

# Introduction for Task

*For my final GCSE Design Project I have decided to base it around this task:*

## **Design Task 10**

“People have an increasing number of gadgets and gizmos in their homes, such as mobile phones, iPods, remote controls, hand held computer games etc. Many of these products need chargers, memory cards, games etc. Design and make a gadget tidy.”



My Desk

My mums' desk



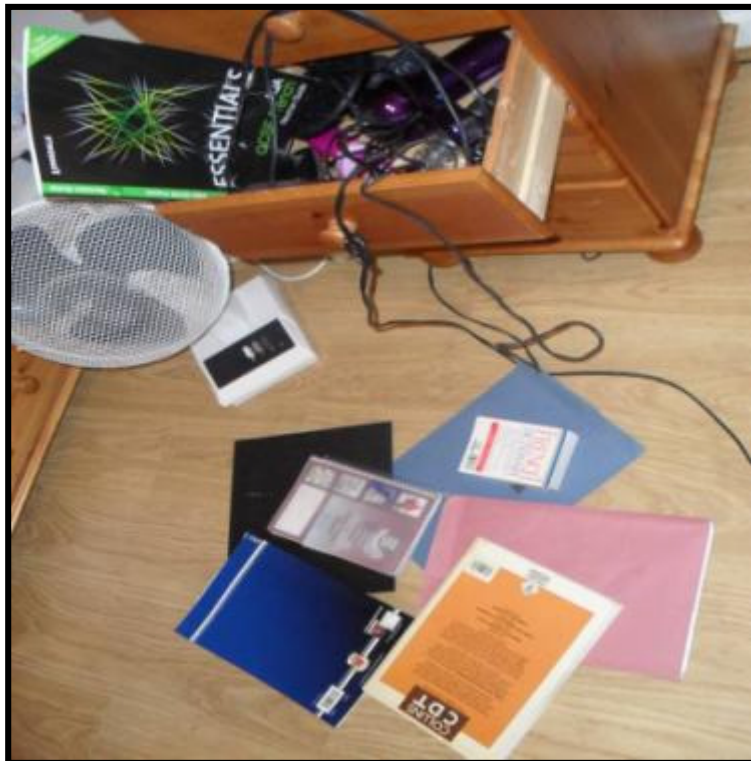
## ***The Problem***

To elaborate on this task I have decided to make a gadget tidy especially for hair products such as hair-dryers, straightening tongs and brushes etc. I have chosen to do this because my room is constantly a mess, as is my mum's and so it would be handy to have something on the wall where we can store our hair products where they are out of the way and in result free space on our desks. This may also be a problem among many others also.

# The Brief

## *The Brief*

I need to design and make a gadget tidy which will hold at least a regular sized hairdryer, a pair of GHD straightening tongs and a hairbrush. It needs to store them in a neat, organised way. I want it to have a unique design that is eye-catching.



**Wires** are also a problem as they are dangerous and with no where to put them they are just sprawled across my floor. In my design I am going to see if it is possible to keep the wires neat, out of the way, and untangled.

## *At the Moment*

At the moment I am storing my hair products in my desk drawers and on my desk. This isn't too bad, but the wires constantly get tangled and it is easy to loose things such as hair-bands and combs in the mess. There is also no room in my drawers for my books and so they are all over my floor.

# Design Specification

## ***For the User***

1. The product must be able to hold the required gadgets, i.e. A hair-dryer, a pair of GHD straightening tongs, and a hairbrush (all regular sized).
2. It must be able to support the products by itself so that it does not collapse.
3. It must keep the products neat and easily accessible to make it easier for the client to access.
4. Easy to maintain e.g. doesn't need to be regularly checked over.

## ***For the Distributer***

1. Not too large so easy to transport.
2. No parts that are fragile sticking out as they may break off in transporting.
3. Protective packaging

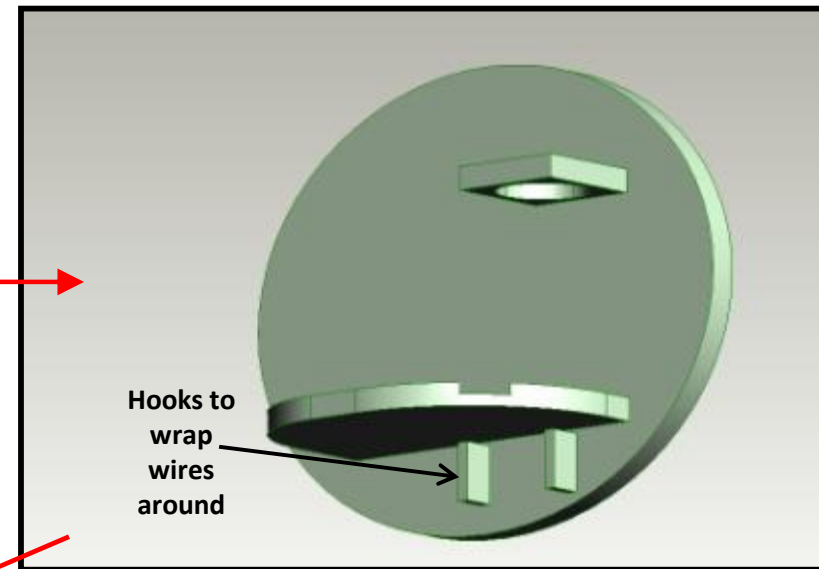
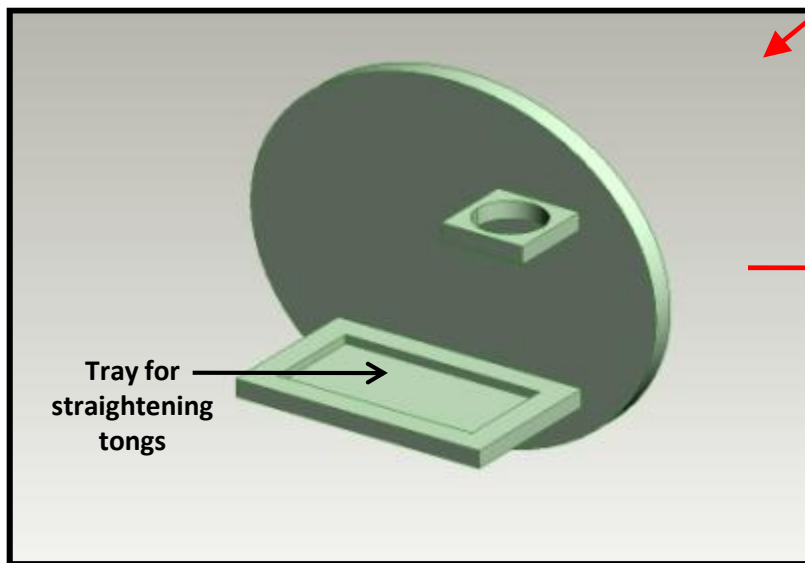
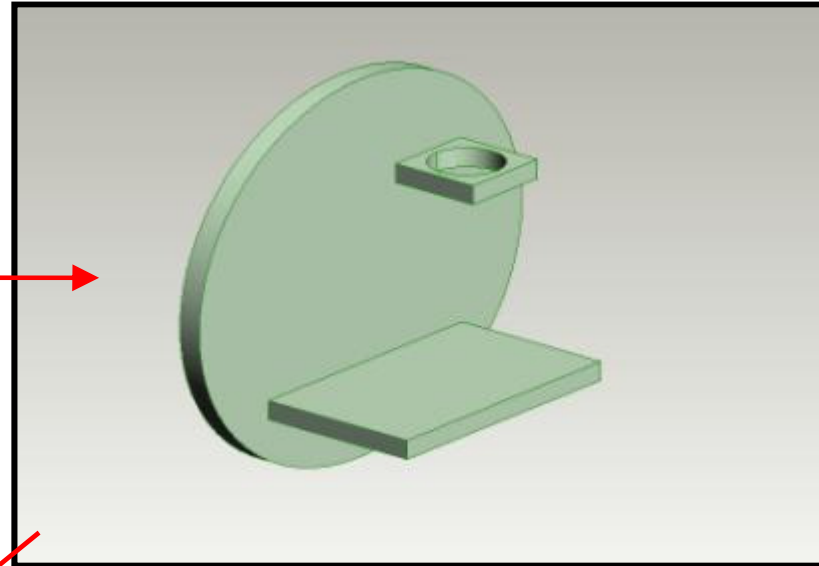
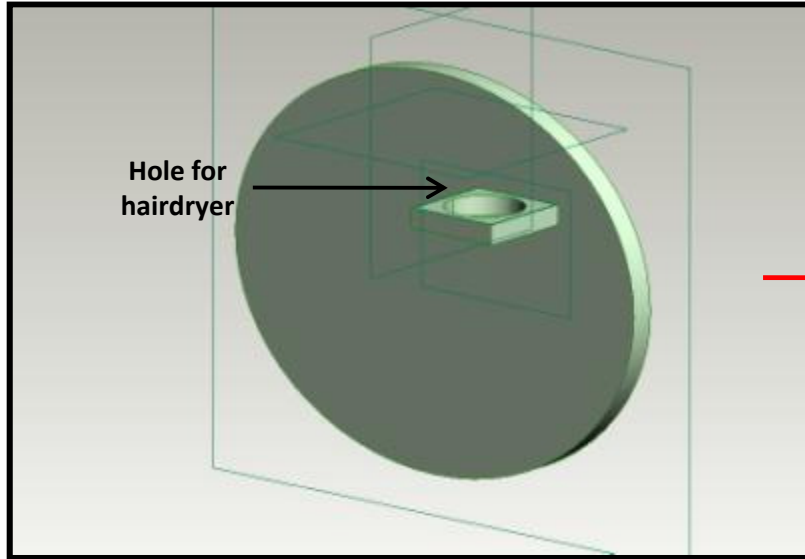
## ***For the Designer***

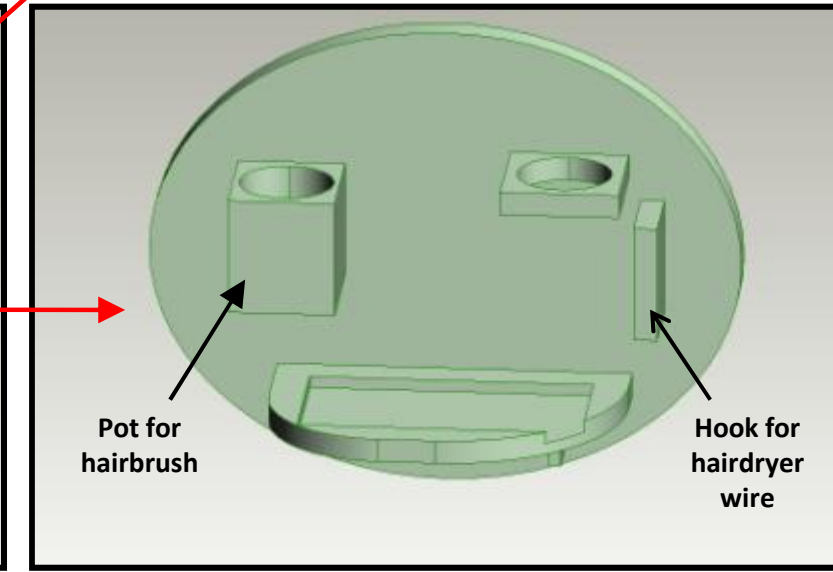
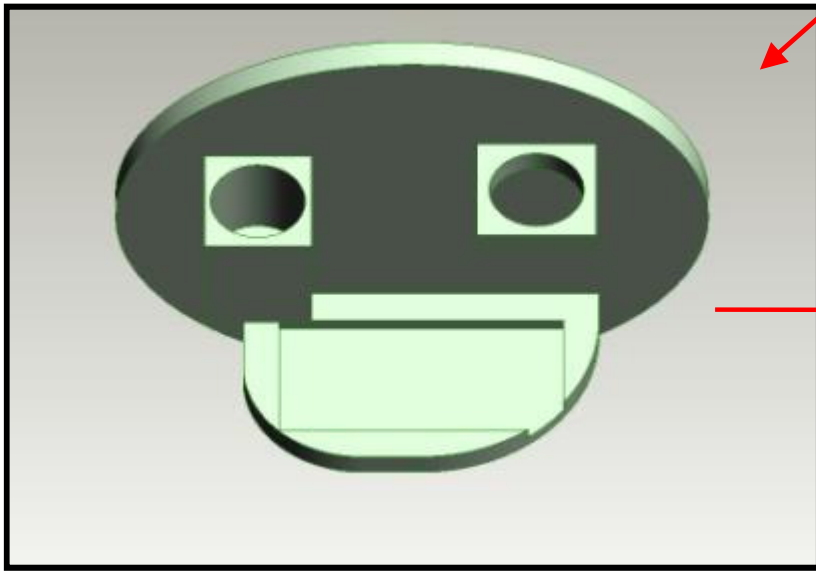
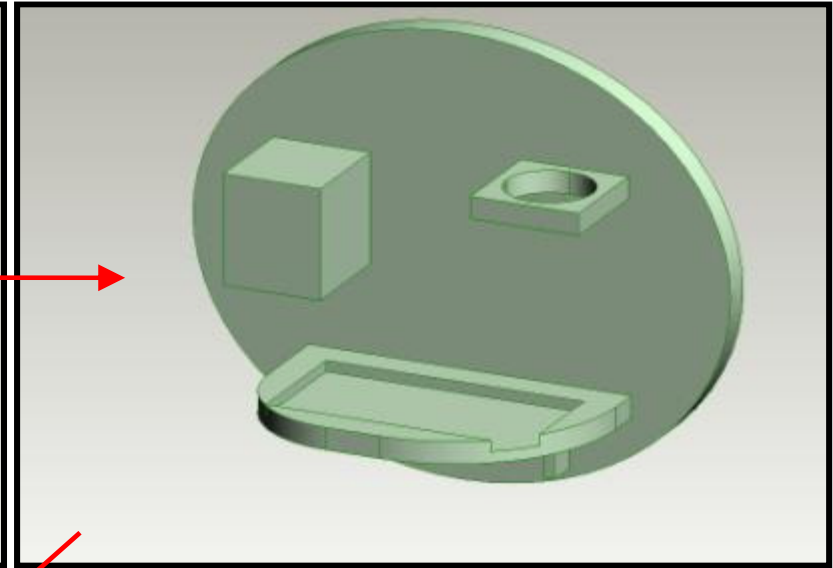
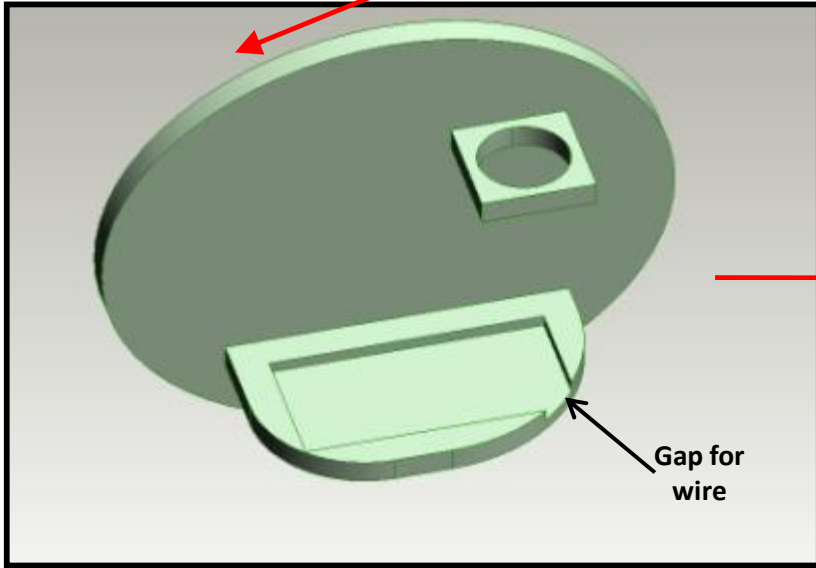
1. It must be eye-catching and modern so that it stands out, but attract the target market.
2. The way that the gadgets are held must be simple so that it is easy for the user to take off/out and put back the gadgets.
3. It must be stable so it doesn't fall and drop the products.

## ***For the Maker***

1. Use a strong material so that it is able to support the gadgets by itself
2. Make it look neat with no splinters etc.
3. Make it in an attractive colour and possibly grain of wood.
4. If using clips try to use off the shelf products.
5. Use cost effective materials which are reasonably cheap but still attractive and ethical.

# Initial Ideas

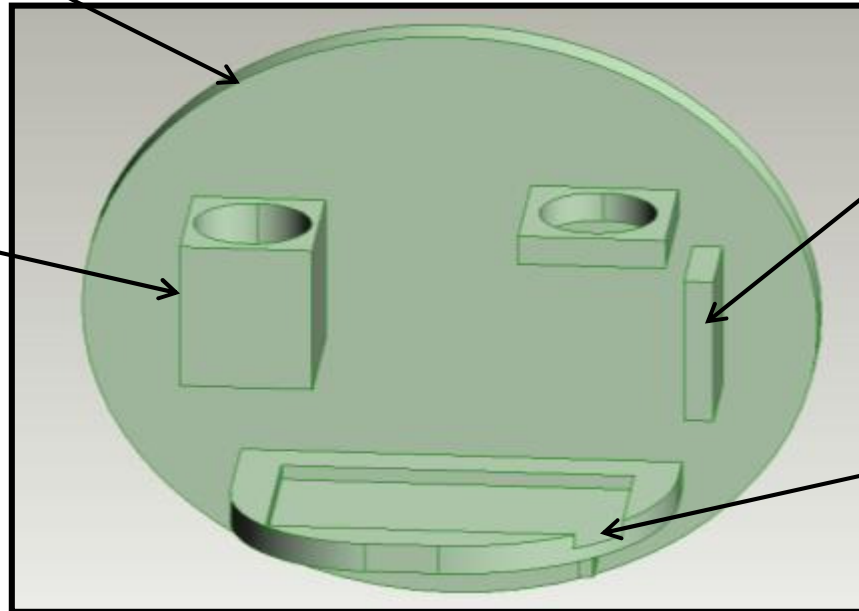




# Evaluation of Idea #1

Although this design holds the required objects it is a very boring shape and not very eye-catching.

The hole for the hairdryer is quite chunky and simple. It is quite boring in shape and not very modern.

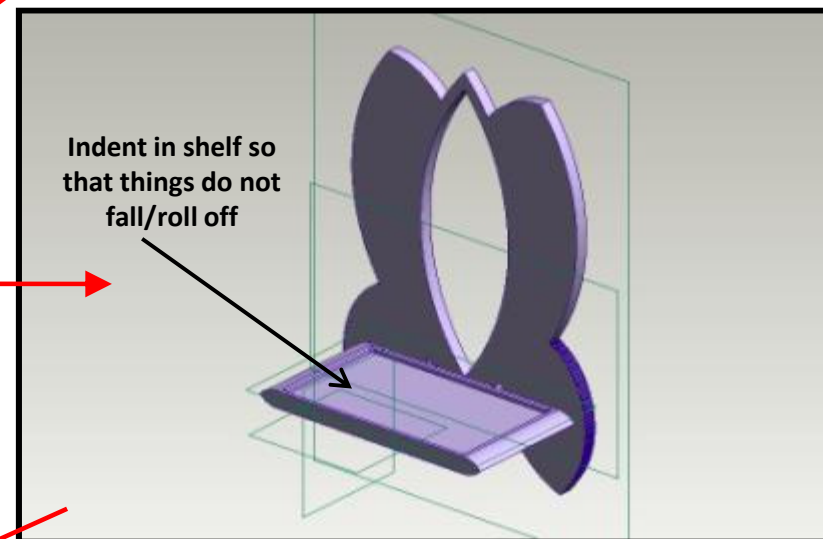
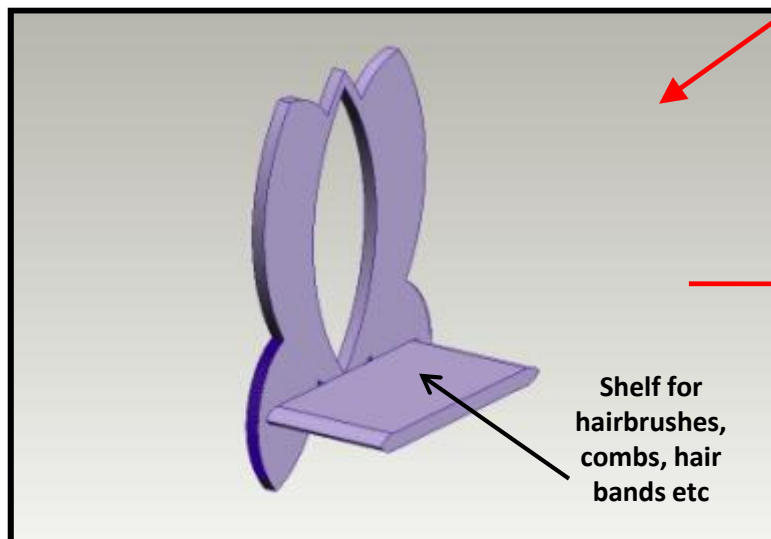
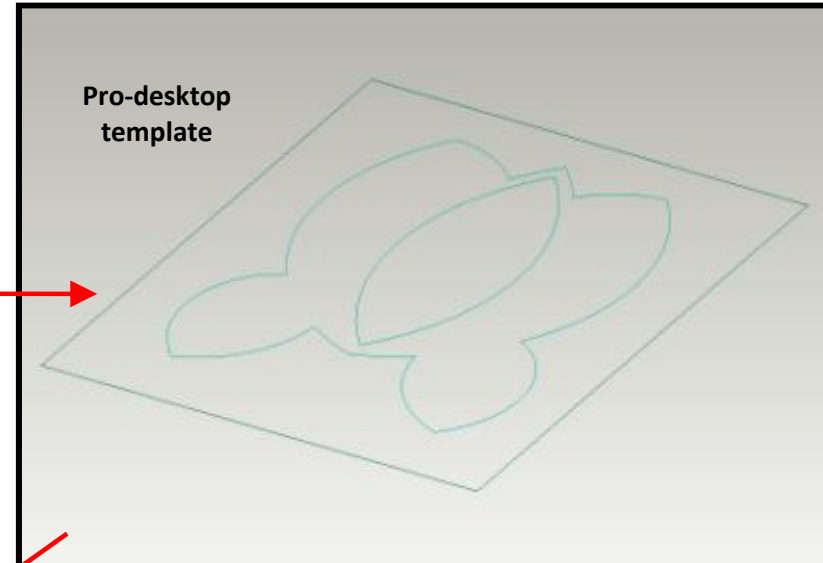
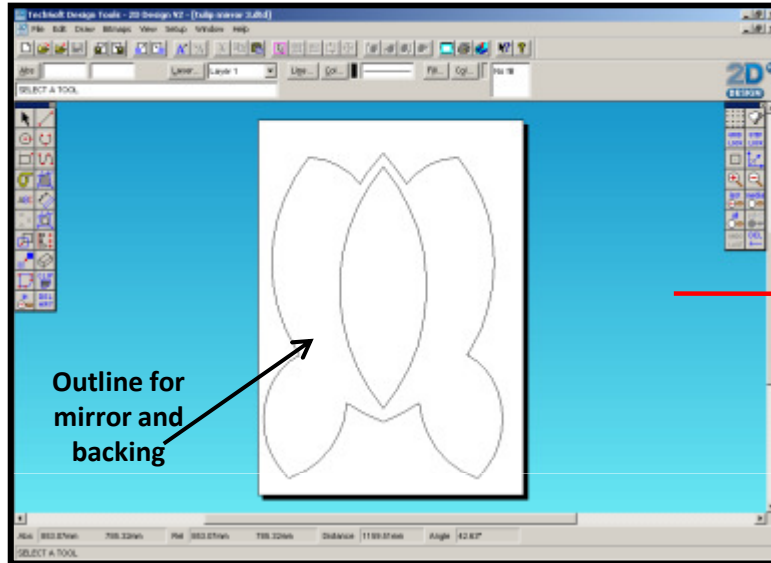


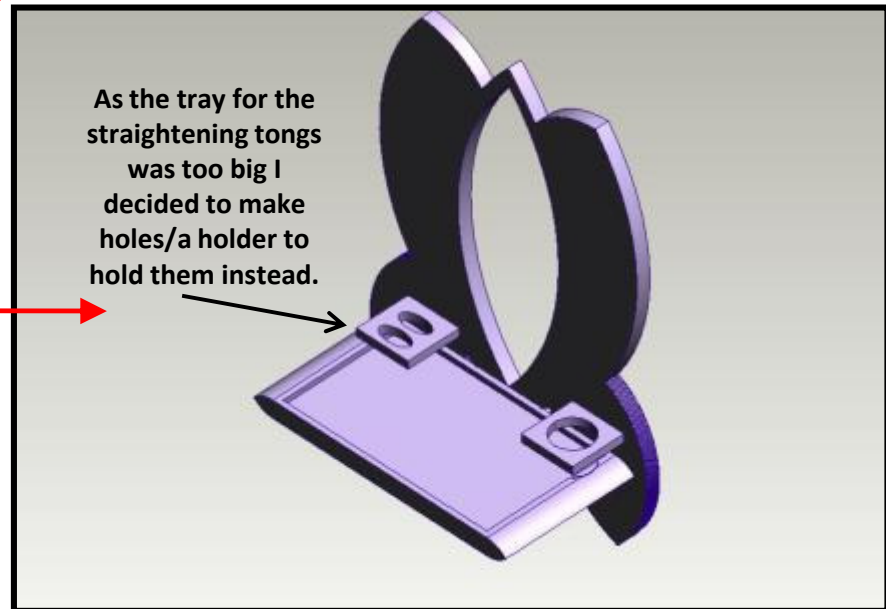
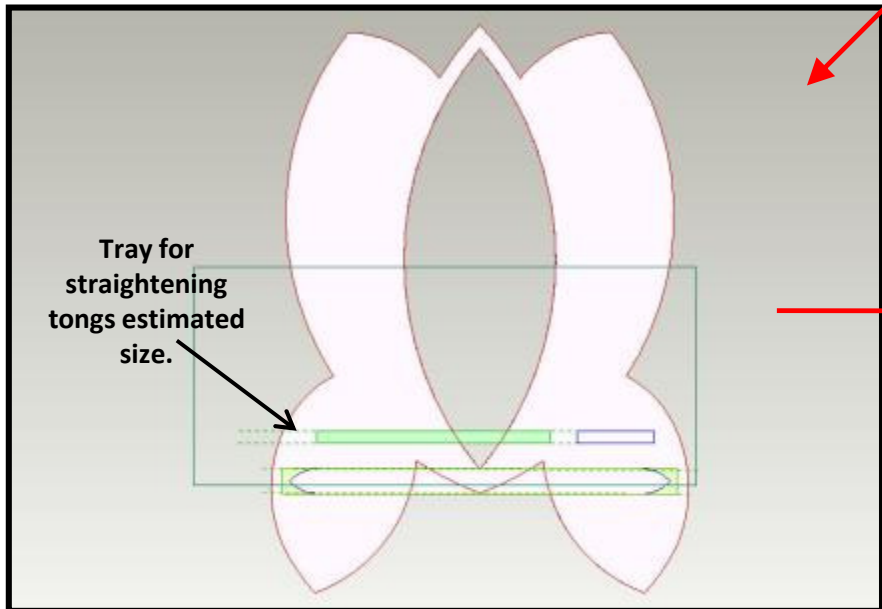
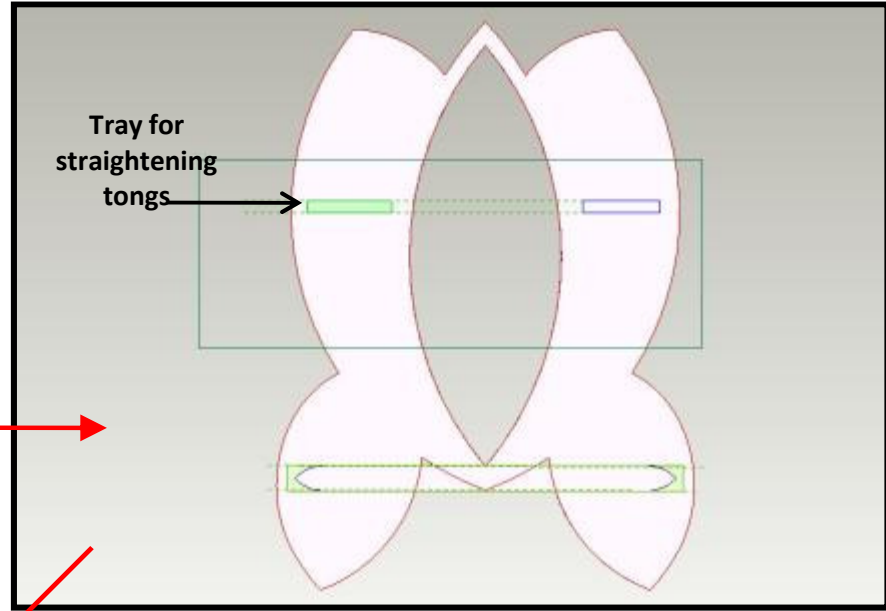
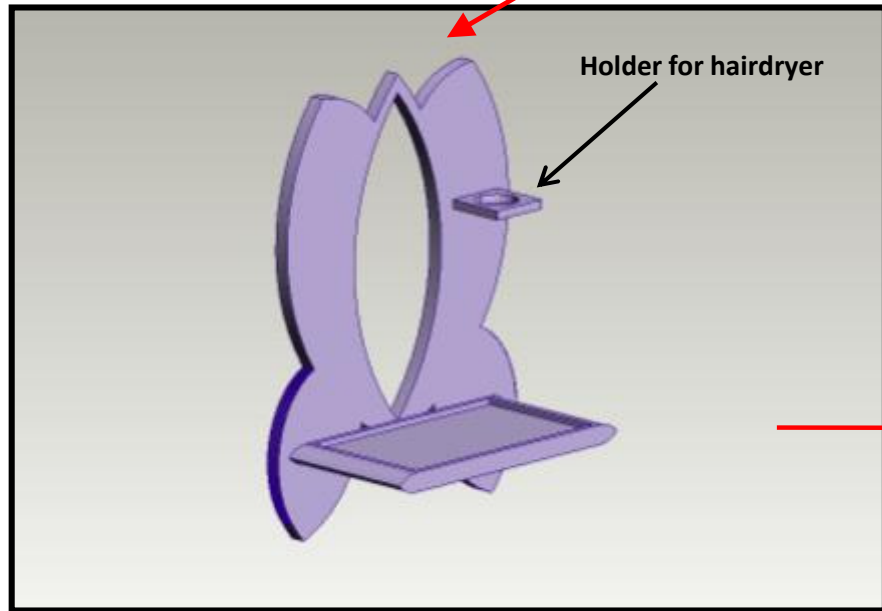
This hook isn't the most practical way of tidying wires, although it is a reasonably good way of keeping them neat.

This gap is very practical as it means the wire doesn't have to stretch/bend over the edge of the shelf to wrap around the hooks.

**Conclusion :** As this design is not very eye-catching I think I would have to make it from a colourful material such as plastic. A good plastic to use would be polypropylene because it is reasonably strong, and also rigid and hard. If I were to make it out of plastic I would most likely blow-mould the main backing of it. However making and using plastic to create a product is harmful to the environment. This is because crude oil is used up to make plastic and when it is melted / burned toxic fumes are given off, but on the other hand it can be recycled when the user no longer has a use for it.

# Initial Ideas



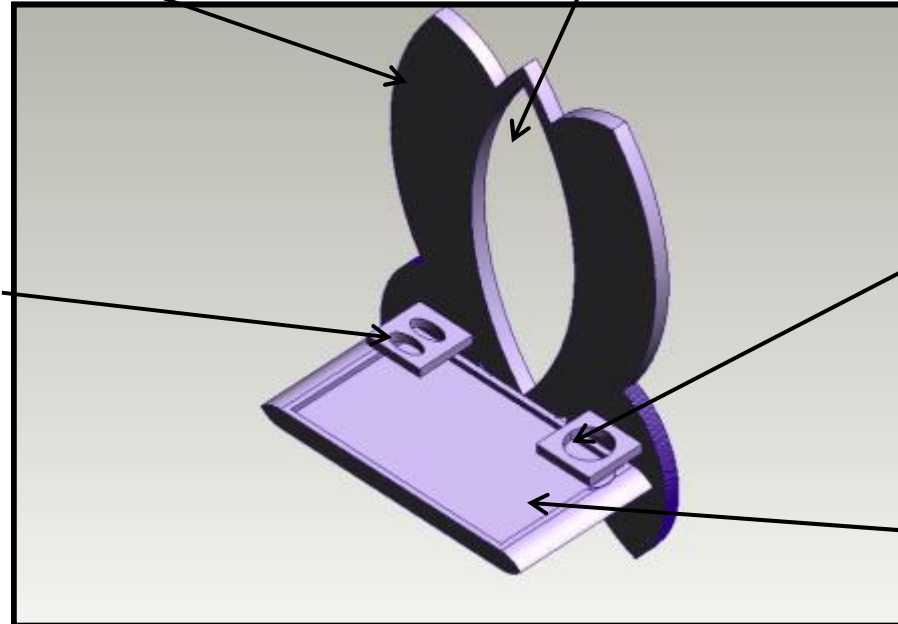


## Evaluation of Idea #2

The shape is unusual and attracts the eye, it also looks reasonably modern.

Here would be a mirror so that the user could also see themselves as they use the gadgets to do their hair.

Holder for straightening tongs. I need to change the size of them so that they are the right sizes.

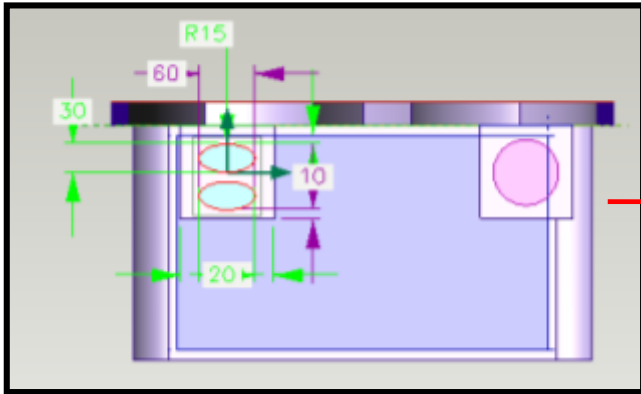


Holder for hairdryer. I also need to make this to size. It is also quite a boring shape so I won't make it completely square, (This also is the same for the straightening tongs.)

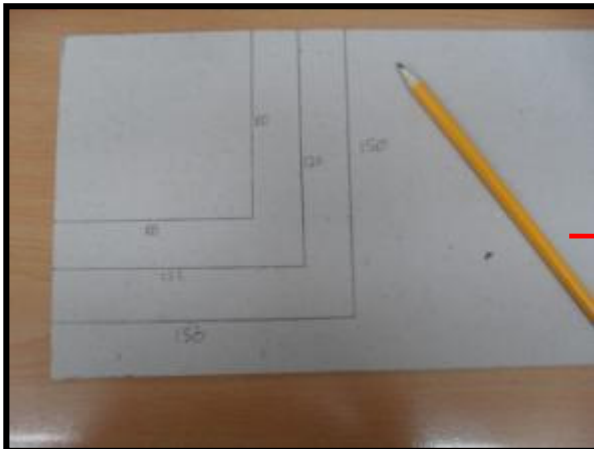
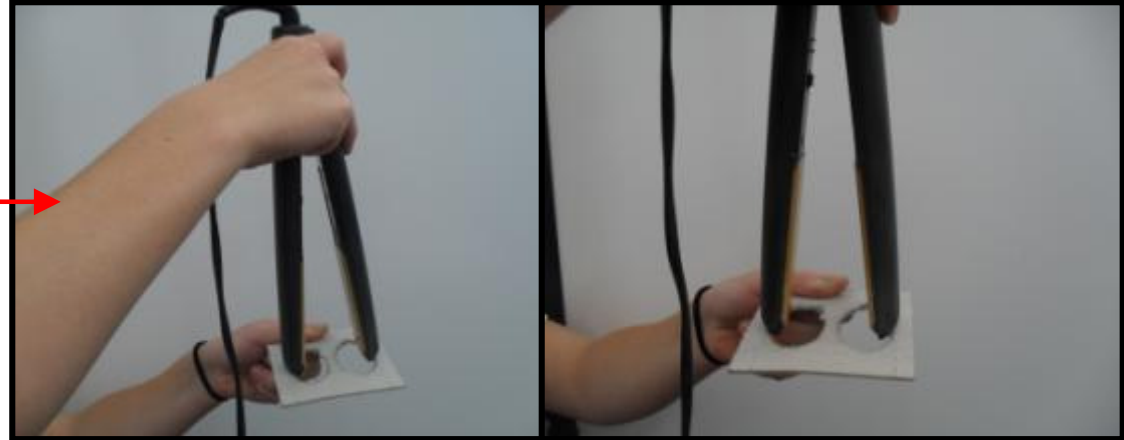
This tray is for hairbrushes/bands/combs etc. IT is indented so that the objects placed on it don't fall or roll off.

**Conclusion: This is the design I am going to use.** I am going to use this design as it has an unusual shape and looks modern. It also can hold all of the required gadgets firmly, and also has extra space on the tray for other things that may need to be held. Although all the gadgets can be easily held these is no way to store the wires so I am going to use the idea from the other idea, using hooks to wrap the wires around. To support my project I will design a way to attach the back of it to the wall.

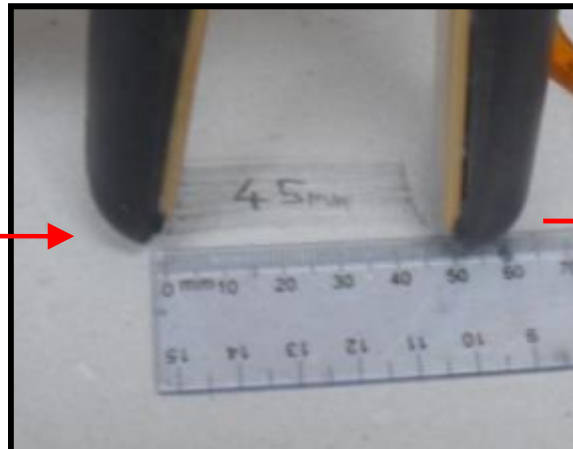
# Adjusting Measurements



The hole for the straighteners were also inaccurate



I then compared some sizes to try and figure which size would be better and came to the decision of making it 125mm by 125mm



Next I measured how far apart the tongs are to know how far apart to make the holes for each tong.

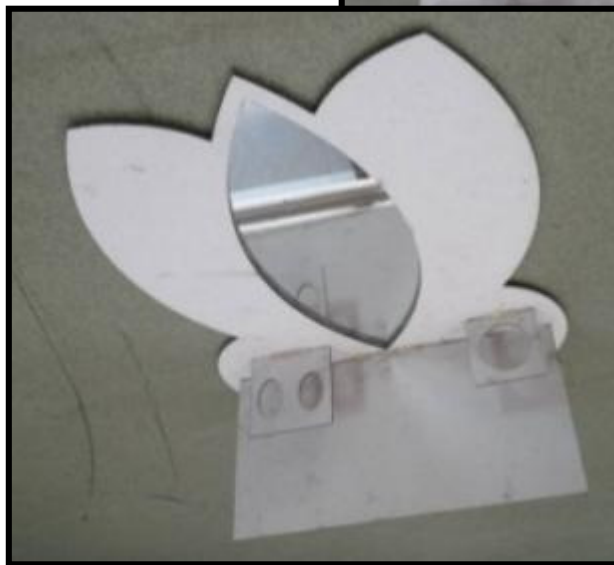
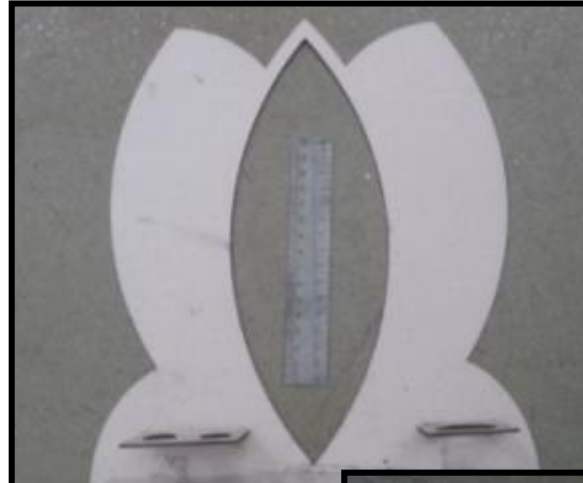


After this I estimated which size ellipse to use for the holes and drew them on my model of the shelf.

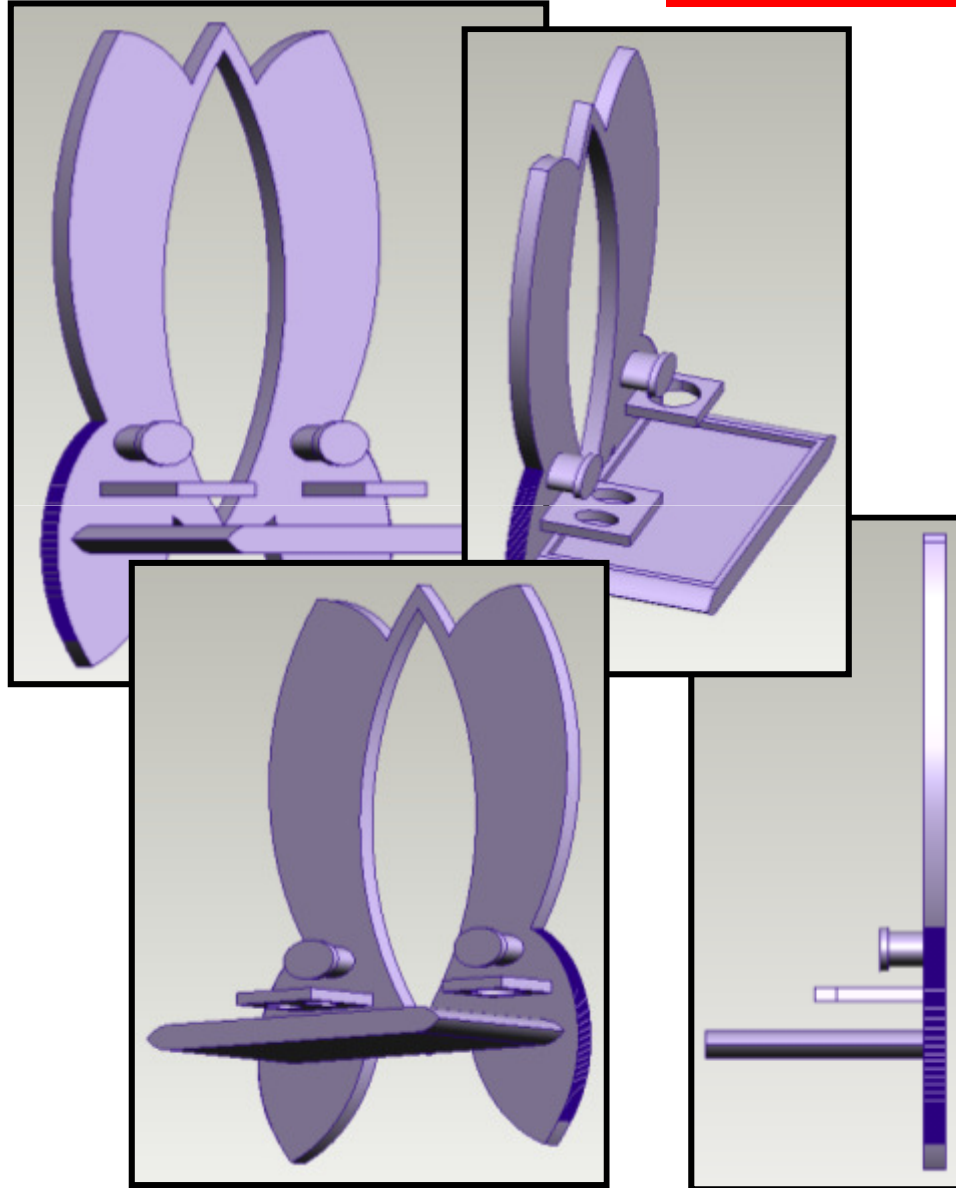
## My Model



Here is my model. I then found a piece of mirror and cut it into shape and size and used the hot glue gun to stick that on the back.



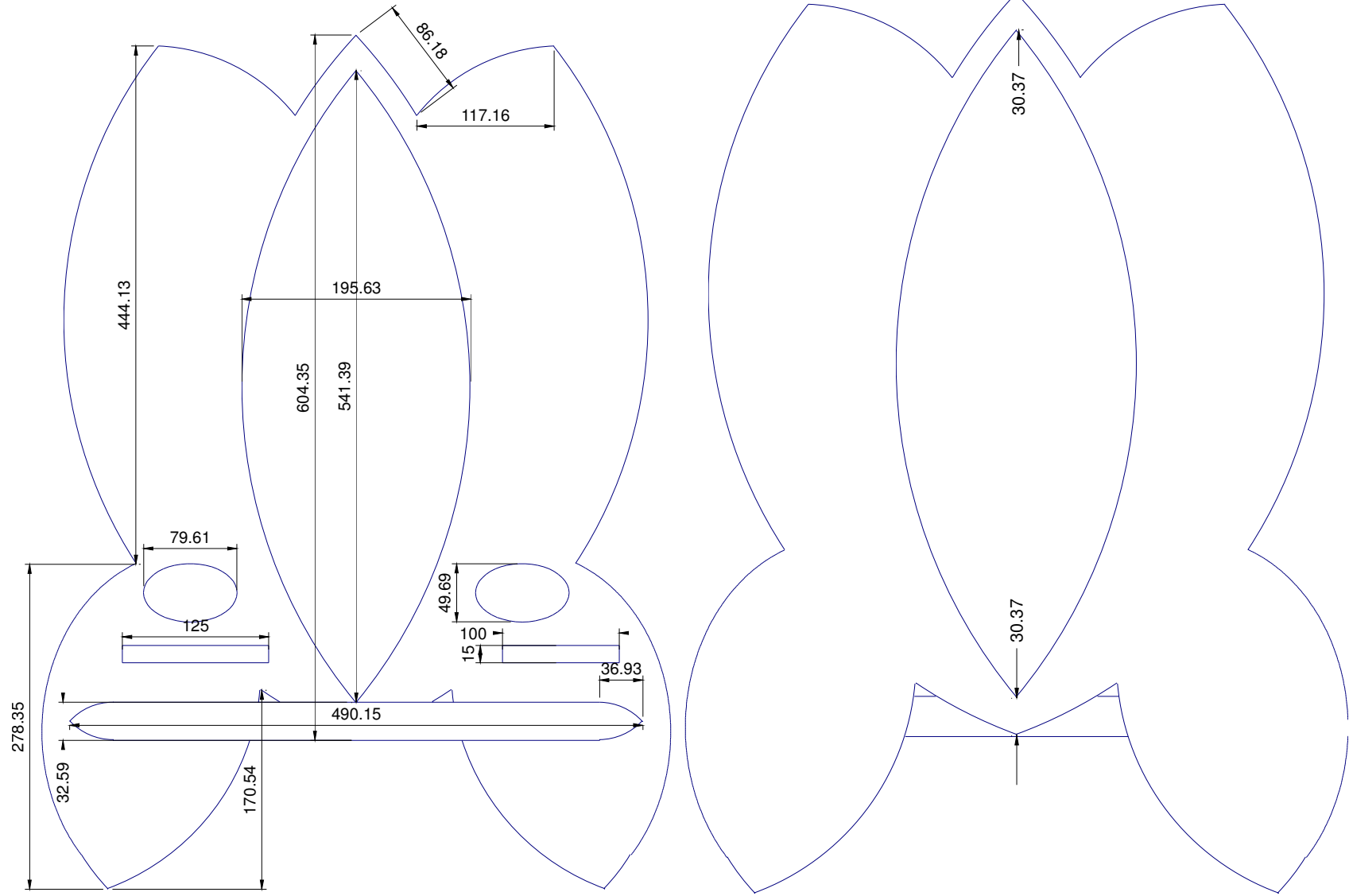
## Adjustments



This is the design for the hooks I have decided to use. I have decided to position them about the shelves for the hair-dryer and straighteners because when placed in the holes the wires will come out the top.



# Final Drawing with Measurements



# How I Made My Project

## *Making the model*

I am now ready to begin planning how to make my project as I have a list of the parts I need and scaled drawings.

### **Step 1**

• I am going to begin by making a piece of elm large enough to cut my design out of. If I used a single piece of elm the wood would be likely to warp and so I found three pieces of elm that could be stuck together to look like one piece of wood. Before I could glue the pieces of wood together I had to plane them to ensure they were flat. **When planing the pieces I made sure the pieces of wood were firmly clamped so that they would not move.**



When planing I had to be sure my hand wasn't near the blade to ensure I didn't cut myself.



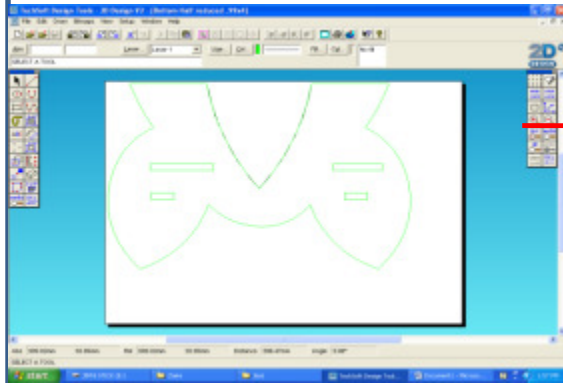
To ensure that the pieces of wood stay firmly together I clamped them before leaving them to dry, and wiped off the excess glue.



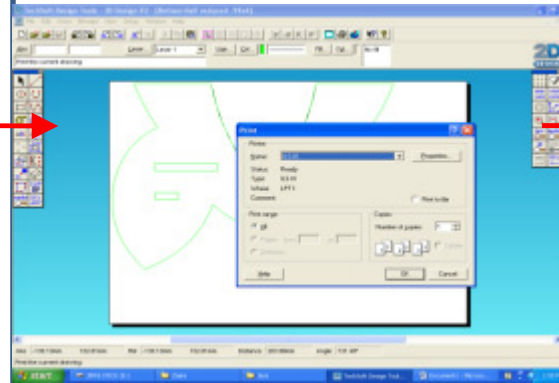
Here is my piece of wood ready to cut my design out of.



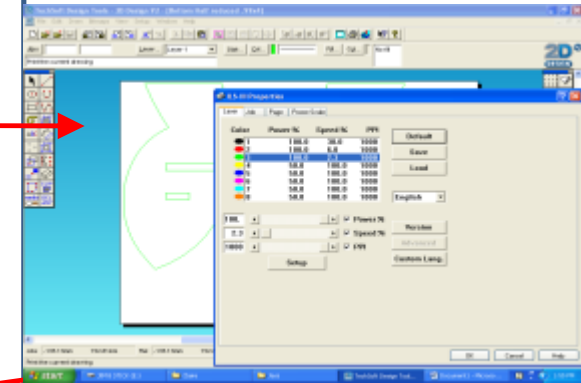
On the laptop connected to the laser cutter I opened my drawings and made sure all the lines I wanted cut out were green.



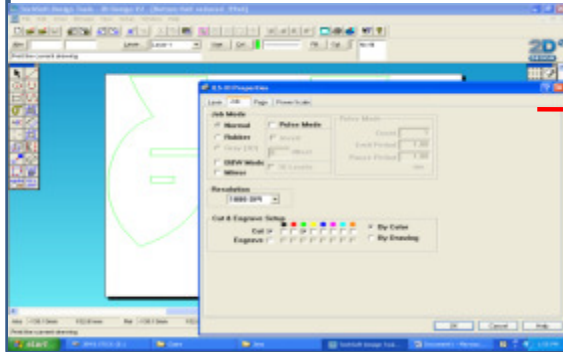
I then pressed 'Ctrl P' and this screen came up for me to set it up correctly before sending them to the laser cutter.



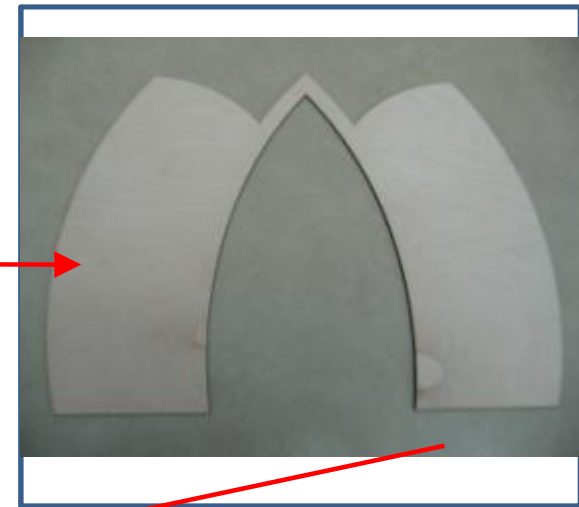
I went to 'properties' and made sure the speed and colour were set correctly then clicked 'setup'.



Finally I went to 'job' to ensure it was set to cut the green lines and nothing else, and then clicked okay, sending them to the laser cutter which then cut them out.



I had to ensure the lid of the laser-cutter was down so that I didn't absorb too much radiation from it, and also so I didn't burn myself with the laser.



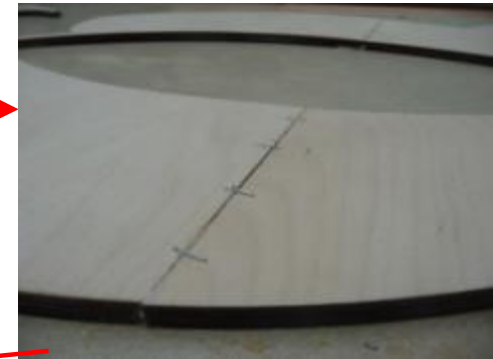
I cut out two bottom and two top pieces of my template and glued the two pieces together because if I only had it the thickness of one piece of wood it would be too thin for use later on.



I then stapled and glued the top and bottom pieces together to give me a whole template.



I had to make sure the staples were in as deep as possible to be sure my template was flat for when I pass the router over it.



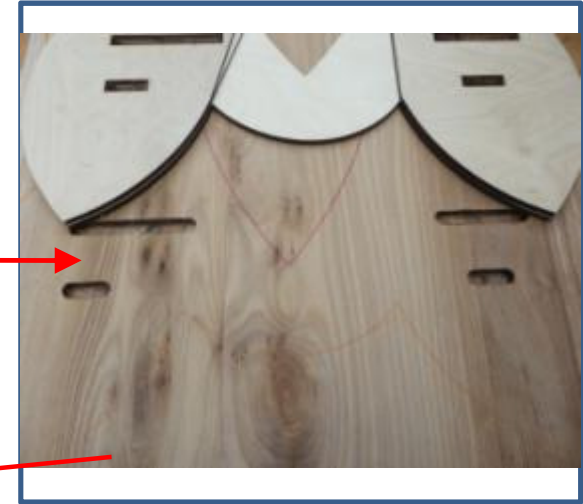
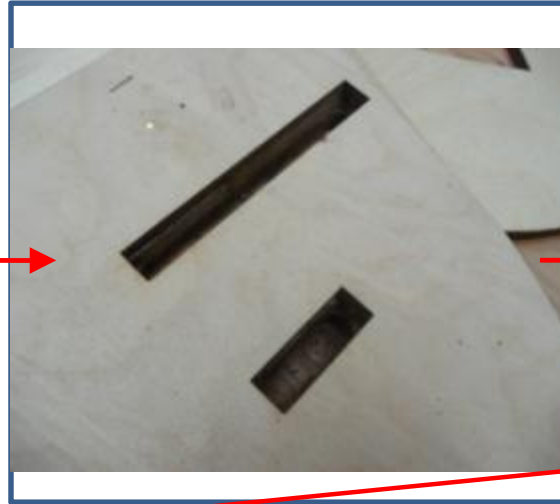
To make sure my main piece of wood is also flat I planed and sanded it.



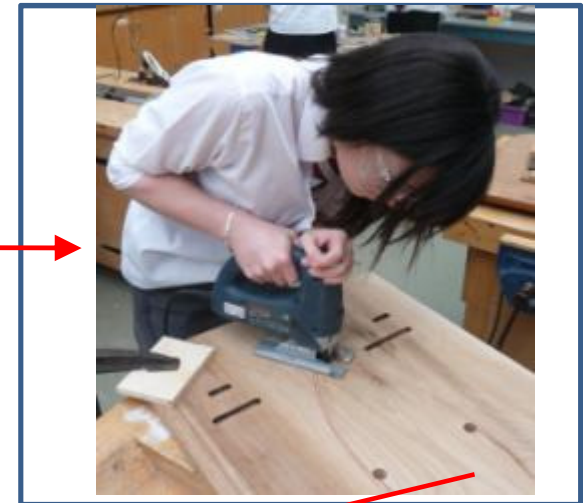
I had to keep both hands on top of the sander so that I didn't sand my hands. I also asked a friend to hold a Hoover near to prevent too much dust in the air.



I then used G-clamps and double sided sticky tape to secure my template onto my wood so I was able to mark around it and cut grooves for my shelves to slot into using the router



Next, I needed to cut out the hole for my mirror so I drilled for holes inside the outline I had drawn ready to saw between them.



When using each of these machines I had to wear safety-goggles to ensure I didn't get any splinters flying into my eyes. I also had to tuck my tie into my blouse so that it couldn't get caught in any of the machines.



My teacher then went around the inside of the whole with a router. I couldn't do it because there was a lot of wood to take off and it would have been dangerous if I took too much off.



I then cut the outline out on the band saw. I had to wear safety goggles to protect my eyes and I also had to keep my hand out of line with the saw so that I wasn't in danger of cutting myself if I slipped, and also tucked my tie in so that it didn't get pulled in to the saw.



Once it was cut out I secured my template to my wood again and went around the outside with the router taking off the rest of the excess wood.



Once again I had to wear safety goggles when using the router, and got a friend to hold a Hoover near to prevent too much dust in the air.



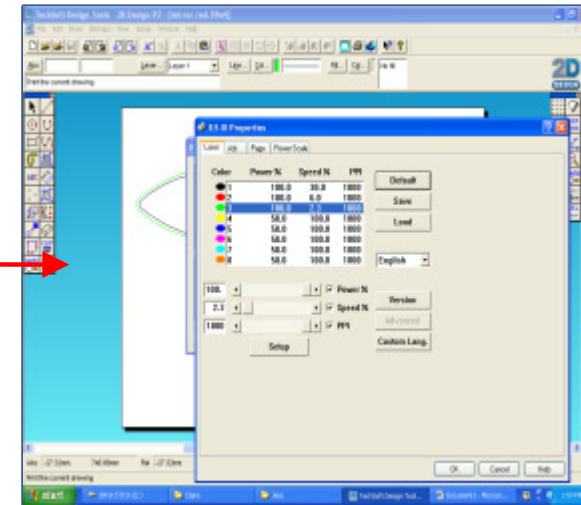
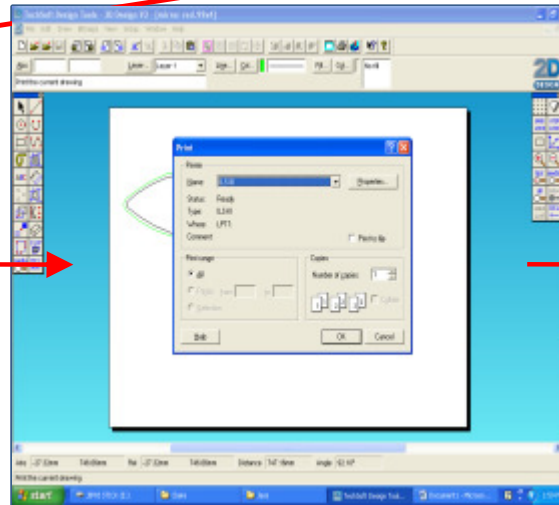
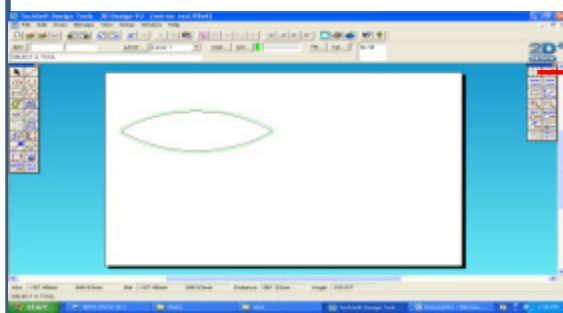
The next step of my project was to create the mirror, the back-piece to keep it in, and the rebate. I began by creating the rebate with a router on the back of my project for the mirror and back-piece to slot into.

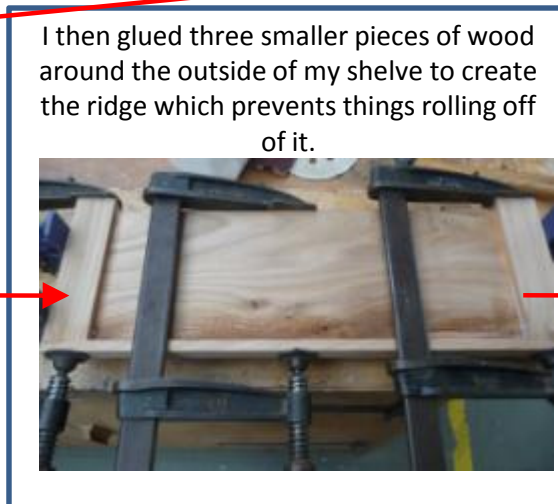
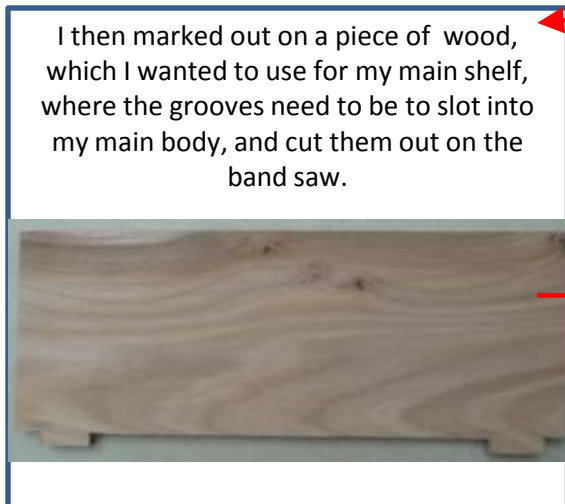
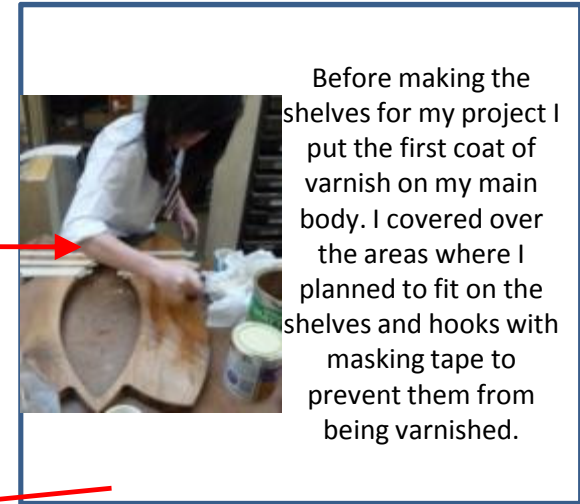
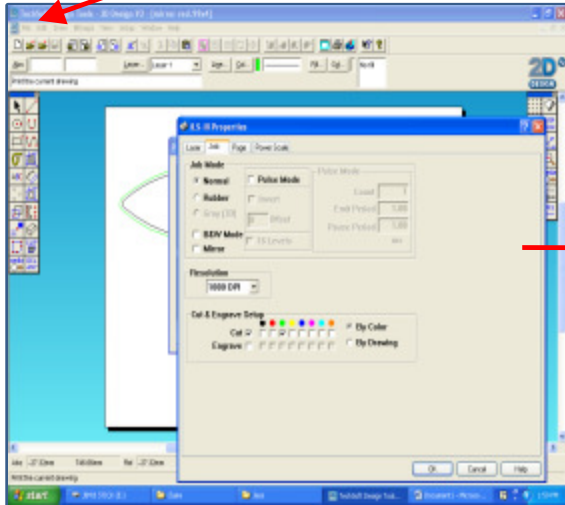


I used clamps to secure my work to the bench so that it couldn't fly off whilst I was working on it.



Once I was happy the rebate was a sufficient depth I cut out my mirror made of mirror acrylic and the back-piece on the laser cutter. The steps were the same as when creating my template.







Here is how it slots in.

Before gluing my shelf in place I planed the edges so that they were the shape I wanted in my original design. My teacher then glued in my shelf to save time.



My next step was to create the holder for the hair-dryer, my teacher cut the piece of wood for me to use into the correct size to save time. I then set the drill to cut a circle with a radius of 34mm.



My teacher then cut out the hole for the hairdryer as it was too dangerous for me to do as I wouldn't have been able to hold it in place and it may have flew off the drill. When cutting out the hole my teacher ensured his tie was tucked in so that it didn't get caught in the drill and also that he had safety goggles on as many pieces of wood were flying out from the drill. Before he cut out the hole I marked where I needed to cut to make a wedge so that I could fit it into the main body as I did with the shelf and cut it out on the bandsaw.





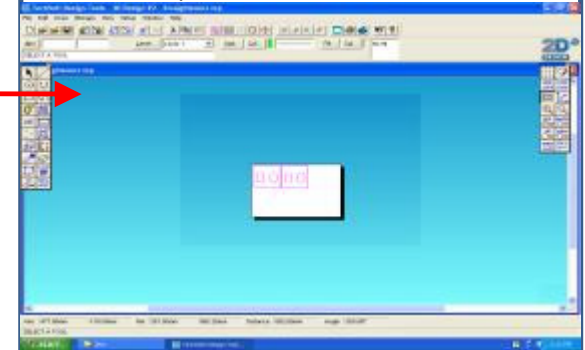
My teacher then sanded the inside of the hole to rid of any splinters. My teacher did it because in order to do it I would have had to put my hands very close to the sander and could have easily caught my hand on it. He then rounded off the edges for the same reasons.



After it was made I glued in the holder and clamped it to ensure it stayed in the right place.

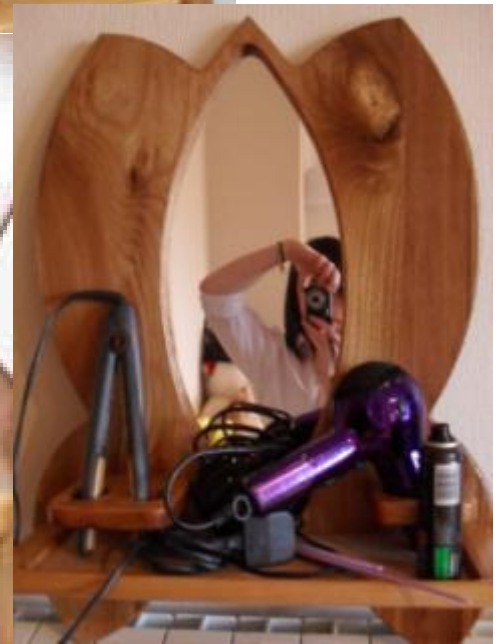


The final part of my project which I made was the straighteners holder. Due to the shape of the holes required I had to make a template on the laser cutter.



# My Final Project





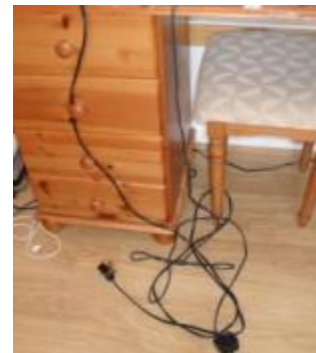
# Evaluation

## *Looking back at the Design Specification*

- My final product is able to hold a hair-dryer, a pair of GHD straighteners, and a hairbrush as required
- It supports the products without collapsing



- Products held in it are kept neat and easily accessible. However I did not have time to create hooks to wrap the wires round to keep them tidy and prevent them from sprawling on the floor. The reason I did not have enough time is because the wood I used for my main body was extremely hard and so when I was planing it, it took much longer than I had anticipated.



- It is easy to maintain because since I have varnished it the wood is protected from being marked too much and does not need frequent varnishing.

- Although my product is fairly large if I was to transport it in mass production it would come as a flat pack, and the shelf and hairdryer and straighteners holder would not be ready glued on, the user would do that themselves.
- Also, if my product was distributed as a flat-pack it would mean that it would be easier to wrap it in protective packaging.
- My final project isn't very eye-catching as it's main design is the grain on the wood.
- Even though it isn't overly eye-catching I think my product still attracts the target market as I believe that most people who would be looking for a product such as mine would have other storage spaces as well such as chest-of-draws and dressing-tables which tend to be made out of wood, similar to my project.
- The way the gadgets are held are simple as they slot into their holders making them easily accessible.

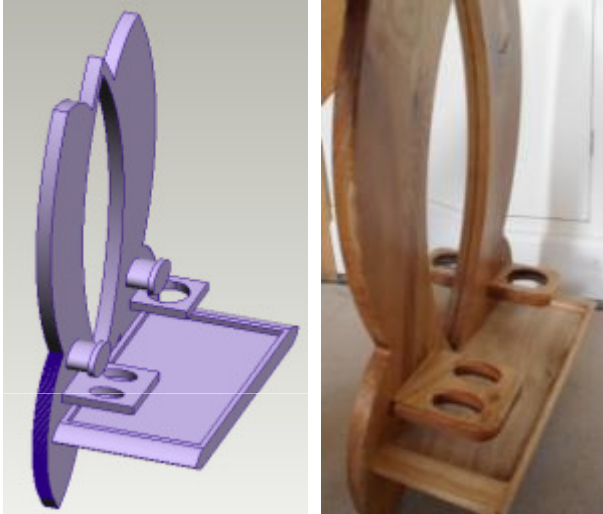


- My final design is very stable and does not drop the products

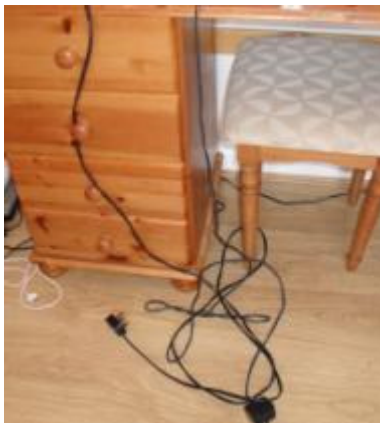


## Overall Evaluation

Overall my project meets most of the design specification. However the main difference between my final project and my original design is that my final project doesn't have hooks to wrap wires around.



My solution to this is that if I wrapped the wires up neatly I can simply keep them on the shelf which solves the original problem of them being sprawled over my bedroom floor.



My project does the jobs it needs to do, and looks attractive and I am pleased with it. However to improve it I would definitely have tried to simplify the design of the main body so I would have more time to create the hooks for the wires. If I was to make it again I would probably use a different wood because a lot of my time was taken up by planing my wood as it took a lot longer than expected.