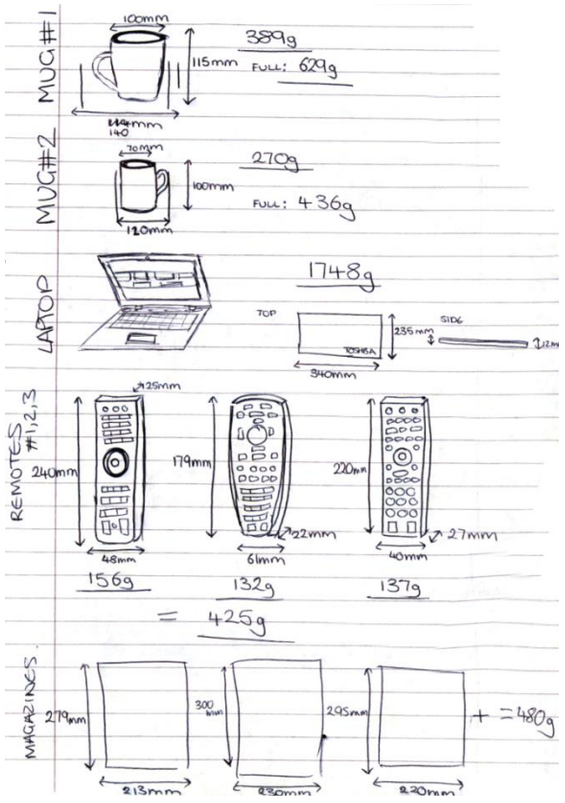
Anthropometrics:

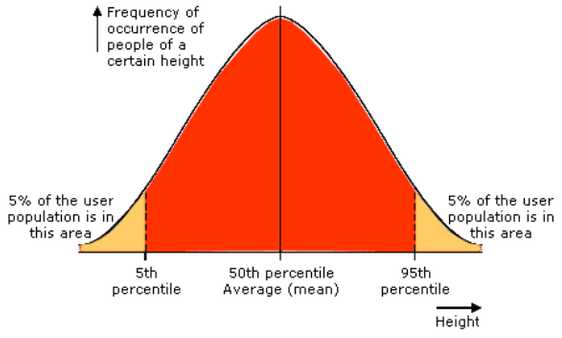
I'm going to make my product using the 90% of data between the 5th and 95th percentile. This means I am going to ignore the lowest 5% and highest 5% of data. This will make my product more viable for my intended target market because it will be the suitable size for the majority of people. Also this means that it will be more appealing and marketable because it's a product for a wide range of users and not just for users of a specific height/weight.

Who am I designing for? I am designing for adults who own their own home. There is a chance that younger users may buy my product however they will mainly be teenagers who are nearly fully grown anyway.

Which body measurements are relevant? For a table I need to take into account the bending height of an individual. I will also need the sitting height. However, the table will be used when people are sitting on a sofa and sofa's vary in height so I will need to get the average height of a sofa too. If I am going to incorporate any separate functioning parts it would be useful to know the widths of hands and grip widths.

Am I designing for averages or extremes? I will be designing for the averages because this means that the market will be bigger resulting in more chance of selling more of my product.





I am making a table so obviously things will need to be put on the table.

I need to make sure that my table can take the weight of the objects that are on it.

From my research I can show that the table needs to have **a surface area of at least 3240cm².**

It also needs to be able to take a weight of at least **3718g**.

Product	Mug		Laptop	Remote			Magazine		
	#1	#2		#1	#2	#3	#1	#2	#3
Height (mm)	115	100	12	240	179	220	279	300	295
Width (mm)	140	120	340	48	61	40	213	230	220
Depth (mm)	100	70	235	25	22	27	N/A	N/A	N/A
Weight (g)	Empty	389	270	1748	156	132	137	480		
	Full	629	436						

Ergonomics:

How do you operate it? The table itself wont have any electronic function. The functional parts will be the storage. This will be used by the clients with their hands. I will need to make sure that the components are designed with anthropometrics and ergonomics in mind so that they are comfortable for the client.

Is it hard to understand? Not really, because there are no electrical components the table should be accessible for everyone.

Something which might be hard to understand will be the flat pack construction however, if there are good instructions it shouldn't be too hard because like many other IKEA products all the holes will be pre drilled and it should be self explanatory.

Is it comfortable to use? I need to make sure that the way in which the client interacts with the product is comfortable. This means I need to make sure the handle or the way that they use the functional aspect of the product is accessible for all users. Also, if there are any other features they need to be thoroughly considered ergonomically because if they are not comfortable then the client wont use it and will be disappointed with the end product.

From what my end user has said and the research I have done into seat heights I have decided on some guideline dimensions for my coffee table. These are: 500mm H x 750mm W x 750mm D.

Design Specification

Design Specification:

Function:

- The table needs to meet the needs of the user and therefore it needs to be suitable for magazines, mugs, laptops/phones and remote controls.
- Any extra features on the product or any extra accessories need to be easy to install and use, otherwise this might put the customer off.

Materials:

- When it comes to materials I need to try to stick to IKEA's principles, therefore I need to use recyclable and sustainable materials when making this table.
- I need to make sure I refrain from using any chemicals and keep within the European REACH policy.

Manufacturing:

- During manufacture I need to make sure I create as little waste materials as possible and if there is waste that it can be recycled and used again.
- The user will want to know that the product they are buying has a low emission footprint because this will be more appealing to them and they may be willing to pay a little extra knowing they are helping the environment, therefore I need to manufacture the product in the most environmentally friendly way possible.
- I need to make sure that I use standardized parts because this will reduce the costs and will also make the product fit in with IKEA because they use all the same fittings for their products.

Assembly (flat pack):

- The home assembly of the product must be straight forward.
- The product must not have lots of little components which are fiddly and could potentially get lost by the client during home construction.
- I need to make sure that there are accurate instructions on construction which are easy for the customer to follow when they get home.

Ergonomics:

- The table needs to be at the right height so that it is accessible by the user if they were to be sitting on the sofa or standing up.
- It cant be too low to the ground because this could be a tripping hazard if someone doesn't see the table.

Aesthetics:

- The table needs to look modern so that it will look in place in most homes.
- The colour needs to be attractive but not too extravagant because this will constrict the potential market.
- The table needs to have flowing lines too make it look more modern and ultimately more attractive to the potential end user.

Cost:

- The table needs to cost between £40-£70 to manufacture so that a profit can be made when it is sold.
- I am looking to sell the table for around £130, this is a competitive price when comparing the table to other IKEA products.
- The extra accessories and bit that can be added on need to be under£15.

Safety:

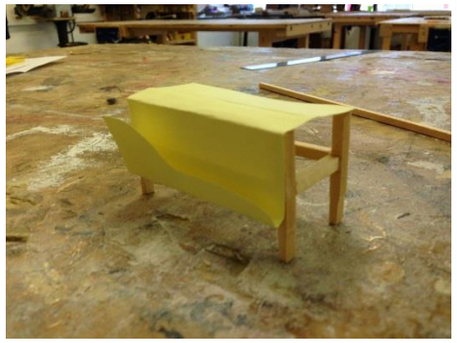
- The box containing all of the components for the table cant be too heavy. It needs to be under 40kg. This makes it carry able for the customer.
- The table itself needs to have rounded corners because it will be low which means small children could hit their heads.

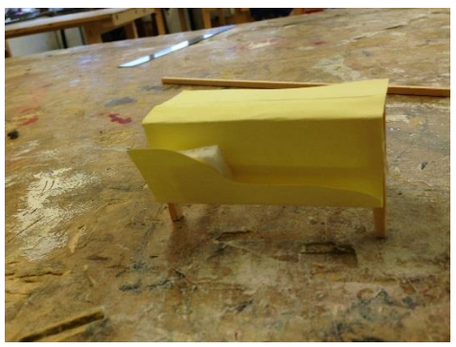
Agreed Specification:

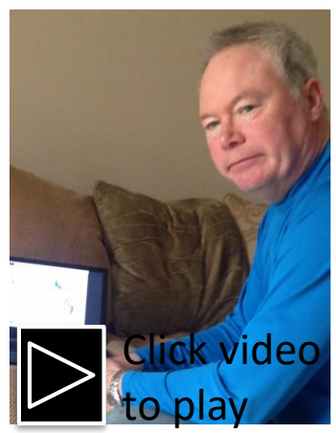
- The table needs to meet the needs of the user and therefore it **needs to be suitable for magazines, mugs, laptops/phones and remote controls.**
- When it comes to materials I need to try to stick to IKEA's principles, therefore **I need to use recyclable and sustainable materials when making this table.**
- The user will want to know that the product they are buying has a low emission footprint because this will be more appealing to them and they may be willing to pay a little extra knowing they are helping the environment, therefore **I need to manufacture the product in the most environmentally friendly way possible.**
- I need to make sure that there are **accurate instructions on construction** which are easy for the customer to follow when they get home.
- The table **needs to look modern** so that it will look in place in most homes.
- The table needs to cost between **£40-£70 to manufacture** so that a profit can be made when it is sold.
- I am looking to **sell the table for around £130**, this is a competitive price when comparing the table to other IKEA products.
- The box containing all of the components for the table cant be too heavy. It needs to be under **40kg**. This makes it carry able for the customer.

Technical Specification:

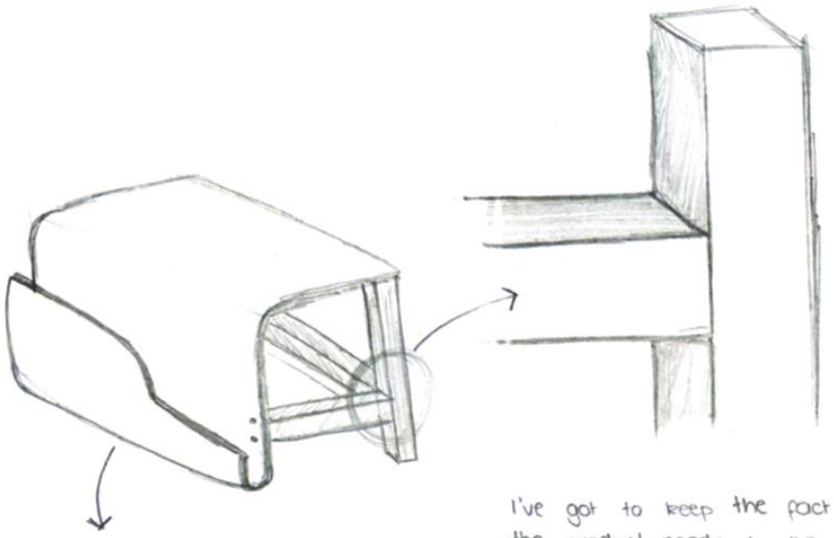
- **The surface area needs to be at least 3240cm^2**. (shown in previous research)
- **The table needs to be able to withstand a weight of at least 3718g.** (shown in previous research)
- **The legs need to be at least 35mm wide**, this will mean they don't look out of place and they will also be suitable to hold the weight of the table.
- **The table needs to no higher than 500mm** because the table will be for a lounge primarily, this means the users will be at sofa height so it should be no higher than that.
- **When flat pack the table should weigh no more than 40kg**. If it does I will need to think about having different components packaged separately because this will make it easier for the user to carry.

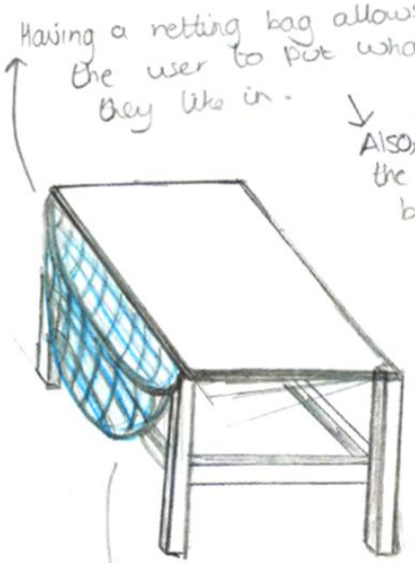


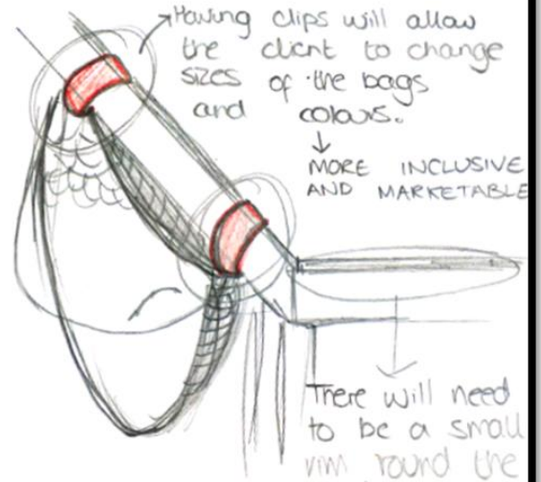




My end user thinks this isn't a very good idea, he thinks that the baskets will just get filled with rubbish and will end up not being useable.



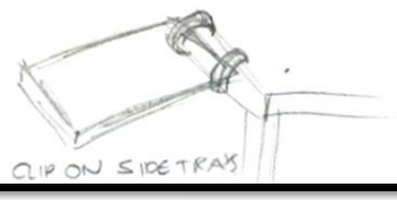




glasses slots

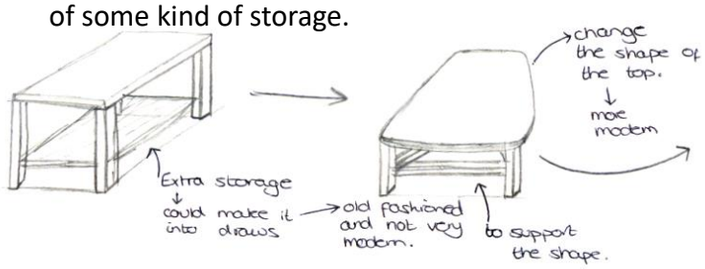
Having a product which can be personalised makes it more appealing and easier to market.

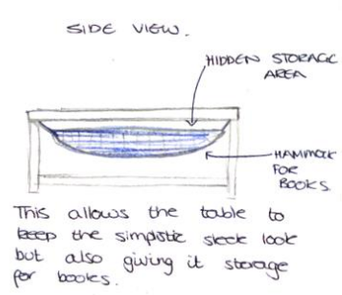
You could create a range of attachments:



I got inspiration from these net bags, they are made for pushchairs and simply just clip on.

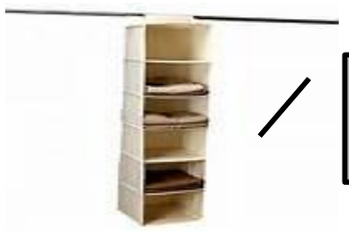
The idea of having a bag or some kind of detachable storage would be good for younger children. This may not be very simplistic but it is definitely functional. The client would need to make a choice about whether they wanted aesthetics over functionality. Therefore this product probably isn't one of the best ideas because it doesn't include both markets. Whereas I could design something which is both simplistic but still had the functionality aspect of some kind of storage.





These cup holders just clip on. The one on the left is used for handle bars on bikes.

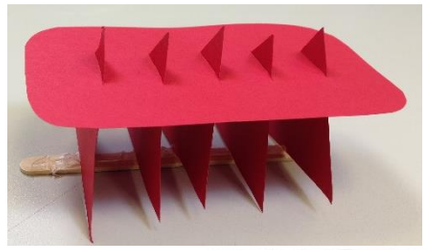
My user thinks that the glass is impractical because it'll be quite heavy and maybe dangerous.

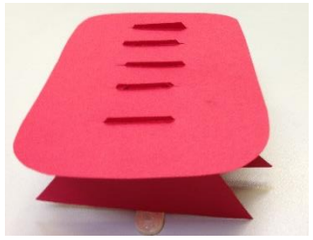


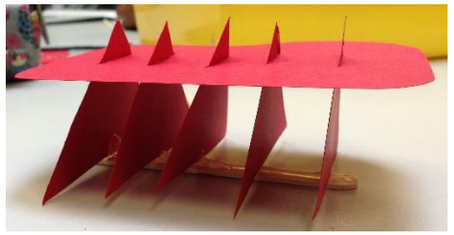
I got the ide of having a bar and hanging a canvas type bag from something like this.

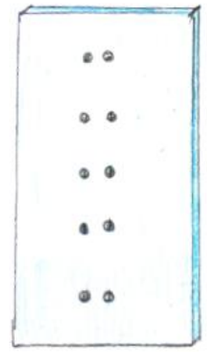
The best design on this page is probably the triangle style toast table. However when it came to modelling it wasn't very sturdy. This is because I had used card and it wasn't very strong. I think if the triangle base pieces actually have some weight to them they will definitely be stable and it will help when they are bolted to the top part because this will keep them in line.

The simple triangle table on the right is a bit boring and there are lots of products out there like it already. There aren't really many innovative aspects to it.

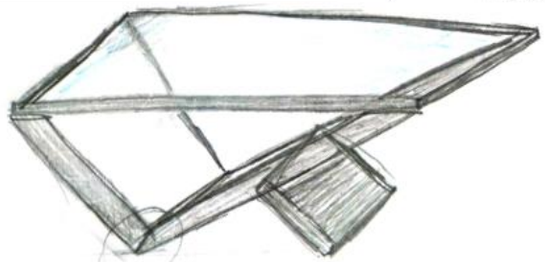


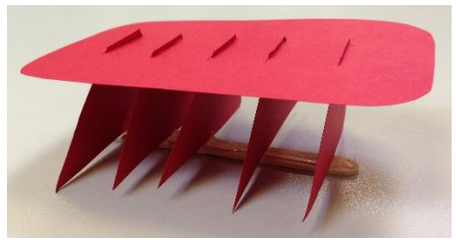






THE △ design makes it look modern.





2 pre drilled holes

x5

x10

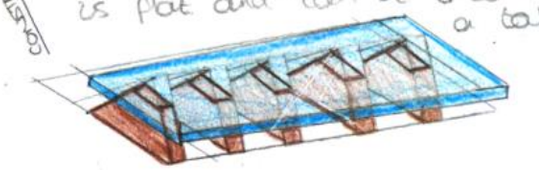
tightened with an allen key.

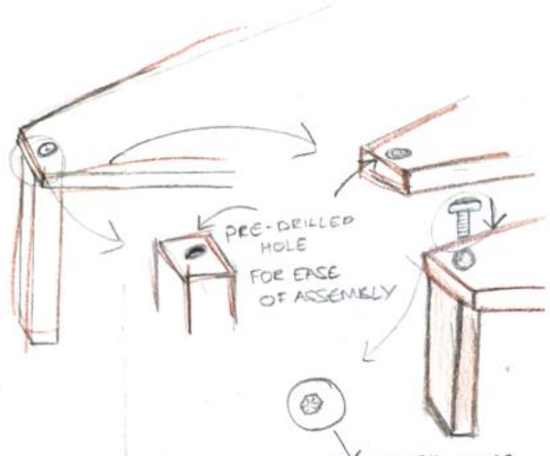
made from pine

cheap and easily machineable

CONSTRUCTION

on this design the top part is flat and can be used as a table.





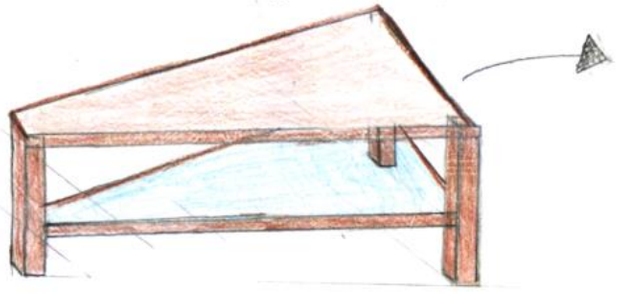
THE TRIANGLES MIGHT GET IN THE WAY.

INSPIRATION FROM A TOAST RACK

ease of assembly for the customer.

pre drilled holes

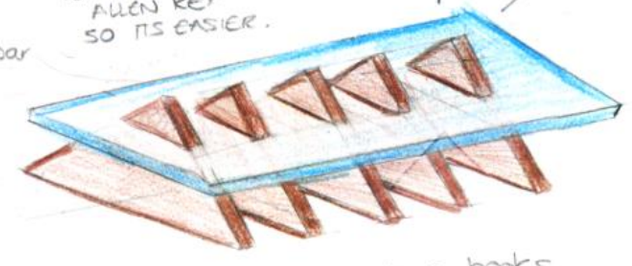
keeping the triangle look...

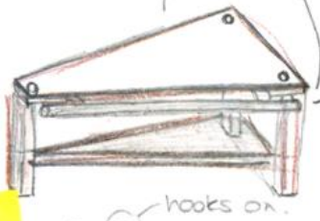


CONSTRUCTION

shape of the rail.

A flat bar will be more streamline than a round rail.





The bar can have things hung on it.

hooks on.

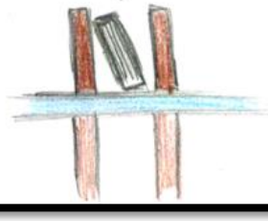
CANVAS BAG TO SLOT MAGAZINES INTO.

HOOKS ON.

A POT FOR PENS

canvas bag → rail and hang it on (hooks)

lean books

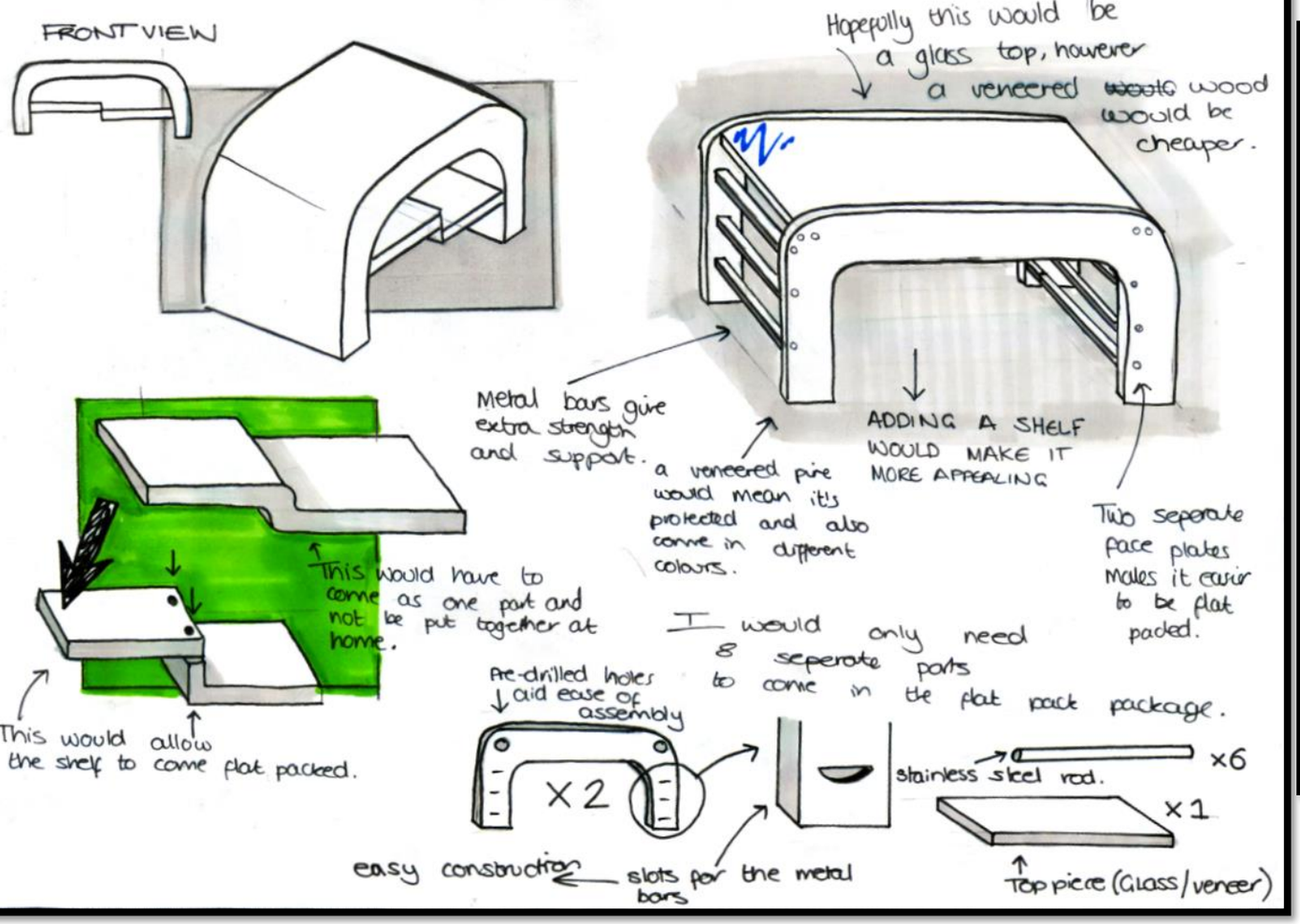


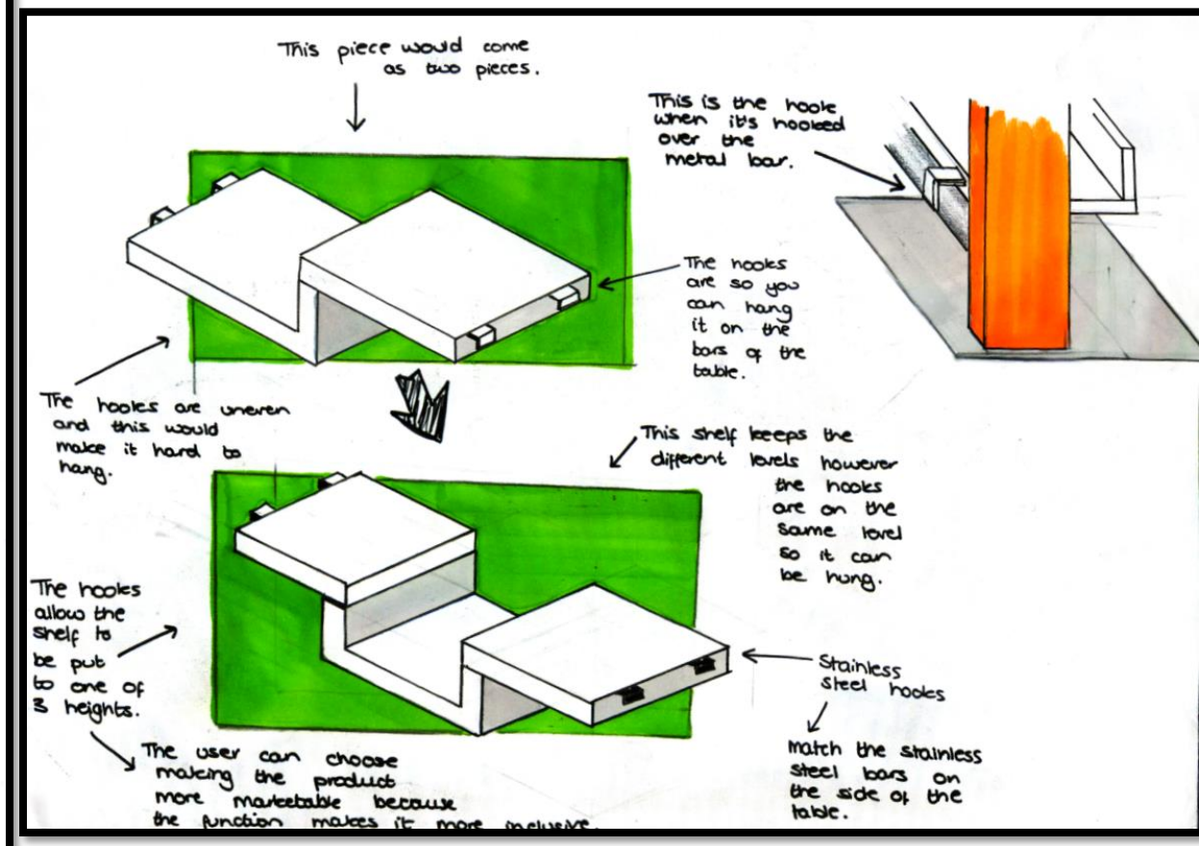
MAKE IT SOLID AND HAVE IT AS A BOOK REST

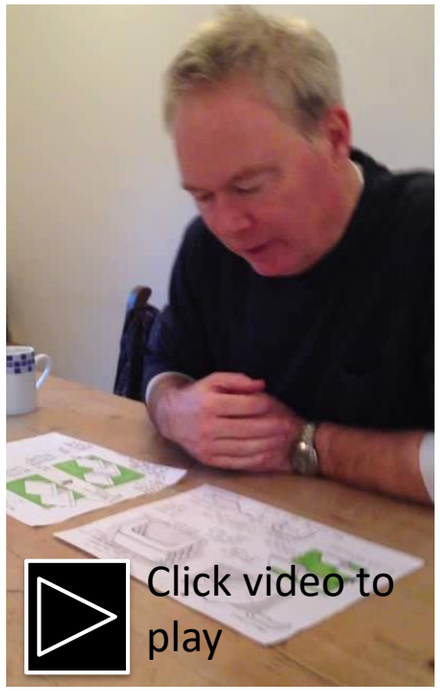
I took inspiration for one of these designs from a toast rack like this one. The triangles add a modern twist.

The idea of this design is that you can lean your book on this block. As soon as you take the book off the light comes on and acts as a reading light. The light then goes off when you replace the book.

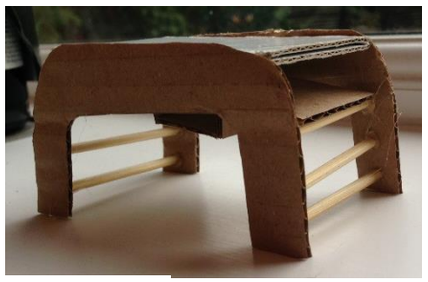
The idea is that books will lean against the exposed ends of the triangle.

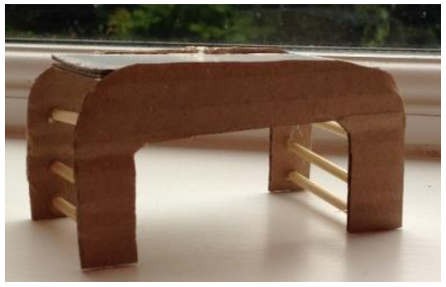


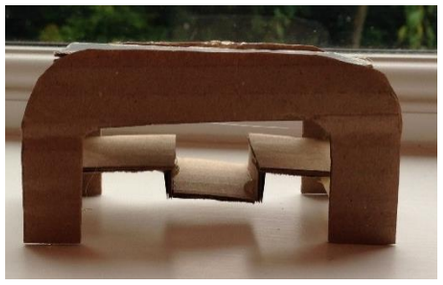


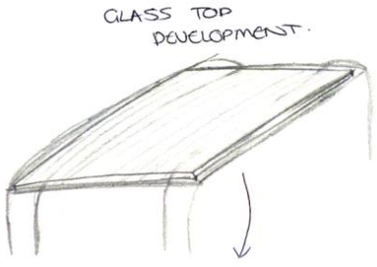


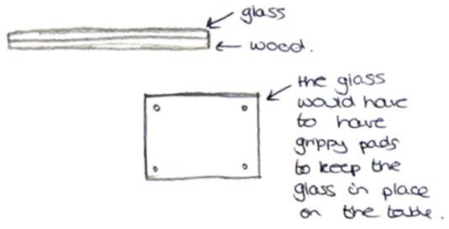
My user really likes this design and he prefers the second shelf because you can put more on it. He also likes the wood veneered top.







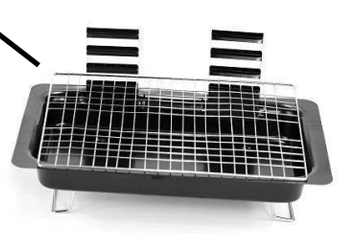




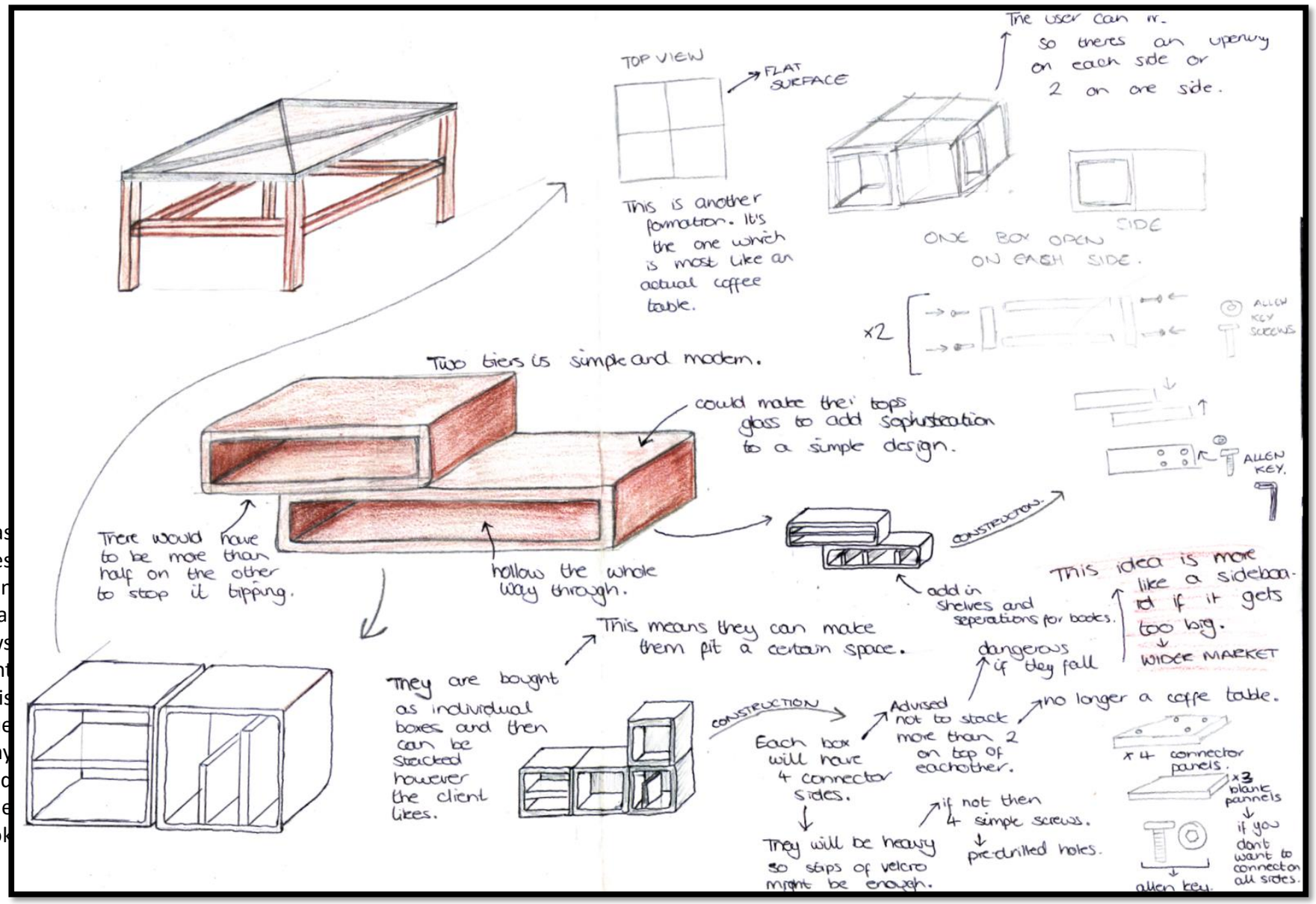
The modelling of this product was quite hard because I had to line up the rods on each side so that the shelf would be level. When making the actual product I would line this up properly and measure it. This will make it more accurate and it will probably be cut by a machine so this will make it even more accurate and there will be less error.

Ideally I would like the top to be glass however because its flat pack and because glass is expensive this probably wont be the best idea.
However, I could have a thin glass panel which can be put on top of the wood. Not only would this protect the wood and give the table a longer use it would also add to the simplicity and modern aspect of the product.

The influence for this design was a BBQ like the one below. It has different notches that you can put the grill on depending on how hot the coals are and how close you want the meat.



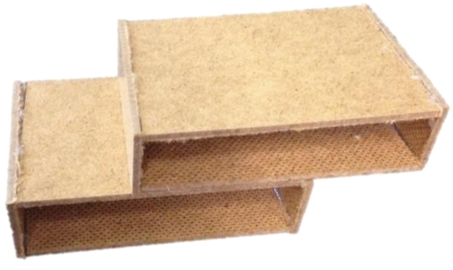
When I was modelling it was quite hard to get the boxes exactly square. However, when it comes to making the actual product I would use screws which would ensure the right angles are held in place. This is much better than using a glue gun like I did. However, my model gives a good representation of what the product could potentially look like.

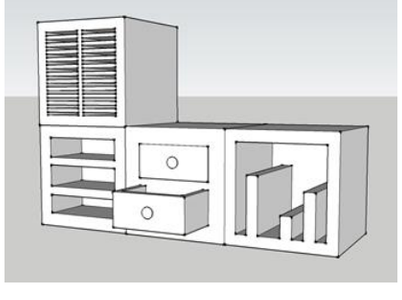


This id a video of my end user looking at my original sketches on the left. He thinks that the boxes are more of a storage system than a coffee table as such.

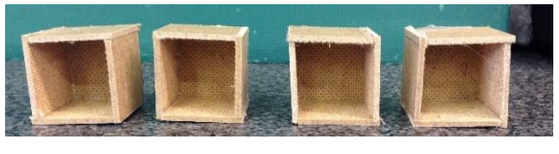
Click video to play

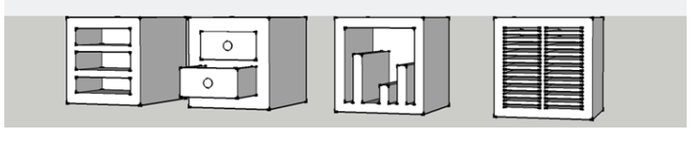
The model of the two tier rectangle table actually is really attractive. I think I would need to develop it further to add some more innovative aspects to it because it is quite boring and would not be very appealing to the potential end client. However, because its simple this makes it easy to produce as a flat pack piece of furniture.

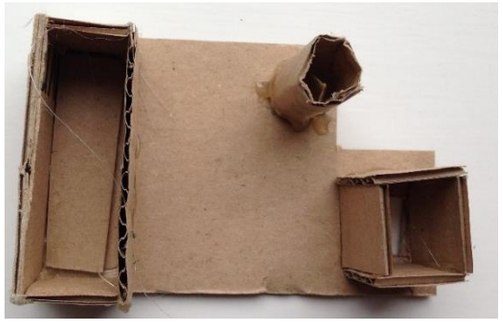




I made a CAD model of what the boxes could potentially look like. By having a choice for the client of which boxes to combine together they can personalise it. The box with the draws may be more difficult t make because there are more mechanical components. However, if this will be useful for the client then it might be worth creating if it will sell more.

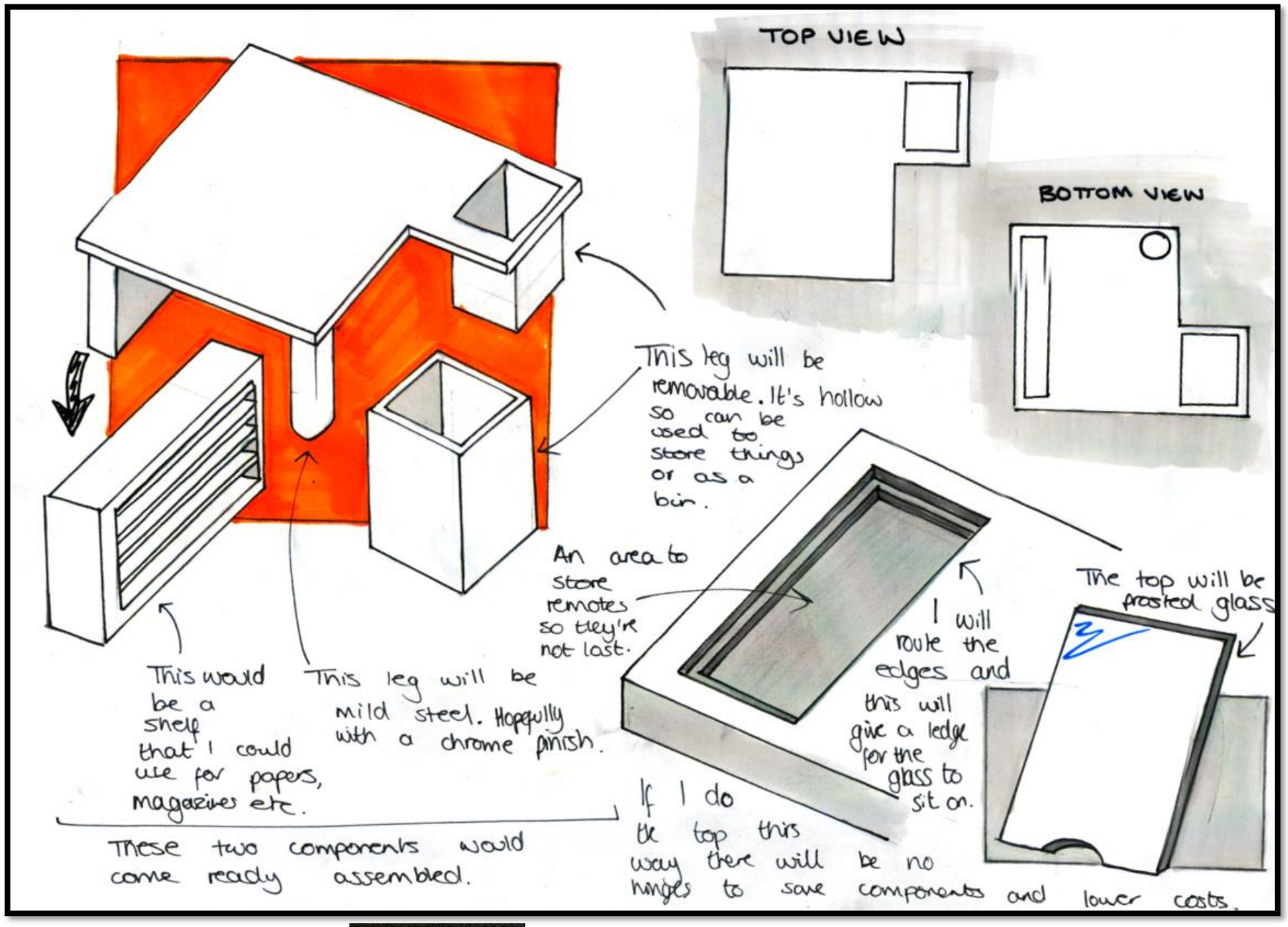


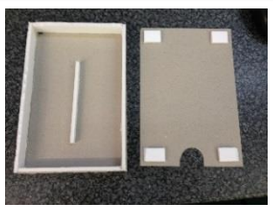


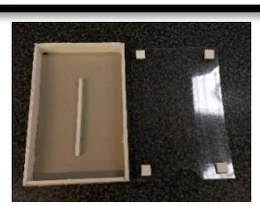


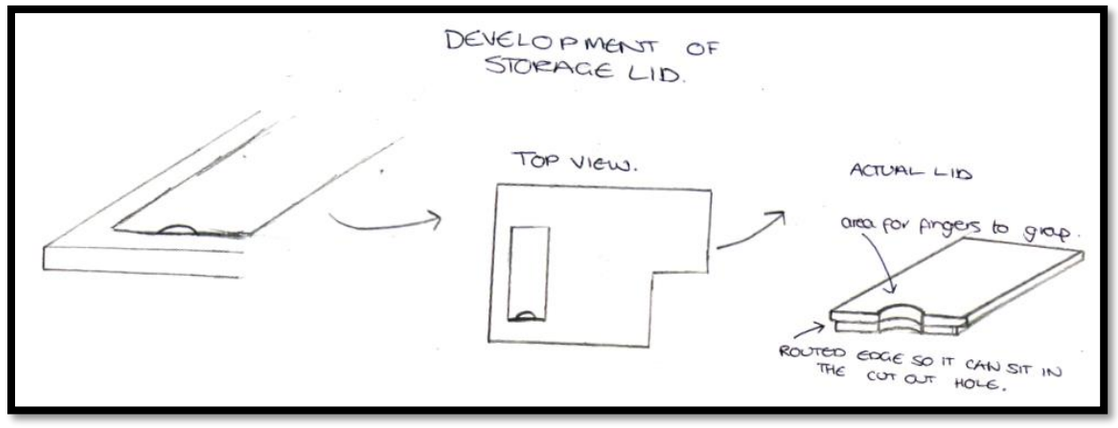
In my first stage of modelling it was hard to model the storage area because it needed to be set into the table.

I'm looking to have something like this, this jewellery box has a routed edge which allows the lid to sit on it. If I were to do this on my table it would allow me to have a top part flush to the table surface and make it nearly invisible to see and also it wouldn't effect the use of the top surface.
I will also need a way of opening the lid, this could simply just be a semi-circle hole big enough for the user to put their fingers in.



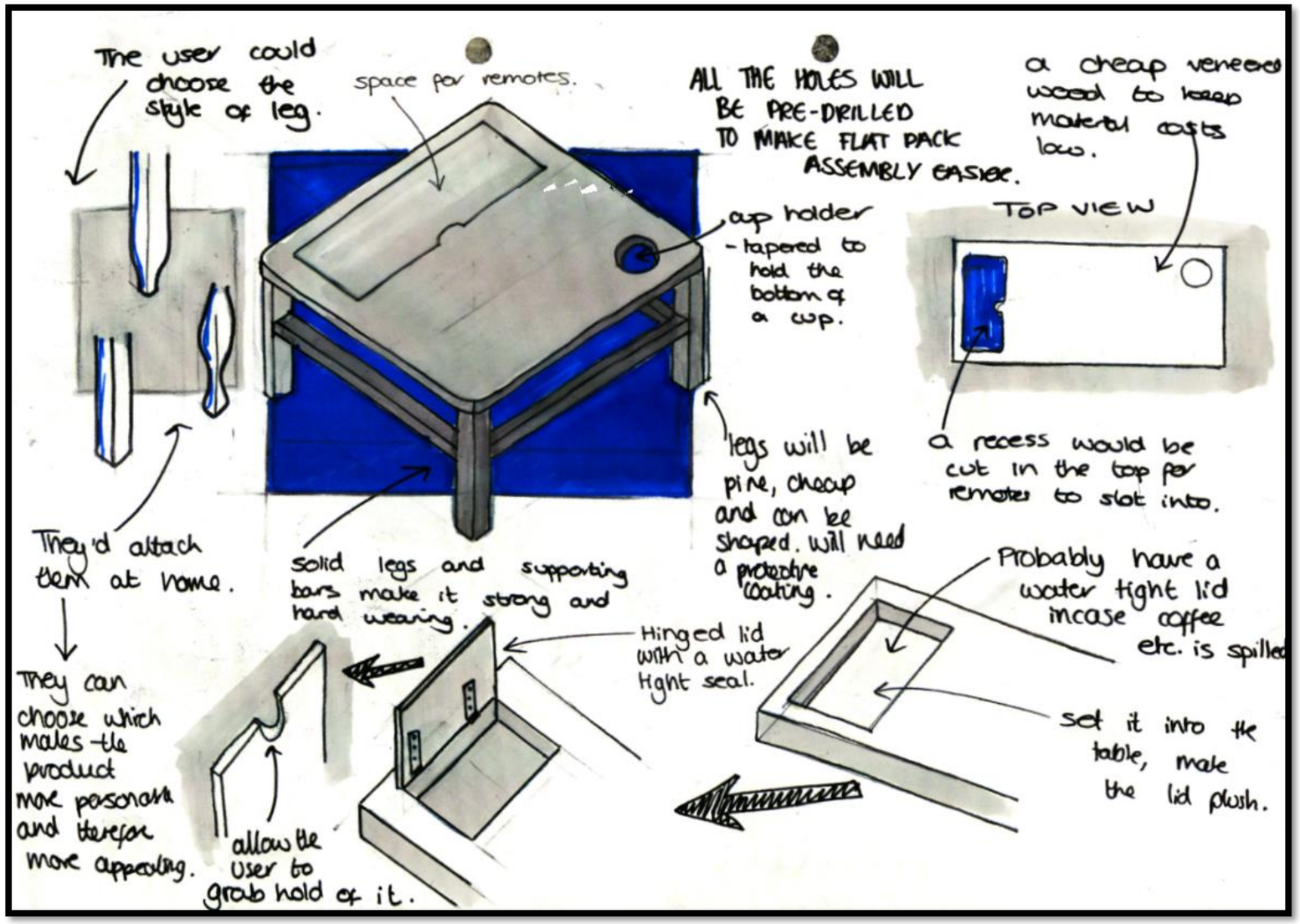


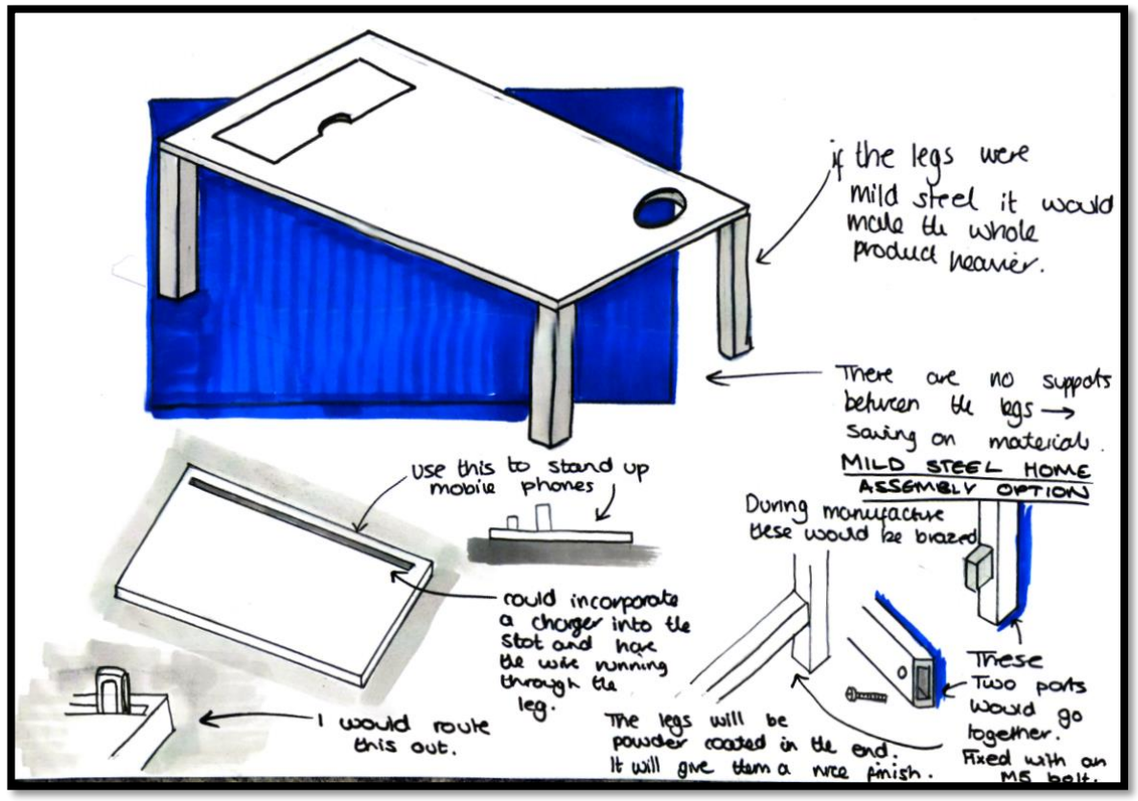




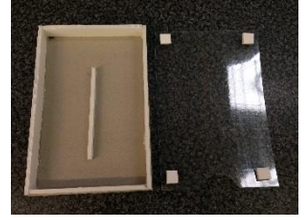
I have modelled this idea on the next page as I incorporated it in that design too.
I decided to go with blocks in the corners instead of a complete step around the whole inside. This was because it would have been very hard to model and also on the clear top it would have ruined the aesthetics because you would be able to see the edge.

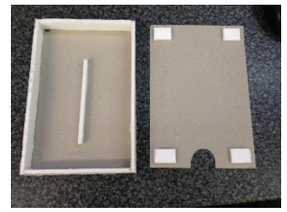
My end user thought this table was a bit lob sided and that rubbish would get lost at the end of the deep box. He did like the racking for newspapers.





I asked some people about how many people live in their homes and how many controls they have in their lounge. By asking how many people are in the home I am able to identify if there are lots of children and if so then they would be looking for a more functional table and would be moving away from aesthetics. My table is trying to get the best from both aspects so I want to cover as wide market as possible.





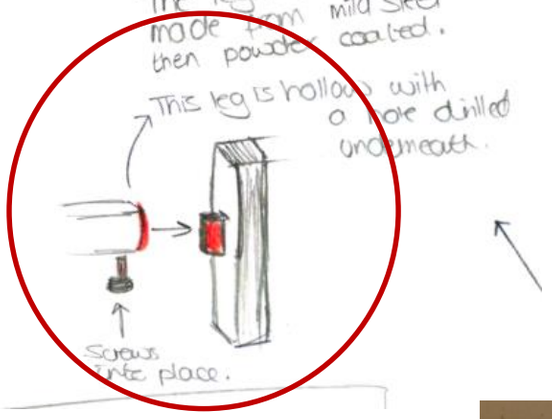
Ideally this would be countersunk into the table. This is because it will make the top surface flush and still useable.
By having two alternative tops this allows the client to choose. The clear top will allow them to see if their remotes are in storage or not.
I need to make sure I consider sizes of remotes and whether all remotes are the same size because if someone has big remotes this can cause problems. Also I need to know how many remotes a normal household has so the storage area can be big enough to accommodate these.

Click video to play

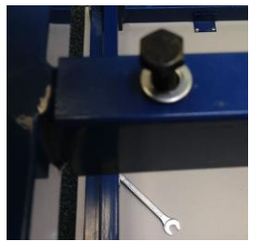
My end user likes the idea of the remote storage.

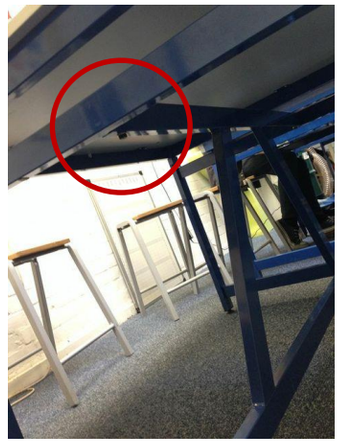
# people in household	# remote controls in lounge
2	3
5	3
1	2

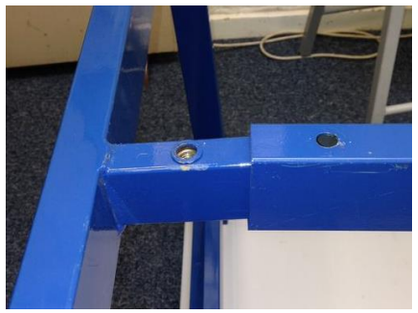
Remotes are often left on the top of surfaces or lost down the side of the sofa.

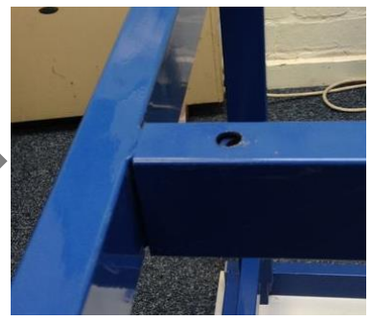


On the previous page you will have seen this. The inspiration for this was taken from a table in our classroom. I have dissembled it and put it back together as shown below. It is quite easy to do and can be flat packed. This is what I would want to use on my table.
Mild steel would be the ideal material because it is recyclable which fits in with IKEA's environmental aspect. Also, it is a strong and durable material which will give the table a longer life span and therefore make it more appealing.







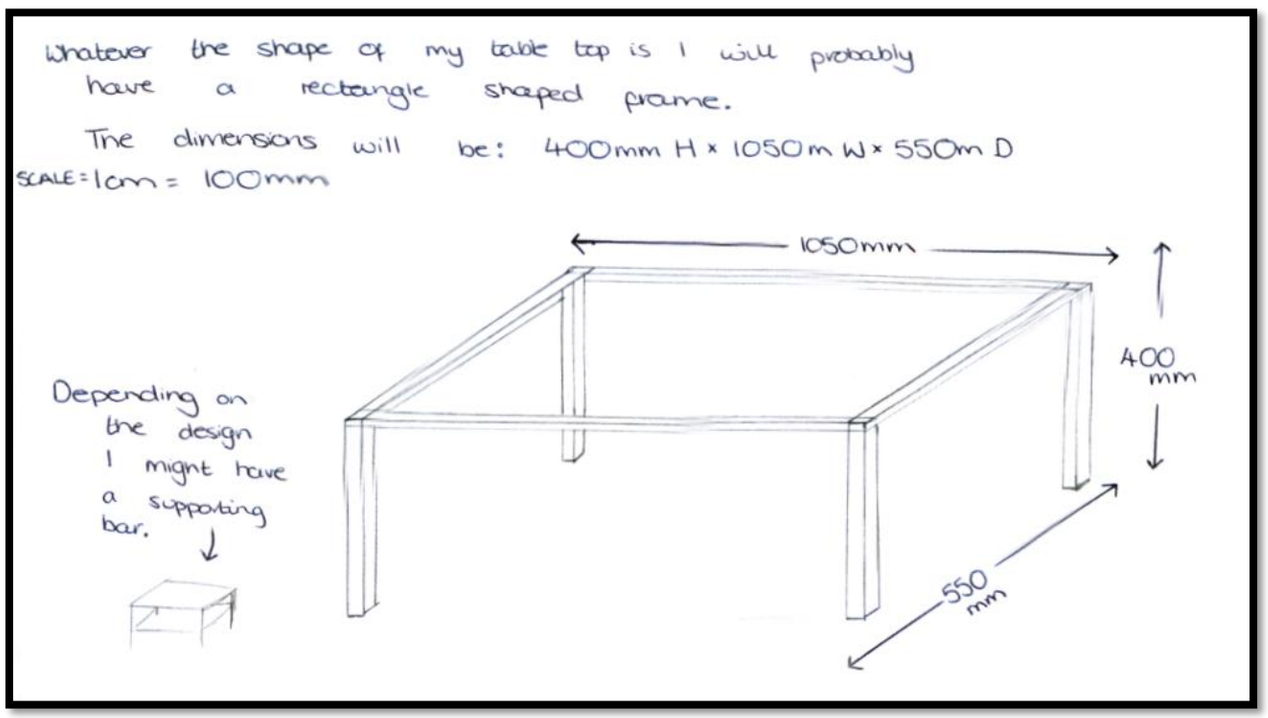


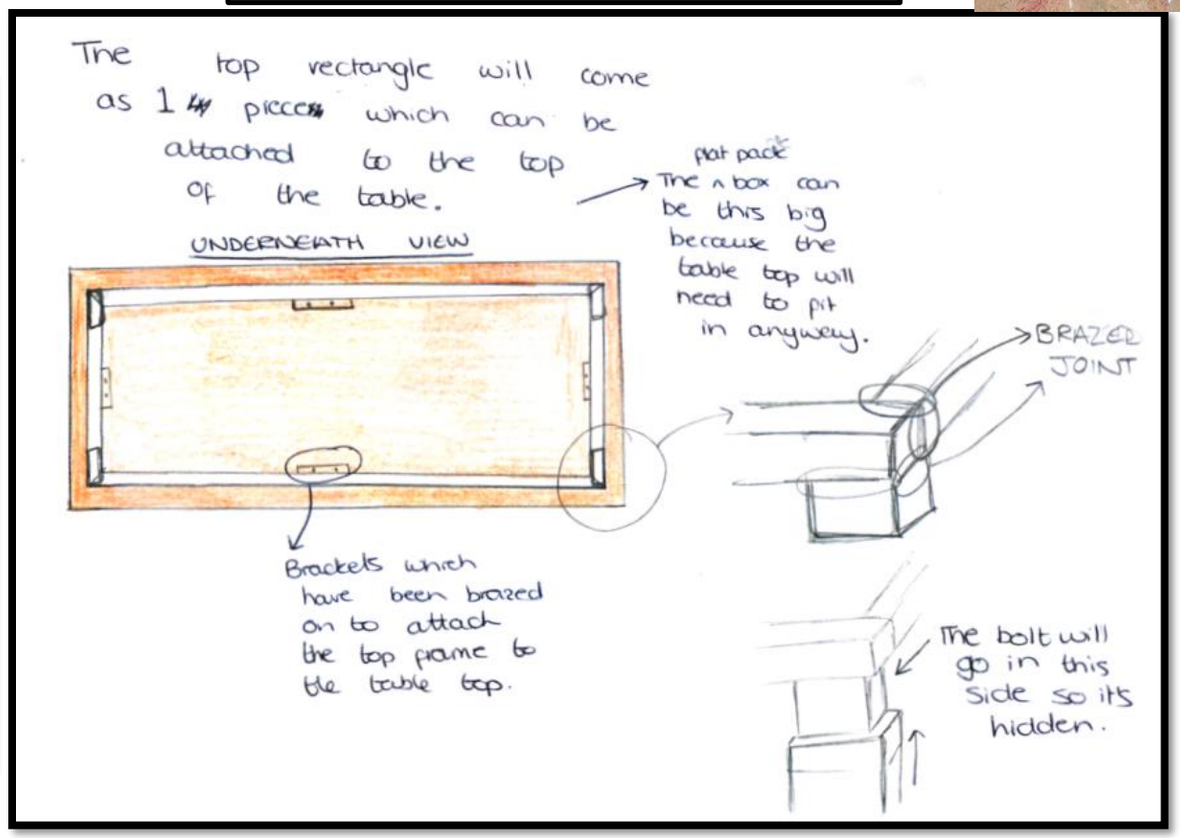
For the legs I can either use square or circular mild steel. I'm going to use the circle one because it is more modern. Also it will flow better with the design and the table wont look as sharp because it will have relaxed edges.

I will need to get two sizes of circular mild steel. One needs to be slightly bigger. There may be a problem that they are hard to screw into so I need to test that otherwise I will have to use square mild steel. I will need to make sure the smaller piece within has a thread that I can screw into. I will need to make this thread myself.

For this knock down fitting to work I will need to have two sizes of mild steel. One will need to slot inside the other.
I also need to decide whether I want the legs to be round or square. Obviously the top frame which is attached to the table will need to be square so it will be easy to attach. However it doesn't matter what the legs are because I will be brazing a separate piece on.

I will use square mild steel for the top frame.





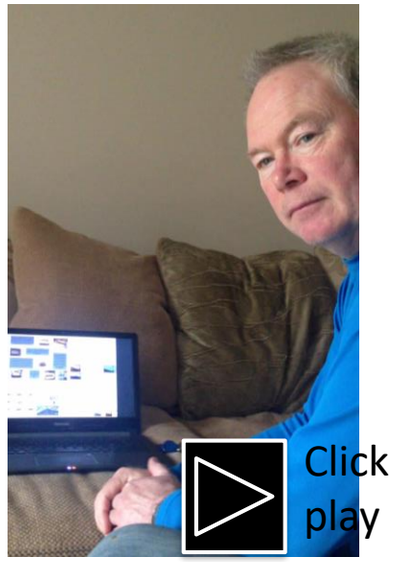
This is the fame I would use which would come in one piece in the box. It will come with the metal attachment parts already attached onto the corners as shown in the next picture. The frame is probably ha bit too big and I would use smaller mild steel in the final design.

When it came to the knock down fittings I used small pieces of dowel rod to act as the mild steel tube. I stuck them onto the 4 corners of the top frame.

I have modelled the frame at a 1:10 scale.

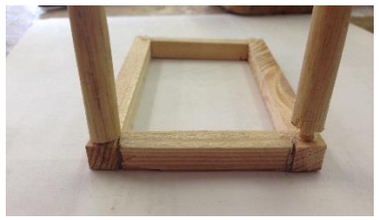
I think that the scale model has shown that the table might be a little bit long because the top will add some more width and length too it. I could keep the same sizes but by making the frame smaller it will mean the top will make up the original measurements.

My end user likes the table shapes because the variation is interesting. He likes the look of the oval one.

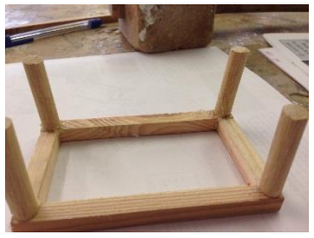


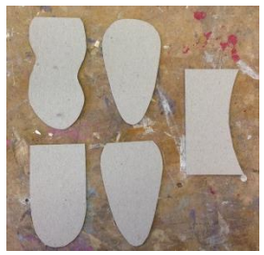
Click video to play

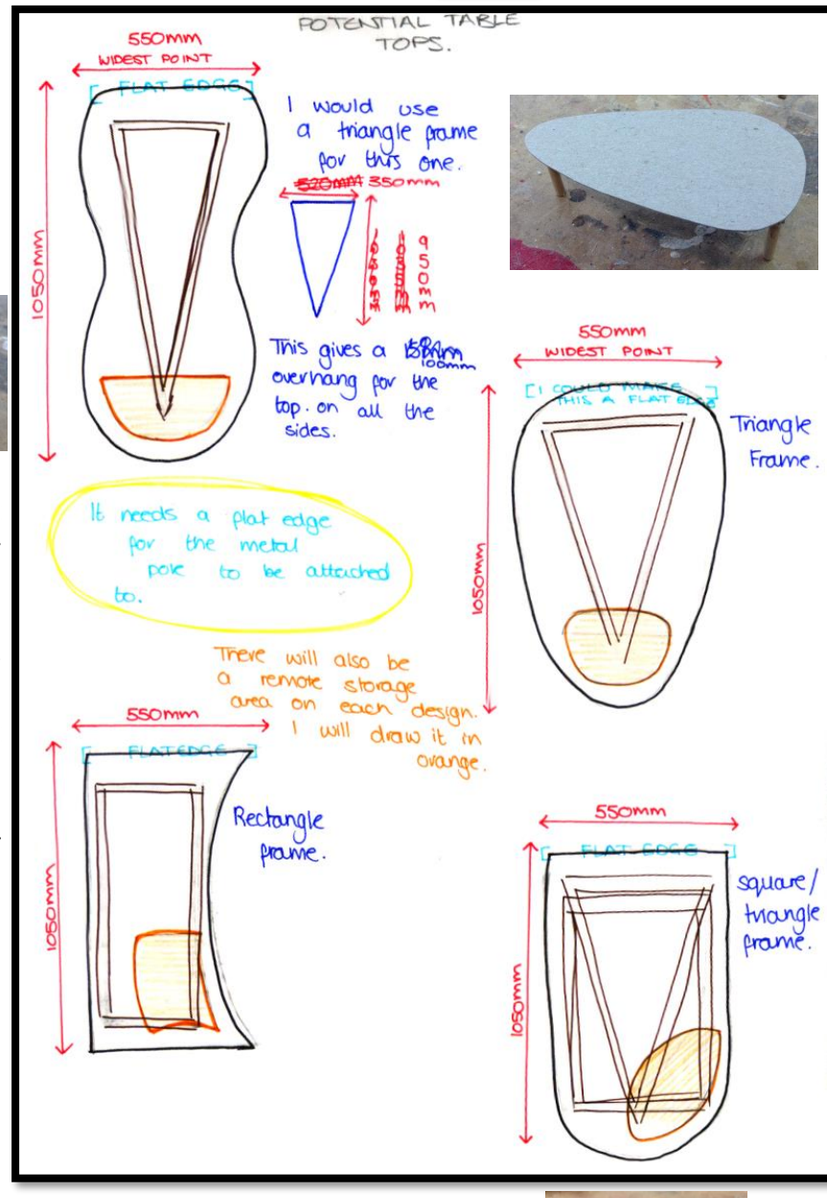
I used bigger dowel rod with a ole drilled into it to act as the larger mild steel tubing. I didn't have any dowel rod close in size so the legs where much bigger than the parts attached to the top frame. In my final design the two pieces will be very close in size because the leg needs to just be able to slot in and fit snuggly.



To put it together I simply just pushed the legs on which was really easy to do.







I am going to powder coat the mild steel once I have finished. I want the table too look modern so I was considering having the mild steel legs as quite a bright colour and this would contrast well with the solid pine top which I am going to stain so it's quite dark.

I made a simple table design on Sketch Up. I have used this as a model to create lot of different colour options for my table. I then asked my potential end clients to choose their top two colours. These are the results…

My results show that the majority of the users I asked preferred the design with a bright frame and plain dark top.

I'm going to model lots of different tops and then get some end user feedback to help me decide which one I should use.

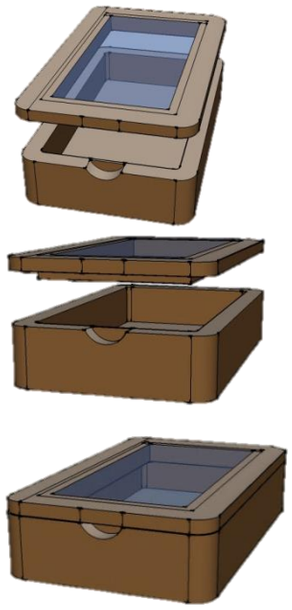
The frame could potentially be rectangle or triangle so I need to create a top within the right dimensions and then I can create the frame around it.

The basic dimensions I am using for the top is 1050mm x 550mm.

I will make the samples at a 1:10 ratio.

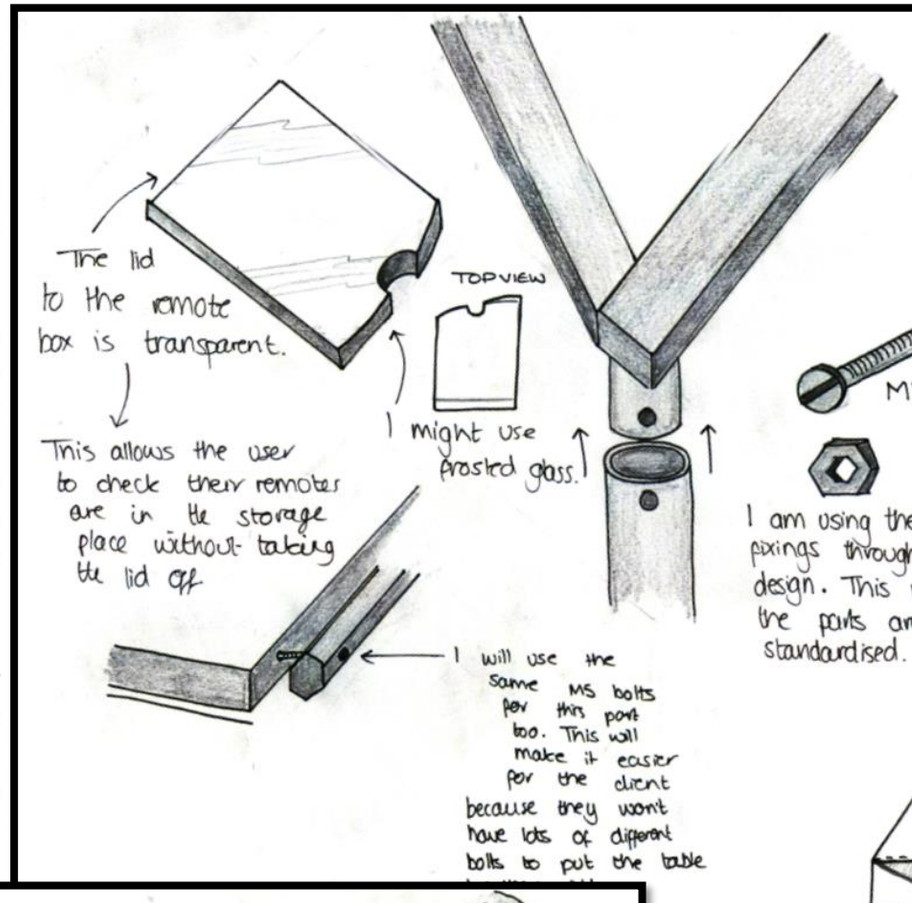
10.5cm x 5.5cm

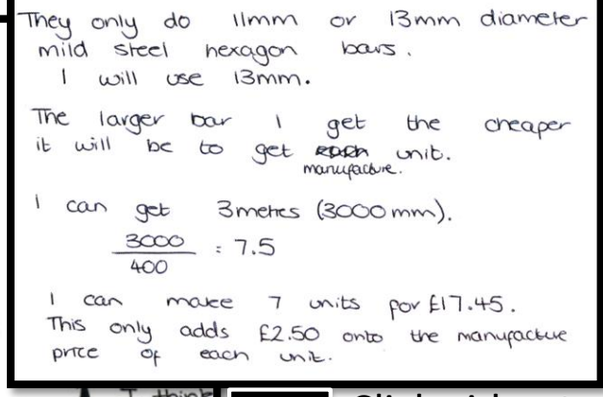
I made a scale model of the frame and it looked out of place because the legs were too long so I remade it and made the legs shorter and this looked a lot better. I am therefore going to use shorter legs in my final design.

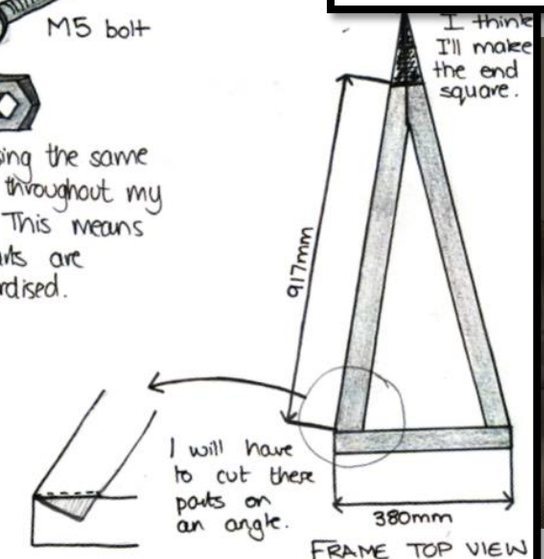


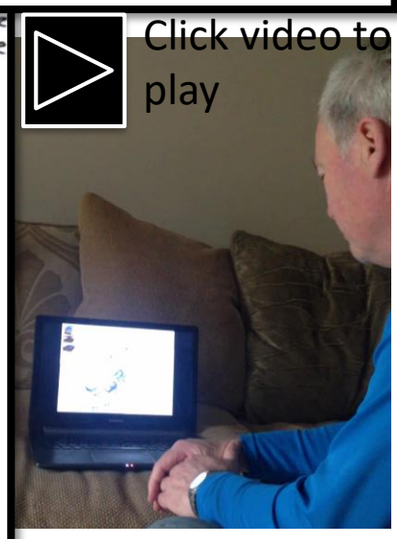
The idea of box is that it will be countersunk into the surface to make a remote storage without effecting the use of the top surface.
I don't think I will actually put a box in, I think I will just hollow out part of the top.
I can do this with the router.
I will create a step in it as shown in these CAD designs. This will allow me to put a top on with a step in so that it just sits on top.
Also as I have modelled I want the top to be transparent so that you can always check that your controls are where they are meant to be.

This is the main innovation of my product. However one other thing is that I am going to include extra add-ons which are available. They will be attached to the metal rod on the straight edge of the table top. Obviously this will be an option but the capabilities will be there which makes the product more personable and ultimately more appealing.

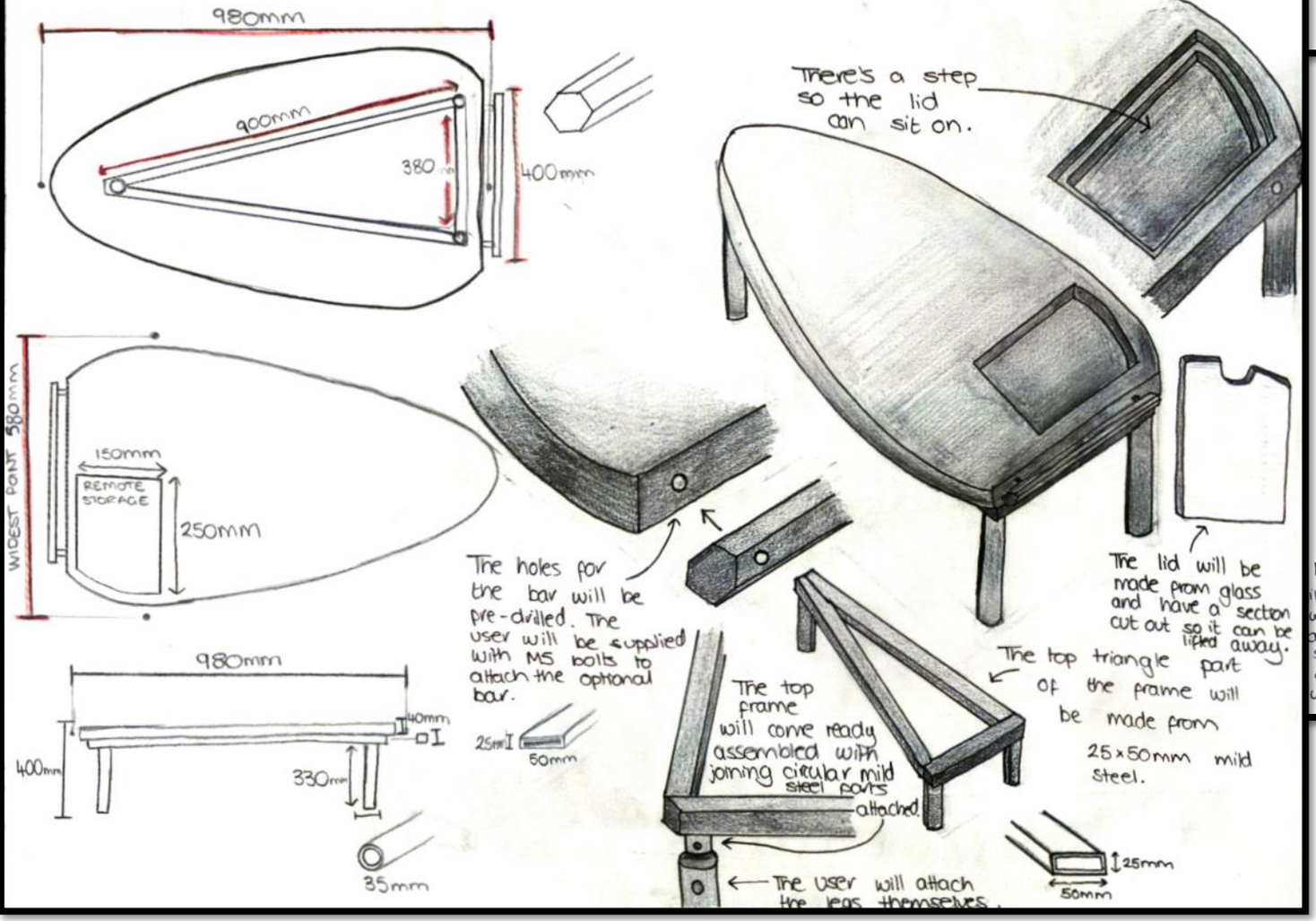


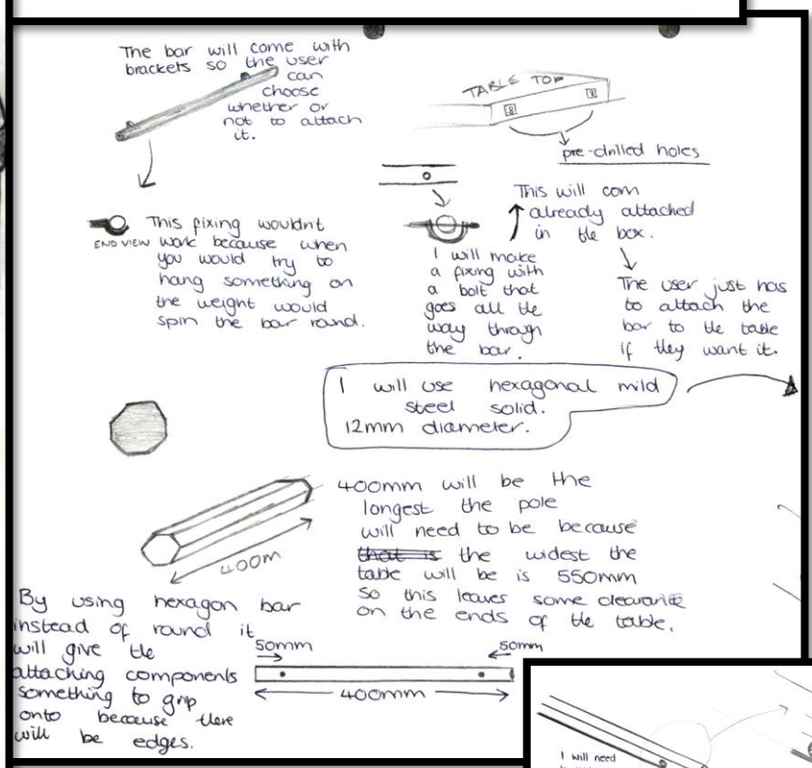


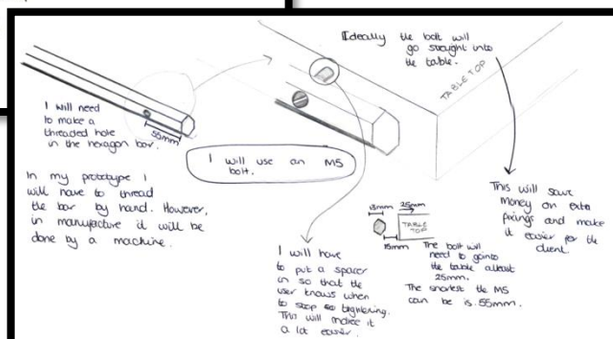


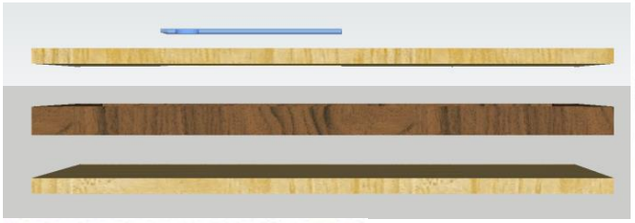


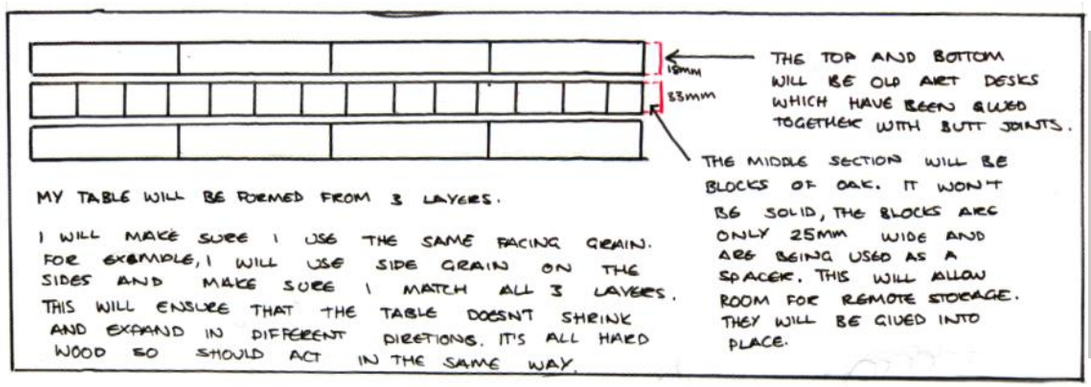
My end user thinks the oval table look s a bit like an ironing board. He likes the simple way of putting it together with the grub screw and he likes the remote storage box idea.

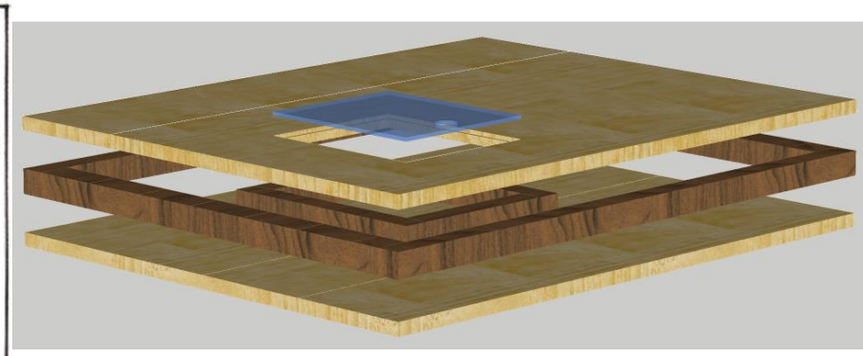


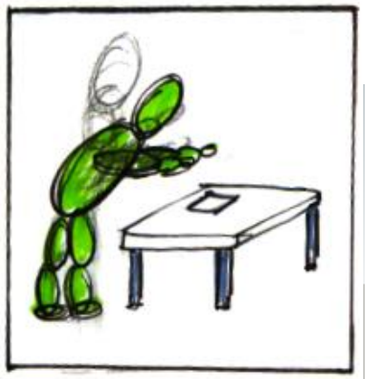


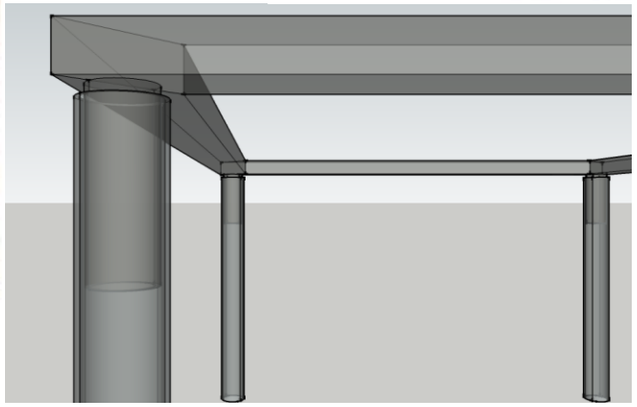


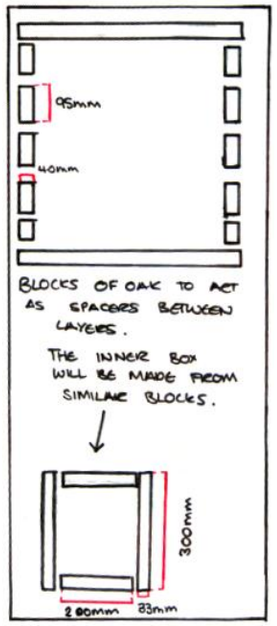


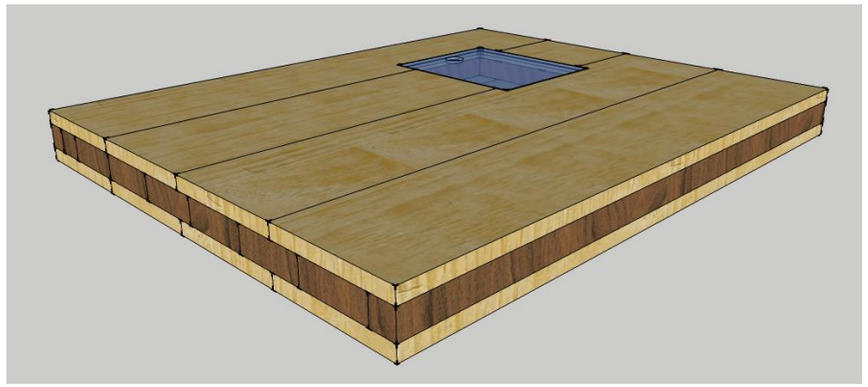


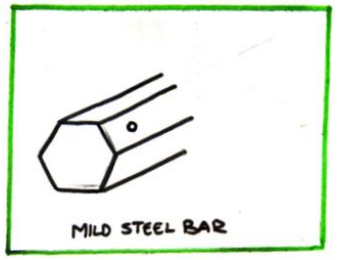


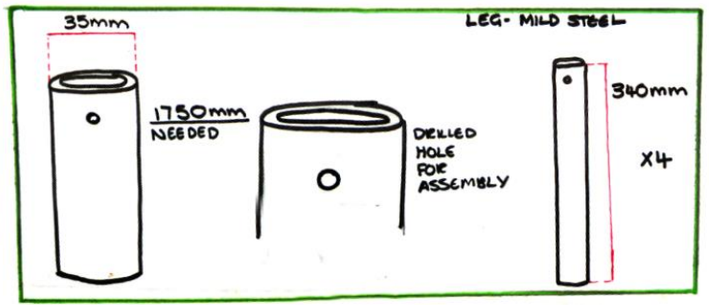


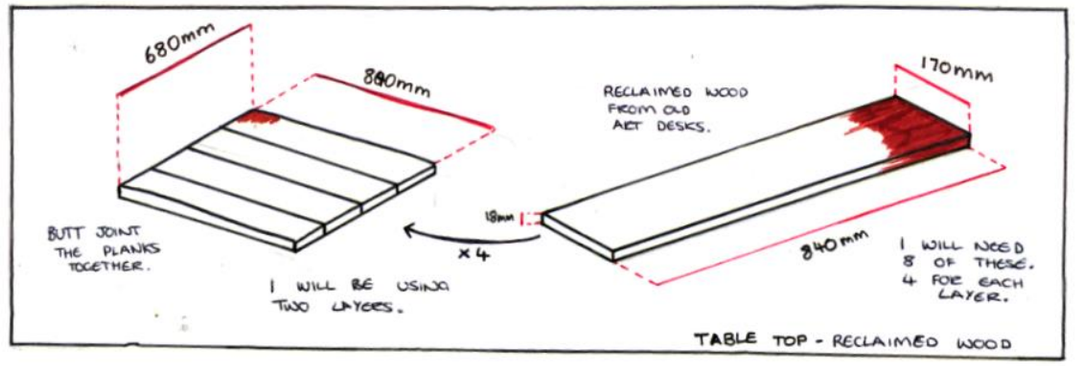


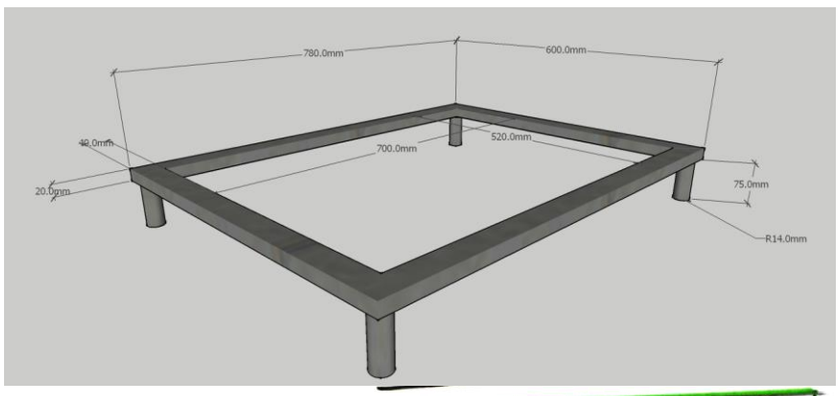


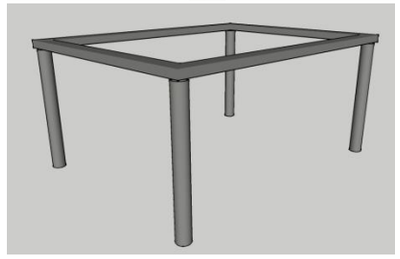


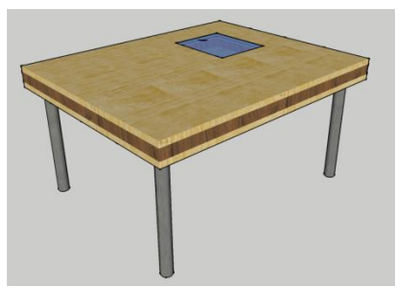


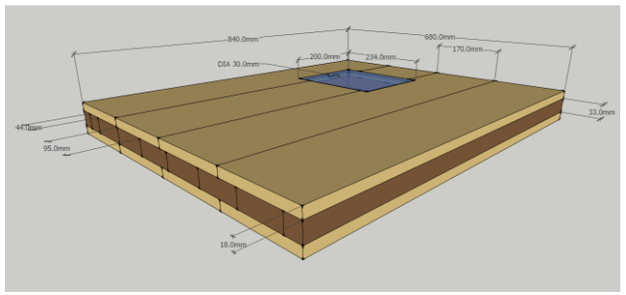


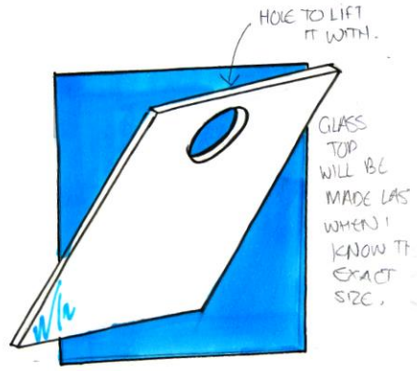


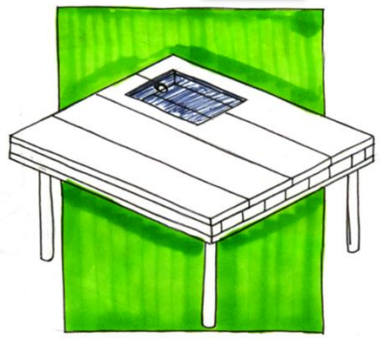






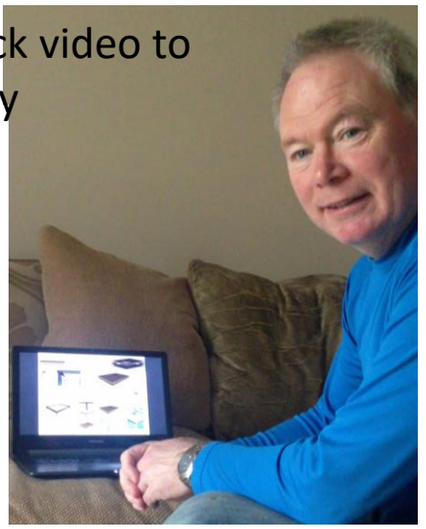




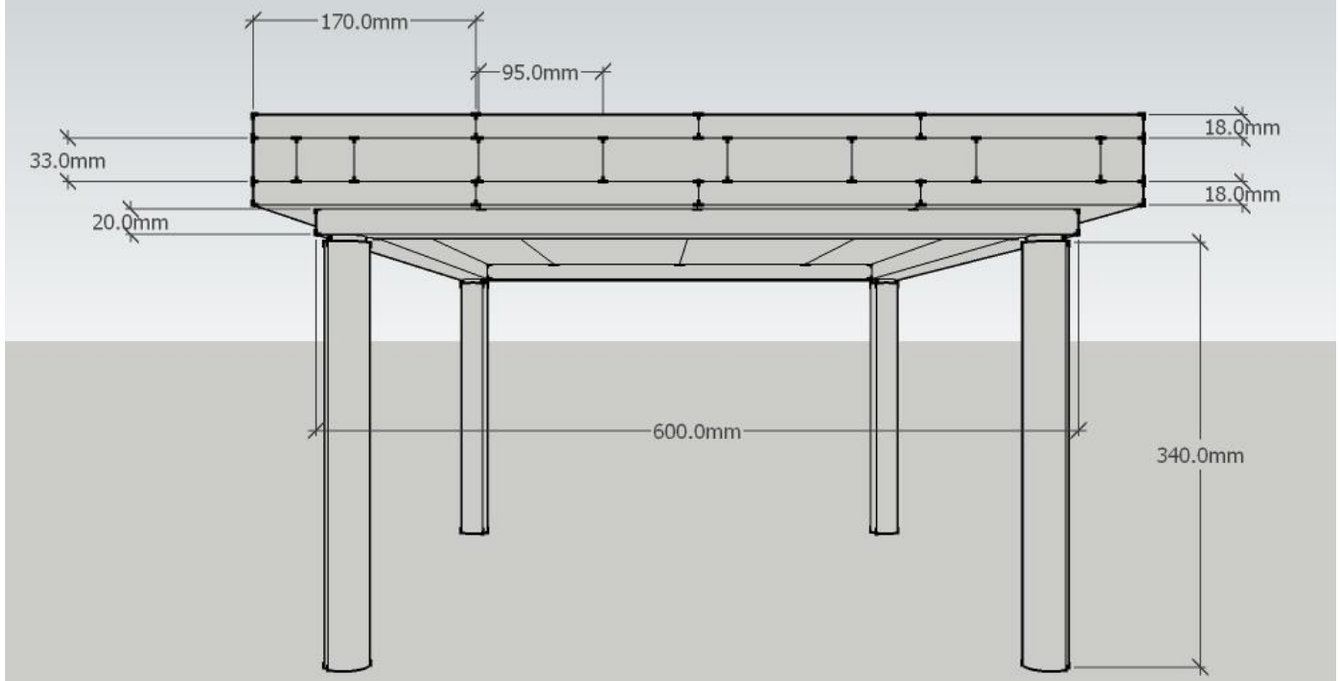


My end user likes this final design. He likes the contrast of the two different types of wood and he thinks the proportions of the legs and top are good.

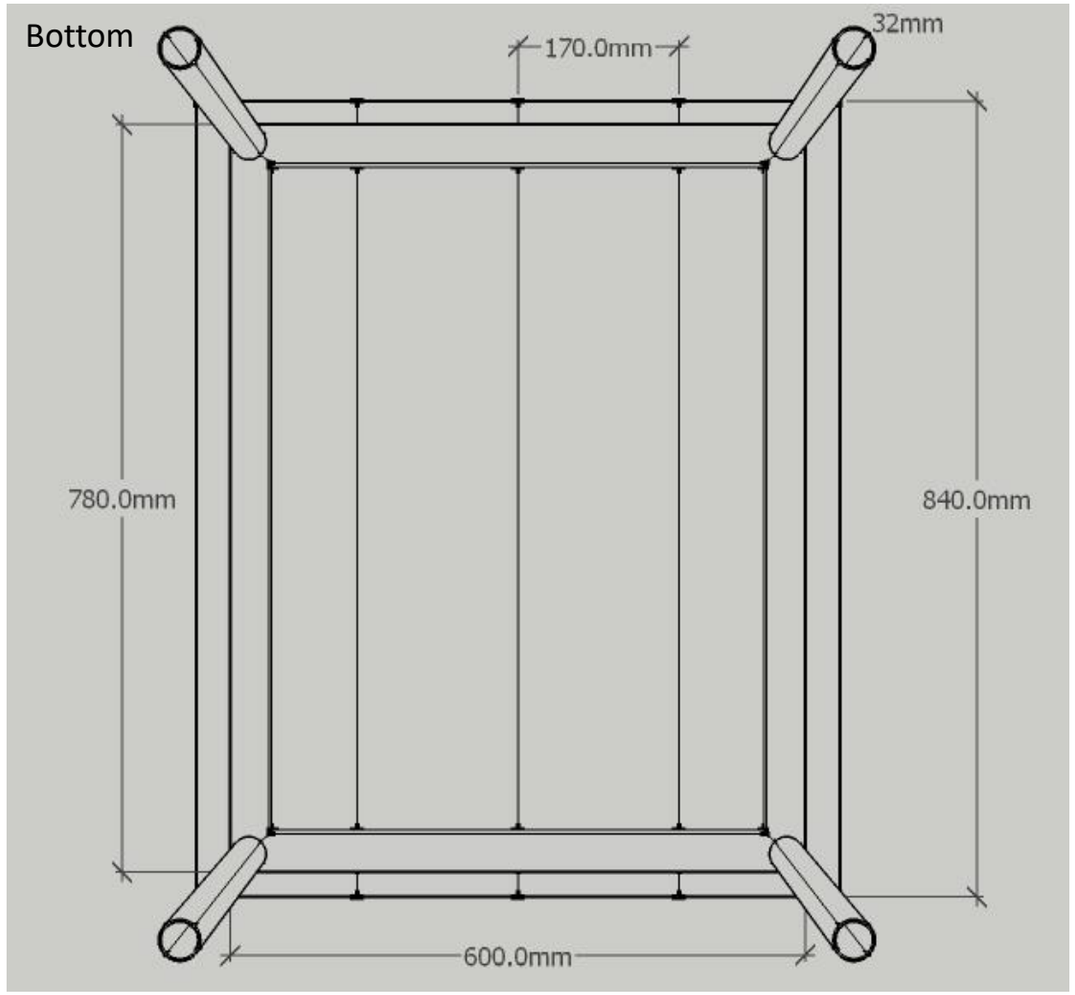
Click video to play



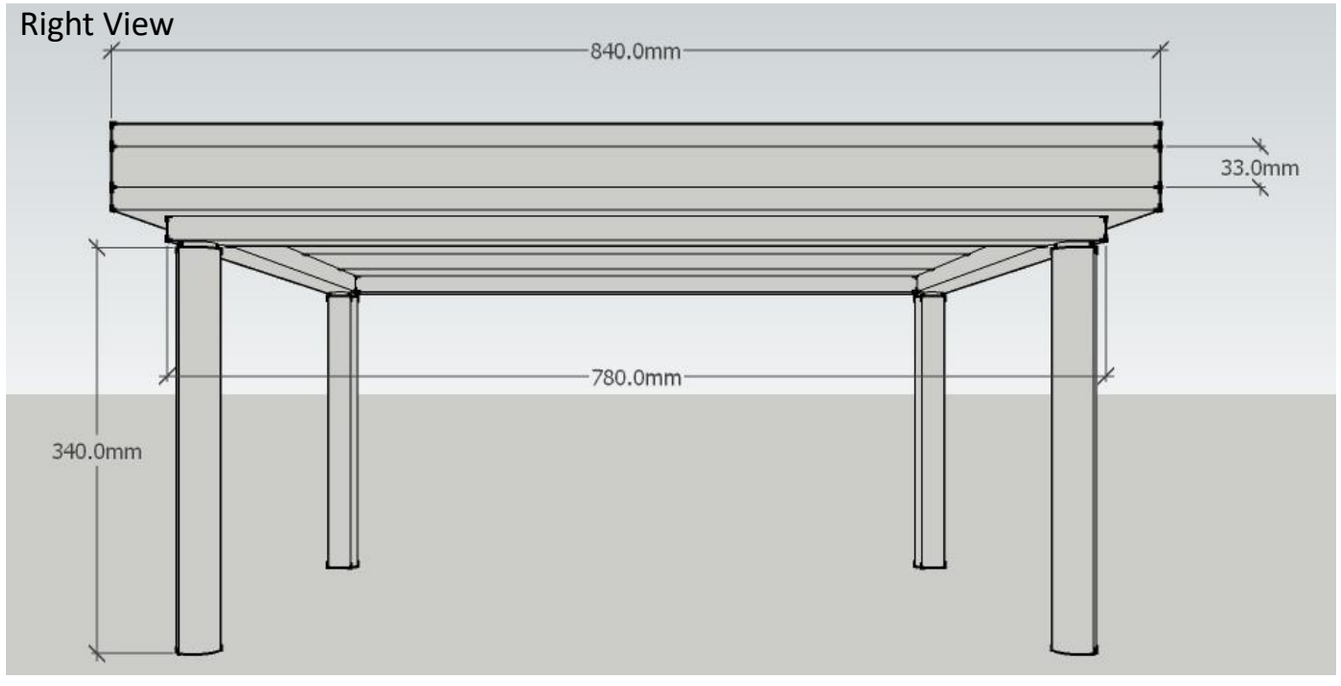
Front View



Bottom



Right View



Name	Product	Company
Tessa Brown	Coffee Table	Wallingford School

Plan of Making

WEEK 1

The first thing I need to do it cut out all my materials.

I will cut out the metal first and then the wood that I need.

I need to get the metal frame and the legs finished and ready for brazing. I need to make a jig for the frame. I will do the metal first so while its being powder coated I can make the top.

I need to flux the frame in the jig and then braze it together. First I need to tack it then go back and ensure that the frame is flat.

Next I need to drill holes on the inner leg then braze them onto the frame. I need to use a right angle to make sure they are square and to ensure that the legs won't be at an angle.

WEEK 2

Next I will need to drill the holes. There needs to be two in each of the long sides of the frame and one in each of the short sides.

Next I need to clean up the metal and send it off for powder coating.

I will start the top. First I need to make plane the old art desks into planks. Then I need to use PVA glue to glue 4 of them together. I need to do this twice to make a top and bottom for the table top.

I will use sash cramps to hold the planks together. I will need to make sure that I stick masking tape at the contact points so the wood doesn't react with the metal and glue and mark my product.

WEEK 3

While those parts are drying I will get together my oak spacer blocks. I need to sand them and see which sides have the nicest grain as these will be facing the outside.

Next I will put the spacer blocks together with one of the sheets I have made from the reclaimed planks. I will do a dry run then glue it with PVA. I will have to put the box in as well so I need to make sure I measure this properly.

I will need to clamp down the oak spacers to the table and leave them to dry for a couple . When they are set I can stick the top part on. I need to remember to mark where the box is so I can cut it out.

Next I need to lay the top part on the blocks and glue it down. I will use g clamps to ensure that its flat and sticks properly. Then I will leave it to dry.

WEEK 4

To cut out the box hole I will drill a hole and then use the router to go all around the edge. I will then make a rebate for the glass.

Next I will sand the whole top and the sides. I need to drill the holes in the underside for the frame.

The next thing will be to put polish on the top of my table to give it a nice finish.

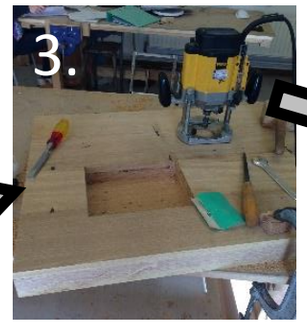
I need to make a template for the glass and get it cut.

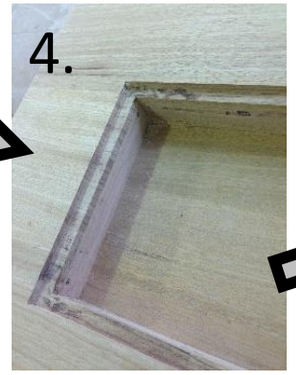
WEEK 5

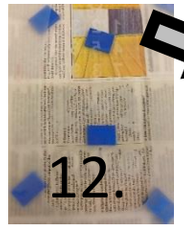
I will get my metal back and then assemble my product.

I will collect the glass and put this into the product.

Making



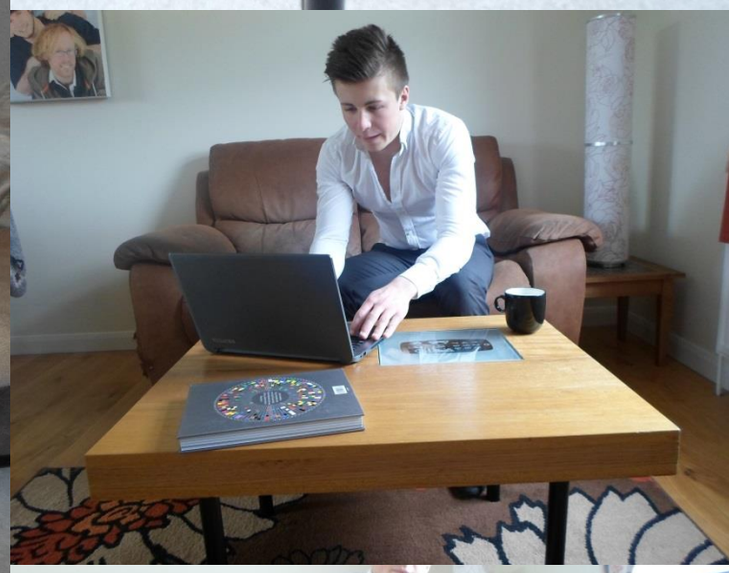
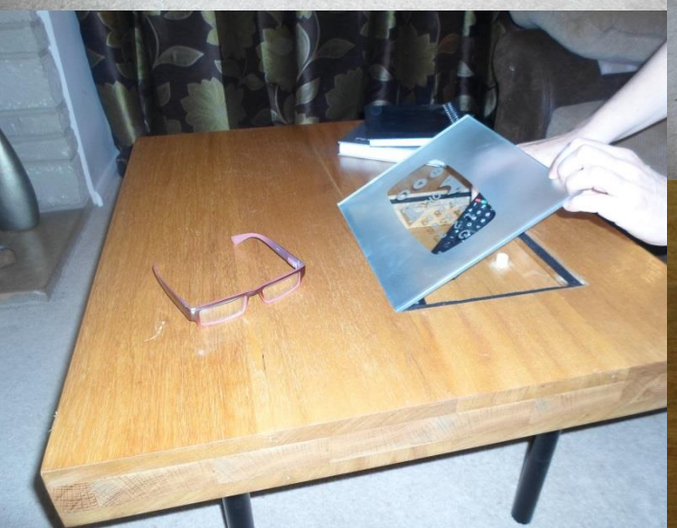




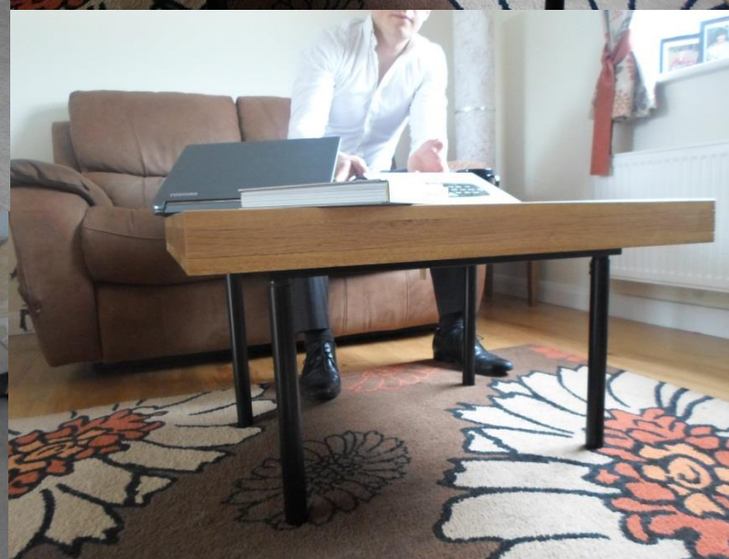
1. This is when I had stuck the planks together and stuck the set of oak spacers to the base. I varnished where the box would go.
2. I then put the box in as well.
3. I stuck the top on and then routed out the box.
4. I then cut a rebate for the glass.
5. There were some drill holes which needed to be filled in with PVA and sawdust from the top.
6. I then brazed together the frame.
7. I also brazed on the leg parts and made sure it all fitted together.
8. I put the whole table together without any finishing to check that it all worked.
9. I got my glass cut and it fitted perfectly into the rebate I cut.
10. I lined the rebate with felt so that the glass was cushioned.
11. I Danish oiled the table to bring and the grain and to seal the wood.
12. I used Dr Stika to make a template of a remote and then frosted over it on my glass. When it had dried I removed the template and it left a really nice effect.
13. I got my metal back from the powder coaters and it was finished nicely in black.
14. I assembled my whole table and it was complete.





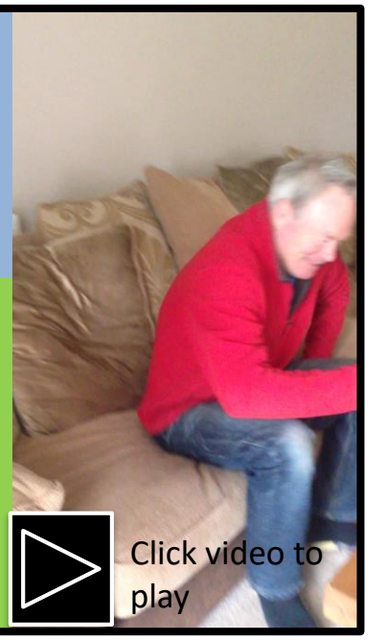
Coffee Table
EKSJÖ
68 x 84 x 45 cm
tan/black
• Innovative storage compartment for remote controls.
• Uses reclaimed wood to help pre-serve forests.
£ 125



Testing and Independent Evaluation: Testing

Specification Point | **Doesn't meet spec point** | **Meets spec point**

It needs to be suitable for magazines, mugs, laptops/phones and remote controls.



Here's a video of my end user demonstrating that the table is suitable for all the things he needs to use and what he would expect to be able to fit on the table.

I need to use recyclable and sustainable materials when making this table.

The main material for my table was reclaimed wood. It was taken from old art classroom tables. It was then planed down into planks which I could use. The mild steel I used is a recyclable material and after it has been used can be melted down and used again.
All of the screws are standardised parts so can be used again.

Efficient use of materials

IKEA believes in using the fewest resources to make the best possible products, without having a negative impact on their functionality or appearance. The main raw materials used in IKEA products are wood, cotton, metal, plastic, glass and rattan and we work towards using as many renewable and recyclable materials as possible.

I need to manufacture the product in the most environmentally friendly way possible.

To make the first prototype I did it myself so there were no big industrial machines used. This meant that the process was a lot more environmentally friendly because a lot of it was done by hand.

I need to make sure that there are accurate instructions on construction.

The table needs to cost between £40-£70 to manufacture.

Wallingford SCHOOL 1659

Invoice

Date: April 15, 2014
INVOICE # 65

To: Tessa Brown, Wallingford School, Customer ID 1228

Qty	Description	Unit Price	Line Total
500mm	28mm o/d mild steel tube	7	£7.00
1750mm	35mm o/d mild steel tube	11	£11.00
3500mm	25x40mm mild steel box	9	£9.00
6800mm	170x18mm reclaimed wood	13	£13.00
220x280mm	6mm toughened glass	11	£11.00
6	8x1¾" self tapping screws	0.6	£0.60
4	8x½" self tapping screws	0.4	£0.40
3228mm	33x33mm oak	6	£6.00
Small tin	Danish oil	3	£3.00
		Subtotal	£61.00
		Total	£61.00

Thank you!

Here is a copy of the invoice for my materials. It cost a total of £61.00. There were no labour costs as I did it myself.

The table needs to look modern.

As you can see, the table doesn't look out of place in a modern living room. The bold back legs give it a modern edge whereas the wooden top also gives it a classic feel. This makes it adaptable and means it will fit in both traditional and modern homes making it appealing to a wider market.

I am looking to sell the table for around £130.

The table will initially be retailed at £125. This is an introductory price to help draw in the customers. It will then be raised after a couple of months.

The box containing all of the components for the table cant be too heavy. It needs to be under 40kg.

These pictures show the weight of the separate components. I have actually decided to package them separately which means there is room for more development in the future and for a mix and match opportunity to make the product more personable. Even if all the components were packaged together it would weigh 19.1kg.

Testing and Independent Evaluation: Testing

Technical Specification		
The surface area needs to be at least 3240cm^2. (shown in previous research)	 	These images show that the dimensions of the table top are 811x663mm. This gives it a total surface area of 5376.93cm^2.
The table needs to be able to withstand a weight of at least 3718g. (shown in previous research)	 	This test shows that my table easily withstands a weight of 3876g. My table could easily take up to at least 4 times this weight.
The legs need to be at least 35mm wide, this will mean they don't look out of place and they will also be suitable to hold the weight of the table.		This picture shows that the o/d of the leg is 35mm. It has also been powder coated which adds about 2mm on. Therefore the diameter of the leg is 37mm.
The table needs to no higher than 500mm because the table will be for a lounge primarily, this means the users will be at sofa height so it should be no higher than that.		This picture shows that the table is 428mm high at the tallest point.
When flat pack the table should weigh no more than 40kg. If it does I will need to think about having different components packaged separately because this will make it easier for the user to carry.	  	The top weighs 13.2kg. The frame weighs 3.5kg and the legs weigh 1.5kg. The glass weighs 902g. Overall the whole table weighs about 19.1kg. I have decided to package the components separately anyway. The frame and legs in one packet, the top in another and the glass will be on its own to protect it. This means that all the components can be carried easily by one or two people.

Testing and Independent Evaluation: Strengths and Weaknesses

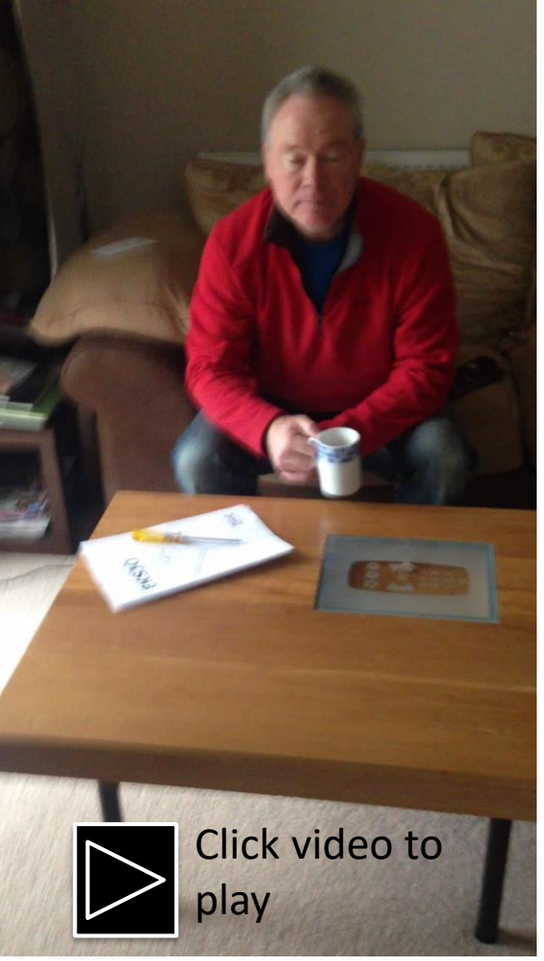
These are my personal views on my product.

Strengths

- My product is flat packed and fast to put together in just 3 simple steps.
- The black frame means that the table can be laced on any surface because it doesn't clash.
- The image on the glass is bold and shows the user exactly what the area is intended for.
- The felt gives a cushioning effect for the glass when it is dropped down.
- The table is made from reclaimed wood which makes it more appealing to the customer because its helping to save trees.
- The table is at a good height if you are sitting on a sofa.
- The Danish oil finish brings out the grain and gives the table a more natural finish.
- The opening mechanism is hidden so it doesn't effect the overall view of the table .

Weaknesses

- The Danish oil finish doesn't protect the table from ring marks from cups so coasters need to be used.
- When assembled the table is quite heavy and hard to move so needs to be left in one place.
- The black felt can be seen through the frosted glass, it would be better without it but the felt is necessary.
- The screws will only work a number of times, if you take the table apart and out it back together too much then the joints will become loose.
- The colour of the top can clash with oak floors so can restrict the user.
- The opening mechanism requires 2 hands to operate, it would be improved by have a one handed opening mechanism.
- The top may be easily scratched so it would benefit from being waxed or having another protective coat.
- There are no bungs in the bottom of the legs and if there were this would reduce the chance of damage to the floor.



Testing and Independent Evaluation: Independent Evaluation

On the left is a video of my client. I was asking him questions. Below is a table with the questions and a brief outline of my clients response. There is also a section showing my response to what my client has said.

Question	Client Response	My Response to Clients comments
How did you find the construction?	• "Very simple and straight forward."	I agree, I think that the table is really simple to put together. It's easy because once you have screwed on the base the legs simply slid on and just need securing with a small screw. As long as you line the holes up you can't go wrong. There is no room for putting the screw in the wrong hole.
Are the instructions easy to follow?	• "They were very clear."	I tried to make the instructions easy, with all IKEA products they do their instructions by having simple diagrams which are easy to follow. I made my own by using the diagrams from my sketch up model. Once again, the construction is quite simple and there isn't really much you can do wrong. However I did not mention slotting the peg into the hole in the instructions which would be one thing I need to change in the future.
What's your favourite thing about the table?	• "Nice colour • Looks good in the front room. • Good height, good size. • I like the concealed compartment."	I do like the colour of the table however I do think it is quite limiting because as with my floor it clashes with oak. AS my client has said it does look good in a living room or a carpeted room because there are no clashing grains on the floor. The height and the size was considered from the beginning and I took into account my client when designing this and it shows because that's an aspect he likes. The concealed compartment was the main innovation and is the main selling point of the table so I am glad my client likes it.
What's your least favourite feature?	• The way you lift the glass up.	I agree, the way in which you lift up the lid is a bit simple and doesn't go with the sophisticated slick style of the table.
What's your opinion in the colours?	• "Very nice. • The colour of the timbers nice and the glass aspect on the top is good. • The black legs make it look contemporary and blends in."	I wanted to make the table look modern. I'm glad my user likes the finish on the wood. I used Danish oil because it brings out the grain and I wasn't too sure about it. However, my client likes it so I am gad that I made this decision. The black powder coated legs were purposely done in a plain colour because it means they can suit any environment and colour of the top as I hadn't yet decided what colour to do the top when I got the powder coated.
What would you change?	• "I wouldn't change much at all • The peg used to lift the little lid."	Once again, I agree. The peg feature isn't very good.
What do you think about the remote storage?	• "Its useful as long as everybody uses it, that's the key thing."	I'm glad my end user likes the innovation, he is right when he says its important everyone uses it, otherwise the whole aspect would be pretty pointless.
What is your one biggest strength?	• "I would say it meets all the criteria its been designed for and at the same time it looks pleasing."	Yes, the table does meet all the specification points from the spec that the client and I agreed at the beginning. Therefore I am not surprised that he thinks it meets the criteria.
The biggest weakness would be the peg.	• "Yes the access to the compartment."	
What would your ideas be to change the access to the compartment?	• "You might have had lift out holes. • Perhaps a little more difficult, but the glass could have been hinged. • Anything that might substitute the peg which children could lose."	Originally I had decided to have the cut-out holes for the lid, however I changed my mind because I wanted there to be a solid top. I should have kept my original idea. The hinged idea would be really difficult and it would put the price of the table up so probably wouldn't be the best idea.

Marketing Presentation

Unique Selling Proposition

The unique selling point of my product is the fact that it is the only product on the market that incorporates a storage compartment specifically for remote controls.
Not only does it have this feature, it's also a flat pack table which makes it ideal to be sold in IKEA. It's stylish yet functional.

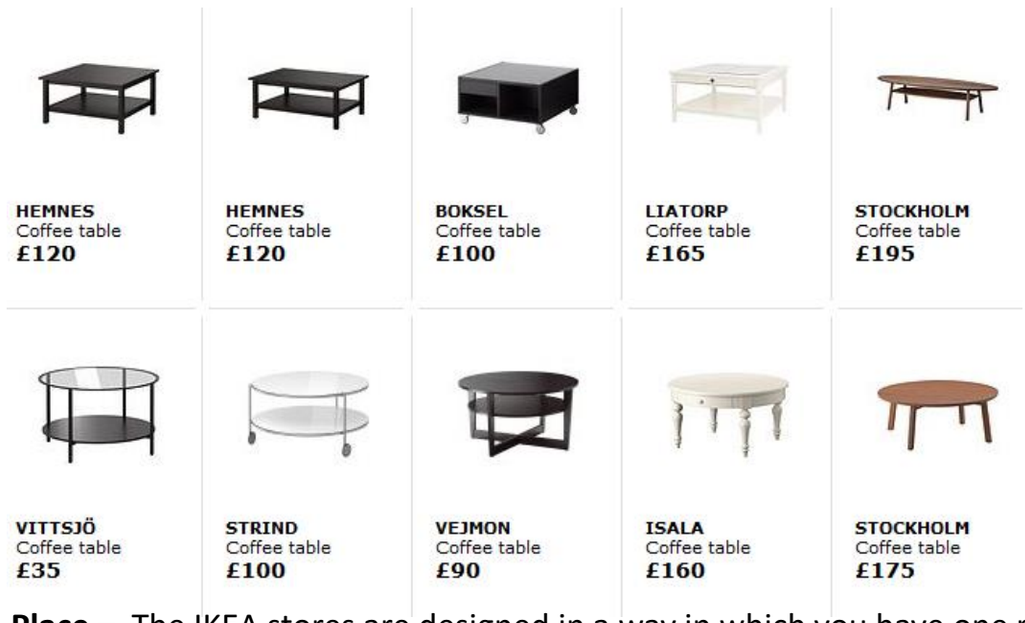
Material Costs/Profit

The cost of materials for my product was around £61. However, if my product were to go into large scale manufacture the materials will be bought in bulk. This means that each unit would be cheaper to produce. However, I will also have to add on manufacturing costs. If my product were to go to manufacture it would cost approximately £68 per unit. If the table were to be sold at a starting price of £125 the profit from each unit will be £57. This is at the introductory price and for the most basic model. There is room for the price to increase and more expensive tables to be made using different materials and finishes.

The 4 P's of Marketing – Product, Place, Price and Promotion

Product – The **core** product is the fact that my coffee table has an extra function as there is storage for remote controls. The **actual** product is the table itself, made from oak, mild steel and reclaimed wood. The **augmented** product is the guarantee IKEA give with all their furniture they sell, it's also the assistance offered. IKEA have a customer helpline which can be contacted when you have trouble putting together a product.. My coffee table will come with a standard 5 year warranty which covers it for any flaws with the product itself, however it does not cover breakages and damaged cause by the customer.

Price – the price of my table is very competitive. Here are the similar products already sold in IKEA and their prices…



Introducing my product at a price of £125 will make it appealing because it is lower than the already existing products of the same quality.
Once the product has been on the market for a couple of months I would increase the price to £150. This would still make it competitive however I will be making a larger profit.

Place – The IKEA stores are designed in a way in which you have one route around the shop which takes you through every department. IKEA call this 'the long natural way'. This means that my table would be grouped into the section alongside the other coffee tables. All the products are easily visible and are also in lots of other departments, for example my table could feature in one of the living room displays alongside sofas and TV stands. I would want my table not only in the living room settings but also easily accessible in the coffee table section and ideally not on the top shelf. This is because you need to be able to actually see the top of the table to have access to the remote storage.

Promotion – When it comes to my promoting my product I will use media, TV, magazines, billboards and online. The product would be externally promoted however, it won't be as effective of internal promotion because customers don't go to IKEA for a specific product but come looking and with an open mind.

Packaging the Product

The different components of my product will be packaged individually. The metal frame and legs, top and glass will all come in separate packages. The benefits of this are…

- The individual packages will be lighter and easier to carry.
- They will fit in cars better and will be easily stackable.
- It allows room for future developments where different coloured legs, tops and glass become available so people can mix and match and make the products more personable which makes the table more appealing to the customer.
- It saves space in the warehouse because there will be no 'air' in the boxes.

Product Identity and Branding

To stay in line with the rest of the IKEA products, the coffee table will be named after a Swedish town. This is how IKEA name their products…

- ***Upholstered furniture, coffee tables, rattan furniture, bookshelves, media storage, doorknobs:*** **Swedish place names**
- *Beds, wardrobes, hall furniture:* Norwegian place names
- *Dining tables and chairs:* Finnish place names
- *Bookcase ranges:* Occupations
- *Bathroom articles:* Scandinavian lakes, rivers and bays
- *Kitchens:* grammatical terms, sometimes also other names
- *Chairs, desks:* men's names
- *Fabrics, curtains:* women's names
- *Garden furniture:* Swedish islands
- *Carpets:* Danish place names
- *Lighting:* terms from music, chemistry, meteorology, measures, weights, seasons, months, days, boats, nautical terms
- *Bedlinen, bed covers, pillows/cushions:* flowers, plants, precious stones
- *Children's items:* mammals, birds, adjectives
- *Curtain accessories:* mathematical and geometrical terms
- *Kitchen utensils:* foreign words, spices, herbs, fish, mushrooms, fruits or berries, functional descriptions
- *Boxes, wall decoration, pictures and frames, clocks:* colloquial expressions, also Swedish place names

The font used by IKEA is Verdana.

I am going to name my product: Eksjö
This is a medieval Swedish town. The main reasons for naming my table are this place are…

- It has a lot of forest and countryside, one design feature of the Eksjö is that it uses reclaimed wood to help preserve these forests.
- The town is know for its wooden homes, the main material used to create the Eksjö is wood and this is a big feature of the table very much like the wooden houses are a big feature of the town of Eksjö.

IKEA use simplistic posters in their advertising and the main two colours they use are yellow and blue. These are the Swedish national flag colours.

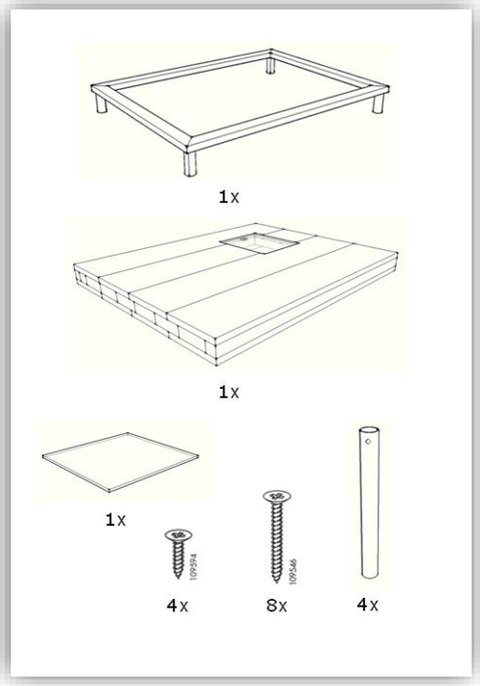
Product Logo

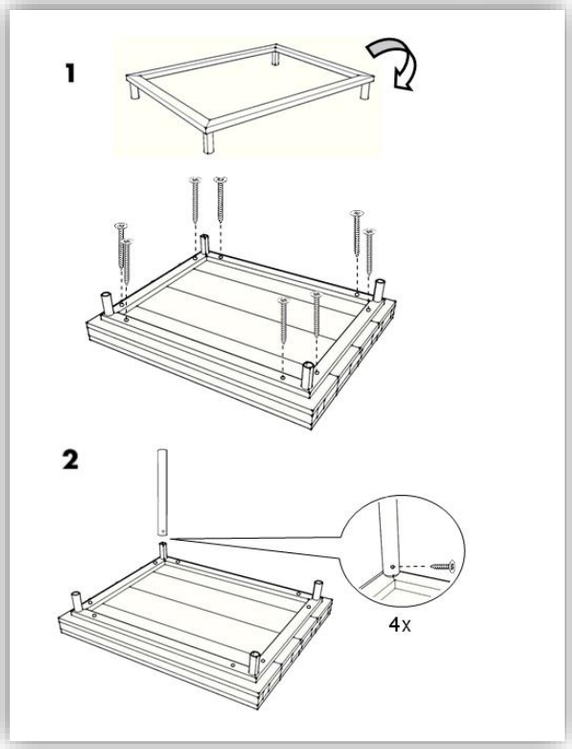
The product itself won't have a logo as it is under the IKEA brand. However in-store it will be identified simply by its name printed in the Verdana font. It will look like this…

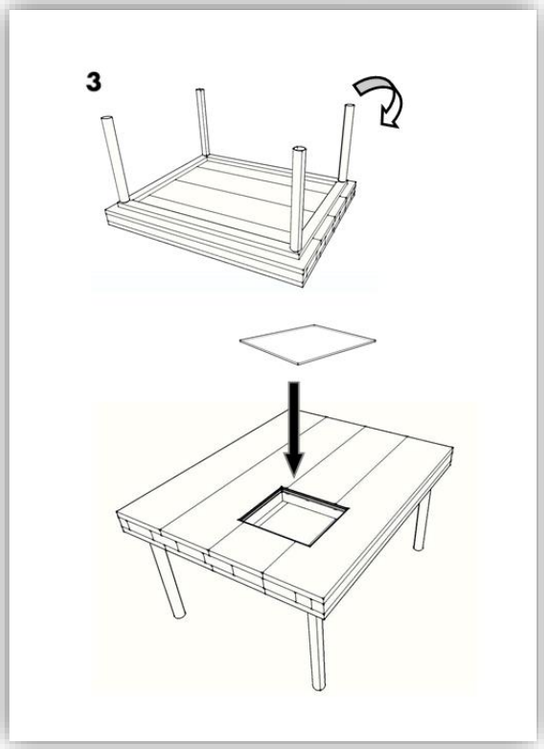
EKSJÖ

Marketing Presentation

All IKEA products come with simplistic illustrated instructions. Below are the instructions for my table. It consists of 3 simple steps in order to complete the table. As you can see, next to the screws are numbers, these identify them as standardised parts from IKEA. If they are lost or need replacing, you simply quote the number to an employee and they will be able to locate them for you.
There is also a price label, these are on every product in the store. They have an aisle and location number on the so that you can identify where the table components are in the warehouse. The label will have to have 4 locations on for the 4 different components needed to make up the table.







Coffee Table

EKSJÖ

68 x 84 x 45 cm

tan/black

- Innovative storage compartment for remote controls.
- Uses reclaimed wood to help preserve forests.

£ **125**

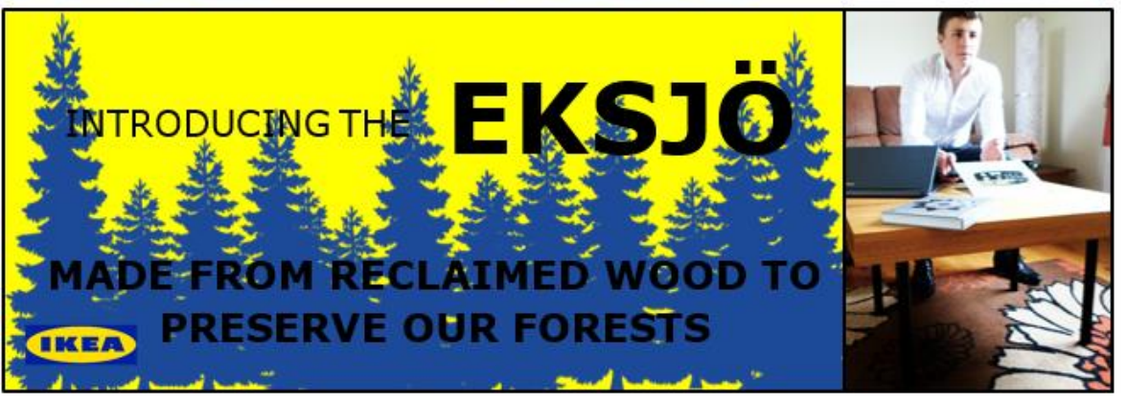
IKEA

Marketing Presentation

To inform the customers about the coffee table I will use different mediums. The main 4 I will use are… television, newspapers and magazines, billboards and online.

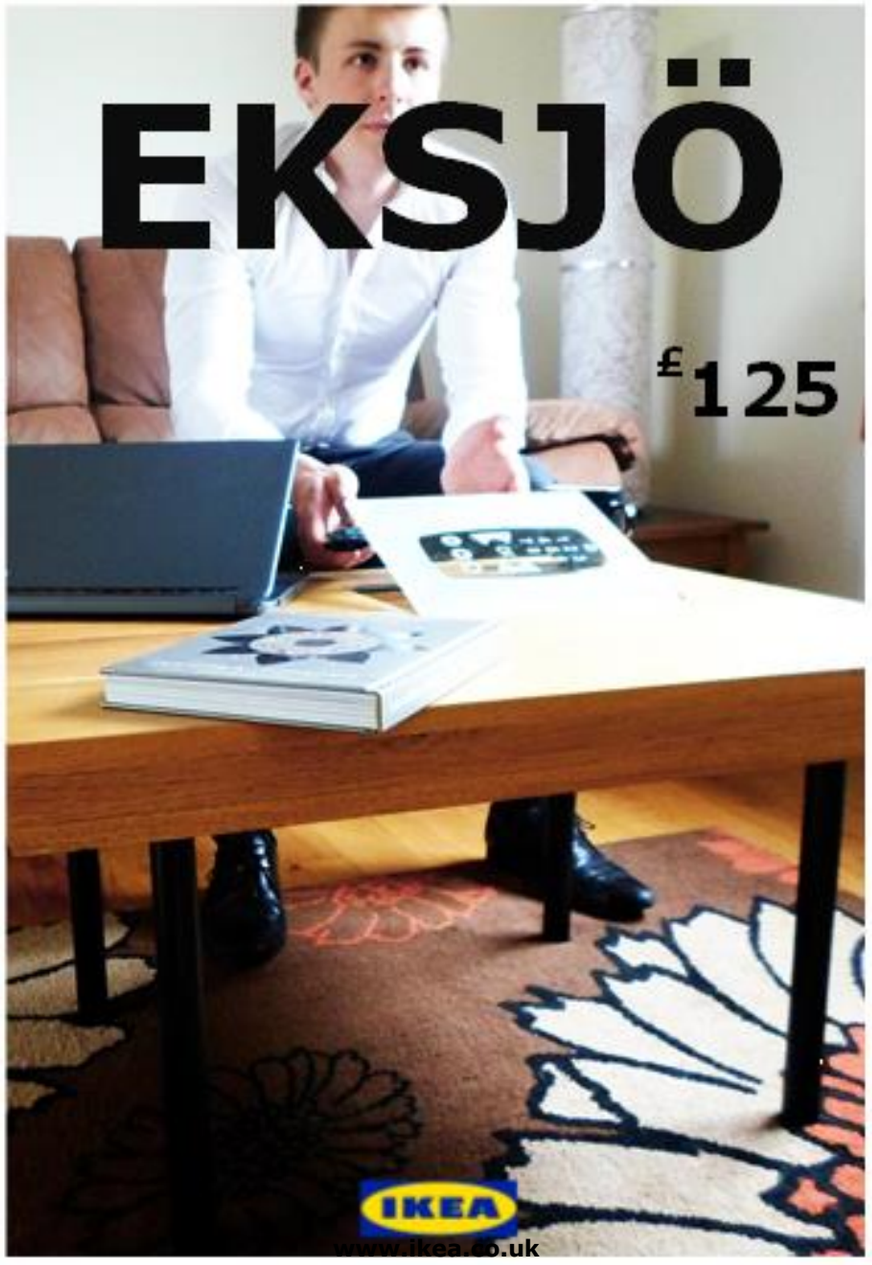
Television	Using television gives you access to the mass market and get more of an emotive response from the customer due to being able ti use sound, images and special effects. IKEA's adverts use appealing soundtracks and relatable, sometimes fun subjects which help to get the customers attention and draws them in. For example, their most recent advert is about energy efficient light bulbs, this is a topic which lots of people are familiar with and take seriously because of the effects of global warming and climate change. TV adverts are expensive but the mass market showcasing of the product outweighs the cost.
Newspaper/Magazines	By using newspapers and magazines it allows IKEA to tailor who they market to, for example if they have a product which would be used in family homes they wouldn't market it in a London business newspaper for young people. You can be restricted by only being able to use images but this can also be quite powerful. IKEA often use simple adverts with individual pictures and sometimes even just writing on a page with a solid colour background.
Billboards	Billboards allow for high repeat exposure near IKEA stores. They can be positioned in high traffic areas to catch the attention of commuters. The IKEA stores are mainly located in cities where there are lots of commuters so billboards are a good idea. Using bold colours (Swedish national flag colours: blue and yellow) will help draw the attention of commuters and passengers even more. The boards need not have too much text as this can distract drivers.
Online	IKEA have an extensive website with all of their products on. Online allows for moving images, sounds that can be viewed for as long as the user requires. It also allows the customer to have locate their nearest stores, download instructions, get customer assistance, view products and even check stock in stores. Online is probably the most important medium for IKEA and the one which needs the most attention.

This is a video IKEA have created to support their campaign of 'Small Spaces- Small Ideas'. It's all about utilising space and having furniture which doesn't just look good but also functions well so that people with small homes can make the most of the space they have.
My table fits well into this category because not only is it a functional coffee table but it also provides extra storage for small devices such as remote controls which can often get lost in small, hectic living rooms.



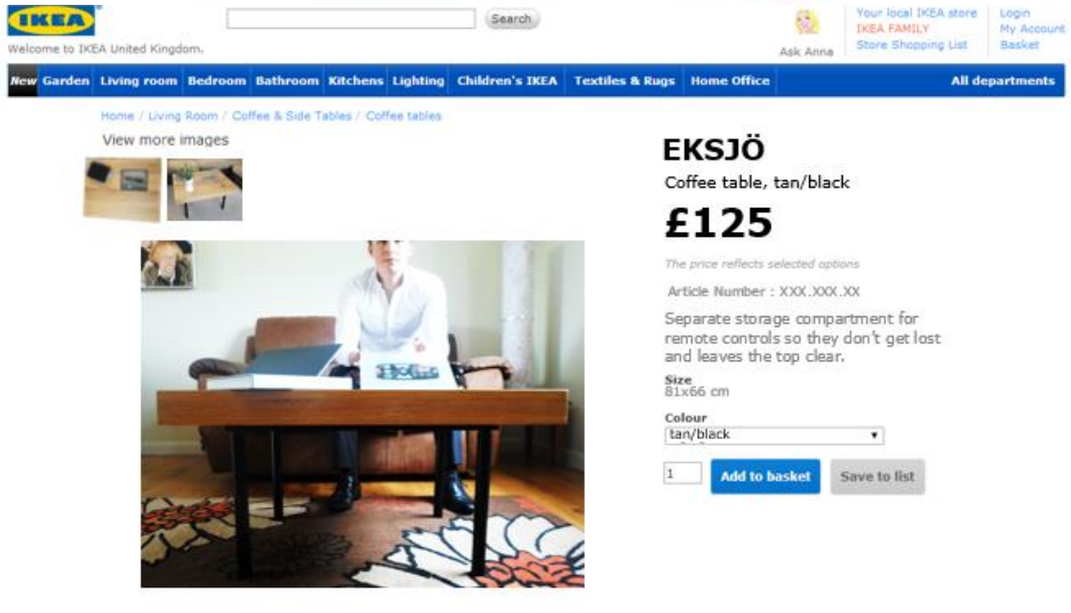
This is the initial billboard I would use. It has bright vibrant colours to attract drivers attention. It doesn't have any links on it to websites as it would be placed outside or near an IKEA store. I have made two different colour schemes. The first one focuses on the environmental aspect so uses green for the trees. The second focuses on the colours of the IKEA stores, yellow and blue (Swedish national flag colours). I think both colour schemes work but the yellow and blue stands out more. I have decided to do my main focus point as the material the table is made from. This is because it is an easy factor to get across to the public and its helped by the background of the billboard. I have also included a picture, this will help the drivers to relate the advert in magazines to the billboard. It also helps them to identify that the product being advertised is a table. However, there is room to remove the picture all together. This gives an element of mystery to the billboard and will send the drivers away wanting to know what the product is and what it does. By using the word 'our' it helps to create emotion from the driver and makes them think, it may create a feeling of guilt that they are driving which releases greenhouse gases. They may have a feeling of wanting to do something to help, this billboard provides a way in which the can do this.

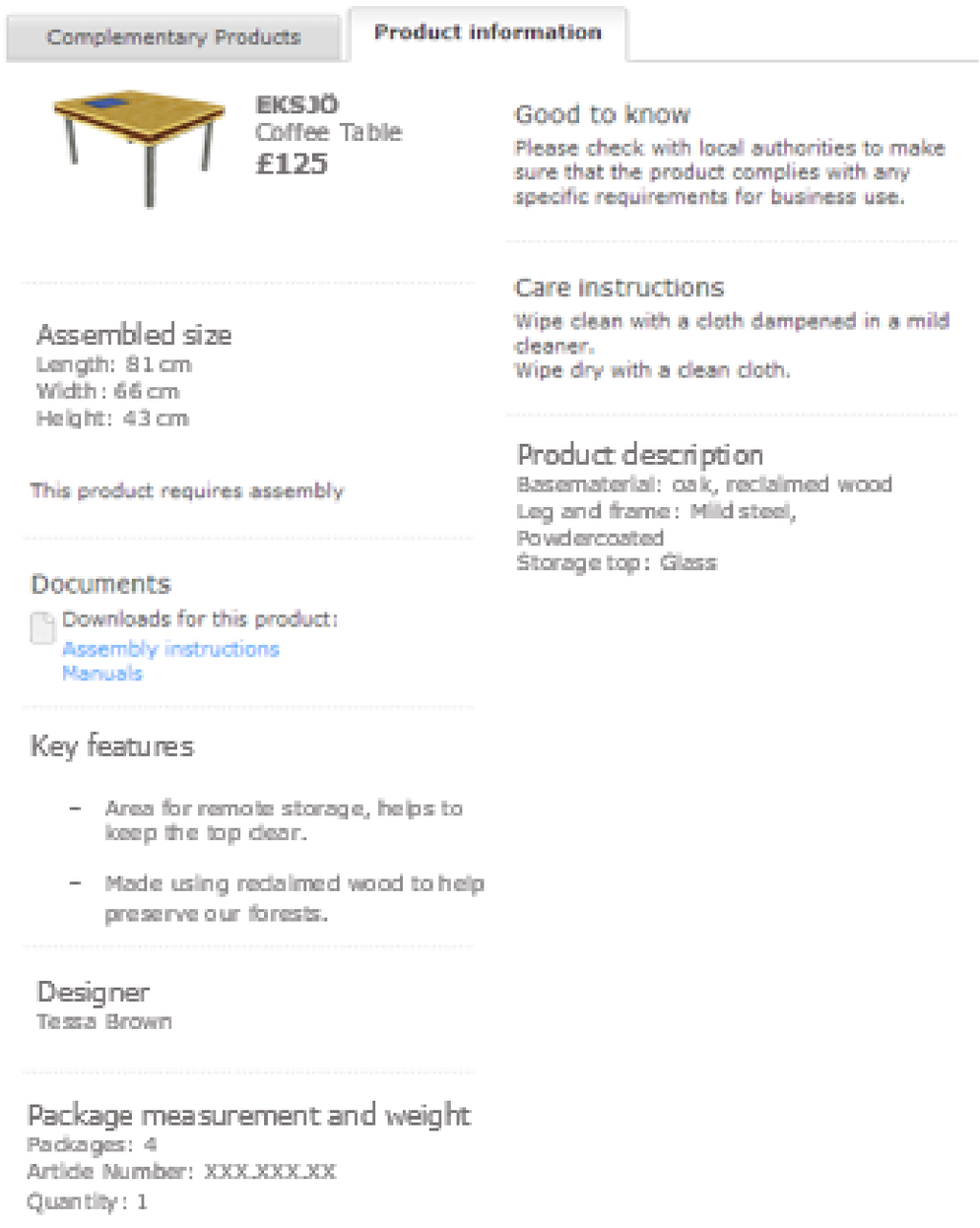
Marketing Presentation



This is the initial poster I would use to advertise my table. It would appear in magazines. I have used the model of a young businessman. This is because this fits my design brief, I intended to design an easy to assemble table for a busy worker who didn't have much time to fiddle around looking for furniture so wanted something simple they could put up in their own time. The text is in the IKEA Verdana font and they only word is the 'logo' of the product: it's name. I have included the price and an IKEA logo at the bottom. I think this poster would stand out in a magazine because it has sharp crisp colours and his a high quality picture. It would suite magazines better than newspapers because newspaper pictures can often appear grainy. However, it would be suitable for both. I didn't feel I needed to mention the fact that the product is flat pack because this is assumed as it is from IKEA. Also, I haven't included any information about the storage area for remotes or the materials. This is because I do not want to overload the reader. But also, the storage compartment is clearly visible and this gives and element of mystery to the reader and will not only draw them to look further into the product but this will lead then to the IKEA website where they will also look at other products. This is why I have included the IKEA website.

The IKEA website is the most important media. Its easily accessible and allows users to look at all the products and compare them. This makes it especially important that all the information the customer needs is easily accessible on the website.
It is important that all the necessary information is available for the client. On the right you can see the product information page. Below is the main page which the customer would initially visit.





Review and Reflection

How decisions were made:
Initially I had chosen to design a coffee table which allowed the user to keep the top clear and de-cluttered. Trough my research I found that there were lots of products that had already been designed with this aspect in mind. I there for changed my decision process, I decided to focus on a way of storing remotes as these are often lost and are one thing which always needs to be located in a living room then chose to focus on this aspect while also trying to keep my deign brief in mind. I think that this decision making process was the bet as it allowed me to focus on the things which were most important.

The design process:
The design process involves three main sectors… analysis, concept and synthesis.
Analysis: Accept Situation – at this first stage I decided on a design brief after looking at design problems which were being experienced by many users and my client.
Analyse – I then went on to do lots of research into similar products and looked at what I needed to consider in my design specification. I visited IKEA to look at existing products and I had help from my client when looking into sizes of sofas and knock down fittings.
Concept: Define – I then made a design specification and a technical specification. My client helped me to decide on the parameters for which I need to design within and things I need to make sure I include.
Synthesis: Ideate and Select – I designed lots of different tables and made models, I then presented these to my client who gave me their views. This helped me come to a final idea.
Implement – I then created my first prototype of my table. I realised my initial idea and my design brief.
Evaluate – I have tested my product against my design specification and presented it to my client and got their views. I have come up with ideas to market my product and there is still more room to develop it.

Innovation:
The innovation of my product wasn't clear right from the beginning. This was because I didn't want to have to design something around an innovative idea because it would have shaped my thinking. Therefore I just deigned freely and put in innovation where I saw fit. In the end this worked well because I had an idea of a remote storage compartment which was incorporated into the table itself. I had to do this by using oak spacers which I haven't seen anywhere else before. I also made my product flat packed which is innovative because of the materials used and the high quality of the wood. Usually flat pack wooden products are made from man made boards and are veneered whereas my table top is natural and uses high quality wood which is very innovative because I have found a way of making it affordable.

Client:
Having a client throughout was really useful. I chose a client who knew a lot about furniture already and was a homeowner so they were experienced with buying furniture and what to look for. I wanted a client who was genuinely looking for a new table so that they would feel really part of the design process and I would get their real views because they felt they were designing a product for themselves. I found that having another persons views other than my own was useful because they pointed out things I hadn't realised before and I could respond to their comments.

Inspiration:
The inspiration I used at the beginning wasn't as helpful as I thought. I got most of my inspiration from my trip to IKEA. This was because I could get hands on with the products and see how they actually functioned at look at the joints. Also, when I was looking at the desk at school and the way in which it was put together, it really helped me to picture in my head what my flat pack furniture would be like. Also, looking at the modern IKEA products gave me inspiration about simple colours and fluid shapes. It also made me feel better about using a square shape because a lot of the IKEA products are squares or rectangles.

Time management:
I think that my time management was quite good. I made sure that I kept on top of the folder work and that I had all my ideas and feedback from my client as I went along. When it came to starting to make my product I was held up by waiting for my materials however I made sure I was getting on with the top of my table because I had all the materials I needed for that. As soon as I had the hole cut for the glass I made a template and got it sent off to get my piece of glass. This meant I wasn't held up any further. There was one point where I was pushed for time because I needed to get my mild steel finished so it could be powder coated. I managed to get this done in time which meant my project wasn't held up. Overall I think my time management was good and effective.

Quality Control:
I made sure I carried out quality control checks throughout, this was because I wanted to make sure it reached the required customer standards. I carried out visual tests to make sure all of the parts looked like they were good quality. I made sure that the oak blocks had a nice grain facing outwards as this is what would be seen. I also made sure that the holes on the top had been filled in to a high standard where they were no longer visible. I made sure I checked the dimensions of the product however, for example I needed to make sure the control hole was in the correct place otherwise I wouldn't have been able to drill the hole to route it out in the correct place. I also needed to make sure that the frame wasn't too small for the top. I didn't carry out any weight quality control checks which was probably a mistake because the top did get quite heavy. However, in the end it was fine because it was easily carried by two people.

Setbacks:
During the making process there were a few setbacks…

- It was difficult to initially find the correct dimensions that I wanted to build my table within. This was because during my research I found that table heights varied so much. I therefore decided to design without dimensions in mind and there I would focus on dimensions once I had my design sorted. I found this method easier because it meant that I had no restrictions when it came to designing and I could choose what I wanted.
- When it came to actual making the product I had a setback because the mild steel box I needed for my framework was delayed when ordering it. This meant that I had to wait a while before I could start the framework.
- Once I had my frame complete I sent it to be powder coated. However when I got my frame back the legs wouldn't fit because they had got bigger from the powder coating. This meant that I had to spend an extra couple of hours filing off the powder coating so that the legs would fit on. In future I would make sure that the leg inserts were not powder coated.
- Because I used reclaimed wood it meant that there were screw holes which needed to be filled in. to do this I had to mix PVA glue with sawdust from the top and then fill I the hole. I had to give this time to dry before I could carry on.

Modelling/protoypes:
During the initial idea design stage I modelled some of my ides. I found that this wasn't always the most useful use of my time because I often didn't have the correct materials to make my models to scale. Also, by having feedback from my end user it meant that I could see whether the idea was even worth modelling. When it came to my final idea I didn't model it at all, I focussed on using CAD models because these were more accurate and gave a better representation of what the final product would actually look like. Overall, I thin that CAD modelling is better for concepts where as modelling with materials is better for seeing how component will work and if different colours go well together.

Technology:
The CAD modelling was a very important aspect of my design. I used it to make a final representation of what my table looked like. From this I was able to create a cutting list and get my materials. Without this it would have been much more difficult and time consuming because I would have had to have done lots of hand drawn sketches and they would have to of been really accurate which is quite difficult.

Review and Reflection: Plan of Making

There were lots of things I did differently to my plan when it came to actually making my product.

WEEK 1

The first thing I need to do it cut out all my materials.
I will cut out the metal first and then the wood that I need.

I need to get the metal frame and the legs finished and ready for brazing. I need to make a jig for the frame. I will do the metal first so while its being powder coated I can make the top.

I need to flux the frame in the jig and then braze it together. First I need to tack it then go back and ensure that the frame is flat.

Next I need to drill holes on the inner leg then braze them onto the frame. I need to use a right angle to make sure they are square and to ensure that the legs won't be at an angle.

I had to use the centre lathe to make the ends square, then I drilled the holes with the pillar drill.

I DIDN'T DO THIS BECAUSE THERE WAS A DELAY GETTING THE MILD STEEL FOR MY FRAME.

I made the jig from a board and some scrap blocks.

ALL OF THESE STAGES WERE MOVED TO AFTER I FINISHED THE TOP.

I put weights on the frame to keep it flat.

WEEK 2

Next I will need to drill the holes. There needs to be two in each of the long sides of the frame and one in each of the short sides.

Next I need to clean up the metal and send it off for powder coating.

I will start the top. First I need to make plane the old art desks into planks. Then I need to use PVA glue to glue 4 of them together. I need to do this twice to make a top and bottom for the table top.

I will use sash cramps to hold the planks together. I will need to make sure that I stick masking tape at the contact points so the wood doesn't react with the metal and glue and mark my product.

I didn't use masking tape and my table was marked. I had to sand the marks out which took a while.

I should have drilled the holes before brazing.

This was difficult to get the frame onto the drill.

This took longer than I thought, I had to use the angle grinder

I put an X on the table top itself.

WEEK 3

While those parts are drying I will get together my oak spacer blocks. I need to sand them and see which sides have the nicest grain as these will be facing the outside.

Next I will put the spacer blocks together with one of the sheets I have made from the reclaimed planks. I will do a dry run then glue it with PVA. I will have to put the box in as well so I need to make sure I measure this properly.

I will need to clamp down the oak spacers to the table and leave them to dry for a couple . When they are set I can stick the top part on. I need to remember to mark where the box is so I can cut it out.

Next I need to lay the top part on the blocks and glue it down. I will use g clamps to ensure that its flat and sticks properly. Then I will leave it to dry.

I managed to get them arranged into a nice pattern.

I used paint cans as weight to keep it flat.

THIS IS WHEN I MADE THE METAL FRAME.
THIS IS WHERE THE STAGES WERE MOVED TO.

WEEK 4

To cut out the box hole I will drill a hole and then use the router to go all around the edge. I will then make a rebate for the glass.

Next I will sand the whole top and the sides. I need to drill the holes in the underside for the frame.

The next thing will be to put polish on the top of my table to give it a nice finish.

I need to make a template for the glass and get it cut.

I did this as soon as I'd cut the box.
↓
I then frosted it leaving a shape.

The routing was messy and the roller got stuck which meant I burnt the wood.

I did this once I had got my frame back so I got the holes in the right position.

WEEK 5

~~I will get my metal back and then assemble my product.~~

I will collect the glass and put this into the product.

Review and Reflection: Wider implications of my product

Moral and Ethical Implications

The product is safe to use however there is a possibility that children would get their fingers trapped underneath the glass. There is no risk of the glass smashing though unless it is dropped from a height. There are no small parts which could be swallowed. When it comes to ethical issues there aren't any. Nothing is restricting anyone from using this product apart from its price. Also, during manufacture it would be manufactured ethically as this is one thing IKEA pride themselves upon; having good ethics.

Sustainability Issues

I've tried to design my table using sustainable products. The mild steel is recyclable and can be melted down and used again once it has been finished with. The wood for the top is reclaimed and the oak I used was an off cut. The good thing about only using small quantities of oak is that I can use off cuts. The glass is also recyclable as this can be melted down and used again. Once the customer has bought the table they must either drive home with it or get it delivered which will create fossil fuels, however when people go to IKEA they don't usually just go for one thing so this saves a number of trips which makes the whole process a little more sustainable.

Economic Implication of Materials

Because the main material was reclaimed wood the whole cost of materials wasn't very much. Reclaimed wood is normally free or very cheap because it is being thrown away. Mild steel is a very cheap metal so didn't cost much at all. When I was making the product I was buying just the materials I need, this I quite an expensive way of doing it and if I were to start making the table on a larger scale I would buy the materials in bulk which would therefore make them much cheaper.

Maintenance and Product Life

To maintain the quality of the product the user needs to ensure they use coasters or only put cups on the glass or it will leave rings. The product should only be cleaned with a damp cloth as any product my damage the Danish oil finish. Maintenance wise there isn't really much that needs to be maintained as there aren't really any functioning parts. The product life is long but fashions change so the user may decide to change furniture. However the product is versatile so could be moved into any room.

Recycling, Reduce, Reuse and Repair

As already established the materials of the table are recyclable. The wood can be made into fibreboards and the mild steel and glass can be melted down and used again. The table is made from high quality materials and is therefor meant to have a long life span ensuring that the customer reduces the number of coffee tables they need to buy. When it comes to repair, if any of the screws are lost they can be re-ordered as they are standardised parts. If the top gets damaged there is not really much you can do other than sand it down and re-oil it. The legs can only really get damaged by being bent of chipped. As they are black they won't show dents up very well and can be carried on being used.

Life Cycle Assessment

INPUTS	Acquisition of raw materials	OUTPUTS
	The mild steel comes from iron ore which needs to be mined for. The oak comes from trees. Both these processes use energy, mining for the ore takes more energy than acquiring the oak.	
	Transporting raw materials	
Raw Materials	Most iron ore comes from Australia so has to be shipped over which is a lot of miles and creates lots of pollutants. Oak comes from either Europe or North America. By using oak from Europe it us less air miles and therefore there are less atmospheric pollutants emitted.	Atmospheric Pollutants
	Processing raw materials	
Energy	When processing iron ore in mild steel there is a by-product which is produced during the separation of the carbon in the steel. Both the reclaimed wood and the oak needs to be sawn and planes producing off cuts of wood which can be created into fibreboard.	Solid Waste
	Manufacturing the Product	
Materials Energy	During manufacture I did it in school, I was therefore using the lights, machinery etc. at school. If I were to take my product to manufacture I would be using factories which require lighting, eating and the machines need energy to work. After the product has been created it needs to be distributed to the IKEA stores which are all over the world. There will be steel waste and sawdust.	Sawdust Mild Steel Burs
	Using the Product	
	My product requires no energy to be used.	
	Disposal	
Energy	The table will have to be collected when its thrown away which requires energy. If it is recycled, there will still be energy needed to process the materials so they can be used again.	Atmospheric Pollutants

Review and Reflection: The future of my product

Likely success of the product in the market place

Products which are sold in IKEA are usually very successful. This is because IKEA is already a well known brand and therefore is a good platform to sell any product from. My table is a new innovative product and there is nothing like it on the market already, this acts as a pull for the consumers to try something new.

Quality control issues

If my product was to be taken to manufacture on a large scale some of the quality control checks I carried out on my prototype might not be practical. Simple visual checks would be hard because the products would come off the production line and then be boxed up and there wouldn't really be an opportunity for visual checks to take place. When it cam to accuracy of dimensions most of the cutting of materials would be done by automated machines and therefore would be very accurate. The weight of the product is a good test that could be carried out because it could be done once the product has been boxed. By weighing the product it ensures that everything is included in the box that is necessary for self assembly by the customer.

Possible further developments

In the future I can change my product and create a range of different finishes for the top. The mild steel can be powder coated in a different colour and the glass can come in many different varieties. The customer can then do a mix and match of the different colour options, this allows the product to be more personable and therefore more appealing.

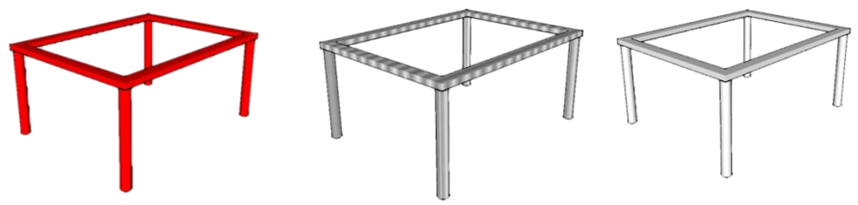
I would also change the opening mechanism, I would put a hole in the top of the glass, this is simple and will be a cheap modification compared to adding in a hinge mechanism. This would fix the problem of the peg which is in place at the moment.

Manufacture/scale of production

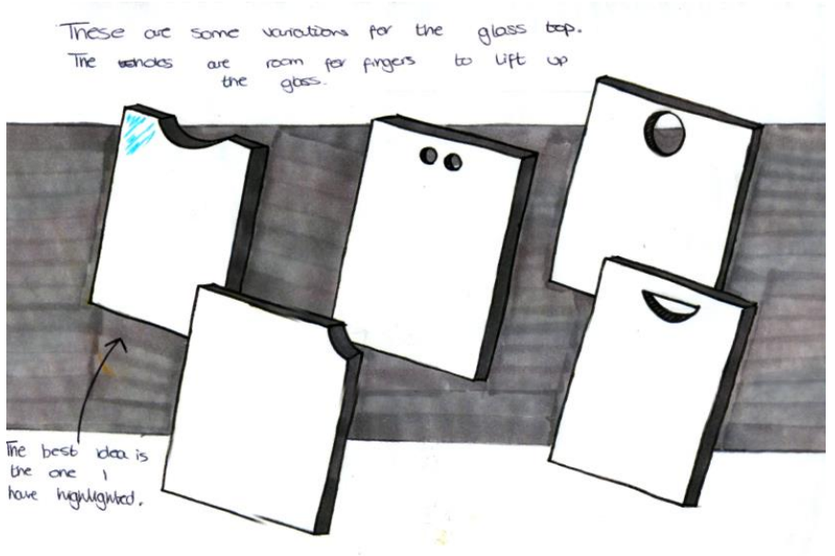
My prototype was a one-off production because only one product was being made. If my product were to be sold in IKEA I would manufacture it in batches. This allows for more to be manufactured when they demand is there. I would use a modular manufacturing system, this would allow me to have different modules for the different colours available. The first set of modules will be the same until it came to the colouring and finishing of the different components.

Modifications for quantity manufacture

I think that my product is already viable for large scale production. It uses the least components possible while still achieving the desired look and function.



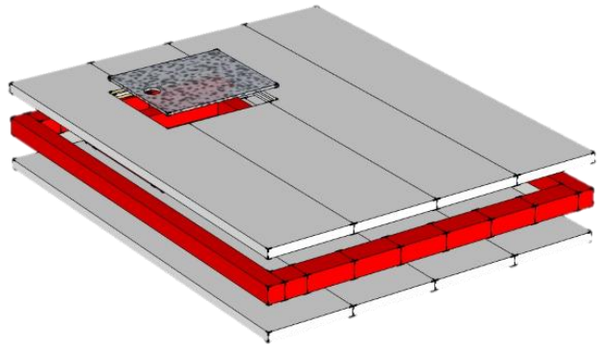
Above are some possible colour variations… red, stainless steel and white.



These are some variations I could have for the glass on the top. They will make it easier to open and mean that there doesn't have to be a peg.

Commercial potential

Commercially I think my product has great potential. It is innovative and there isn't anything like it on the market already. The fact that it is simple to put together means that it is very appealing especially to people who don't have much times on their hands because it doesn't take long. The fact that I want to sell my product as an IKEA product gives it a good start on the market as most IKEA products sell well because they are under a reputable brand.



Above is a different idea for the colours on the top. It would have to be veneered and the material would be man made boards, this takes away the aspect of the reclaimed wood but it does still incorporate the remote storage.

IKEA have a colour they do a lot called black/brown. It's a dark colour but is very popular because it goes well in lots of different environments. It also doesn't show up the dirt.