Cat Furniture

Esme Stillaway

Design Brief

The Problem: Surveys show that in 2014, 7.9million people in Britain owned cats as pets (18% of British households). This means that many cats live in cities and other built up areas, meaning they do not have lots of outdoor space to exercise in. Another common problem for owners of cats is that they scratch the corners of furniture and rugs and other household objects in order to keep their claws sharp, therefore causing damage to this furniture. Because of these two issues, a product must be created that will keep pet cats occupied, exercised and give them an alternative for scratching, therefore stopping them scratching other furniture.

Brief: I will be designing, making and evaluating a product that will provide entertainment and exercise for pet cats, while also providing them a rough surface to scratch their claws on. The product should be minimalistic so it does not take up too much space in a room, and must be safe for the cats, but also durable and strong so that it will last a long time.

Target Market: My target market is mostly families as they make up a large portion of cat owning households. However I would still make the product appealing and usable by all types of people as any type of person can own a cat.

Key Points:

- Area for cats to scratch that will not get worn down or ripped off easily
- Sheltered comfortable area for cats to sleep in or hide
- High up areas for cats to jump between in order for them to get exercise
- Aesthetically pleasing and look good within a house among other furniture
- Not take up too much space or be too heavy to transport
- Be safe for both the cats using it and the people that live around it

Marketing: In order to make my product marketable I will need to give it a unique selling point that is original and different from other products on the market, meaning people will be more likely to buy my product over my competitors products. I would also need to ensure my product is marketed at a competitive price and has a clear and effective marketing brand and advertising methods.

Below are some images that prove the need for a need for this kind of product. They are pictures of pieces of furniture in my house that have been ruined due to my cat needing to scratch.

Possible end users:

Play me!

Play me!

Name: Ella
Age: 18
Thinks that a product that combines sleeping and playing for cats would save her lots of space in her house, instead of having multiple products.

Name: Dan
Age: 17
Thinks a product that allows his cat to play and get exercise in a small inside space would be very useful for people with small houses.

Information, inspiration and Influences

These images show that there is a need for this kind of product. This is because they are showing that cats are curious animals that need to explore and climb in unusual places. This means that it is important for my product to provide multiple areas for the cat to climb up and into in order to keep them entertained and well exercised. The images also show that cats like to find small spaces to curl up and sleep in. This means I must also add an area for them to sleep comfortably and safely in my product.

I visited PetsAtHome in Newbury to see what other kinds of product's for cats already exist. I found that most of the products were fairly similar, consisting of a vertical scratching post and a bed of some kind. I feel that I can design a product very different and more innovative than these products already on the market, by trying out new shapes and materials to make the most innovative product possible. I also found that

As part of my research in this topic, I emailed a local cat clinic in order to get an expert opinion on the most important things that I would need to incorporate into my product to keep any cats that use it happy. Below is the email conversation I had with the cat clinic:

Dear Sir/Madam

My name is Esme Stillaway and I am a 17 year old A level product design student at Wallingford School Sixth Form. For part of our course we have to design and make a product of our choosing, I have chosen to create a product for cats that will provide them with excercise, a place to sleep and a scratching post.

I am emailing you about this as I would really appreciate some expert advice on the most important thing that cat's need that I should encorporate into my product.

Thank you for your time and I look forward to hearing from you.

Esme Stillaway

Hi there,

I'm Nic the nurse who has an interest in feline behaviour. In terms of being happy, cats have relatively simple demands in life:

1. food - a regular source of nutritious food- good hunting possibilities too
2. water- clean and continuous water source
3. safe place to sleep and if female raise any kittens
4. reasonable territory- dependant on sex and breeding status and amount of cats in their area, can vary in size across different areas e.g city cats have smaller territories than country cats.

That's pretty much it really; as far as keeping a cat happy! The difficulty comes with trying to create an environment within a home that meets all these requirements, as they are naturally solo animals. Many of us ask them to share homes with other cats, which can lead to territory disputes and other issues between them. Often the main problem can be something as simple as not enough resources in the home: e.g extra food places and water locations as well as choice snuggly bed locations and stimulating toys to help simulate hunting. I've attached some sheets on multi-cat living, stress in cats and also one of the most common behavioural problems we see - inappropriate elimination as they will provide you with some insight into how cats perceive their environments, and also some of the methods that can be used to solve problems.

Hope this helps with your coursework!

Kind Regards

Nicola Osborne RVN

Average Cat Dimensions:
- Weight: 3.6 – 4.5kg
- Height: 25 – 30cm
- Length: 40 – 50cm (excluding tail)

The average cat bed is around 40cm x 30cm which gives me a rough estimate of the amount of space a cat needs to lie down and sleep comfortably. I cut out a 40cm x 30cm piece of card to give myself an idea of the amount of space the product would take up.

I found that most cat products already on the market were made of mostly either cheap wood like pine, or soft fabrics. I felt that the pine products were much more stable and sturdy, and appeared that they would last much longer than the fabric ones. Most of the products that had areas to climb were made of pine so they could hold up the weight of the cat, which I feel is an important thing to keep in mind while designing my product.

I like the simplicity of this design and how it incorporates both areas to climb, and also areas to hide and sleep.
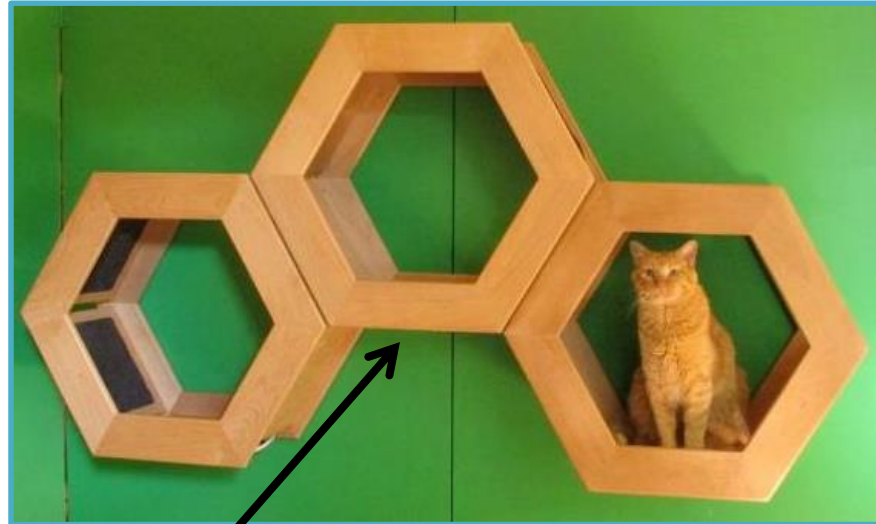
I think this is a successful design as it is stylish and unusual, and if it was seen for the first time, it's purpose would not be immediately obvious, and could just look like an art installation in the house.
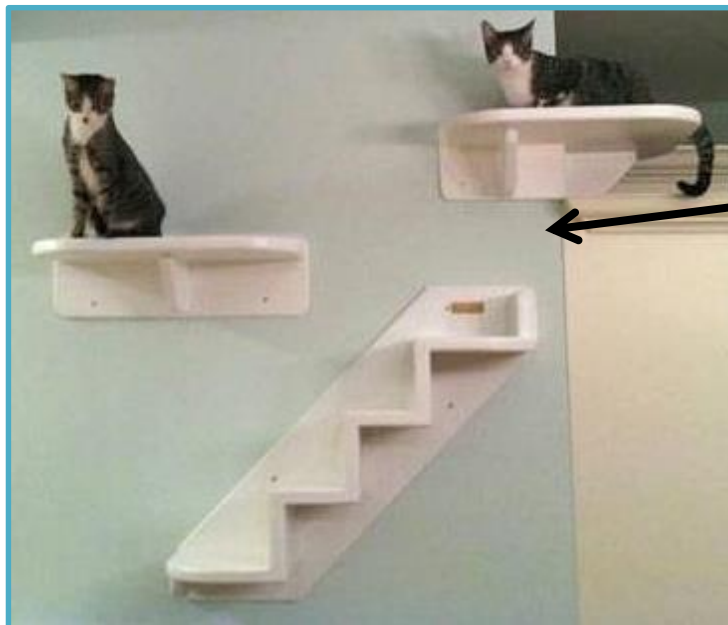
I like this product as it has a minimalistic design and also appears to be multifunctional as it could also be used as shelving.

I like the curves and unique style of this design but I feel that it may take up a lot of floor space.

I like the smooth curves and design here but I think it would look strange on the wall without context when there are no cats sitting on it.

I like the simplicity of this design and I like how it is kept up on the wall so that it is out of the way and does not take up any floor space.

I like this design as it is very stylish and has an attractive curved design.

I think this design is very unique and is effective as it provides areas for scratching, climbing and also areas to sleep. However it appears to be quite large and heavy so could take up lots of space and could be hard to move around.

Specification

Function:
- The function of the cat furniture should be to provide a safe place for cats to exercise, scratch and hide.
- The area for scratching should be rough and durable so that it will not be worn out after being used for a while.
- There should be multiple levels for the cat to jump between, keeping it exercised.
- An area of the cat furniture should also be for hiding and sleeping, and should be soft and comfortable, giving the cat an area to be away from any people or other pets in the household.

Materials:
- The materials used should be strong and durable so they will not be worn down or broken by cats scratching at it with their claws.
- They should also be soft and comfortable, so that the cat can sleep comfortably.
- The materials must be strong enough to hold the weight of at least two cats, at around 4kg each.

Manufacture:
- The cat furniture must have minimal amount of components so that it will be quick and simple to manufacture.
- The cat furniture must be able to be manufactured ethically so that it will not exploit workers or use machines that cause very large amounts of environmental damage.
- The cat furniture must be able to be manufactured for a low enough price so that a profit can be made.

Ergonomics:
- The cat furniture must be comfortable for the cats and have a suitable amount of space for more than one cat to sit or stand on comfortably.
- It must also be able to hold the weight of multiple cats, at around 4kg each, with no risk of breaking.

Aesthetics:
- The cat furniture must fit current styles and fashions in the way it looks.
- The cat furniture could have a cat themed look to fit with it's function
- The cat furniture must have an appearance that will fit in well to most houses styles and with other cat products that might be in the household.

Cost:
- The cat furniture must be sold at a fairly low retail price so that it is affordable for lots of different types of people as a large portion of households own cats, not a specific market.
- The cost must also be low for manufacture so that a profit can still be made even with the low retail price.
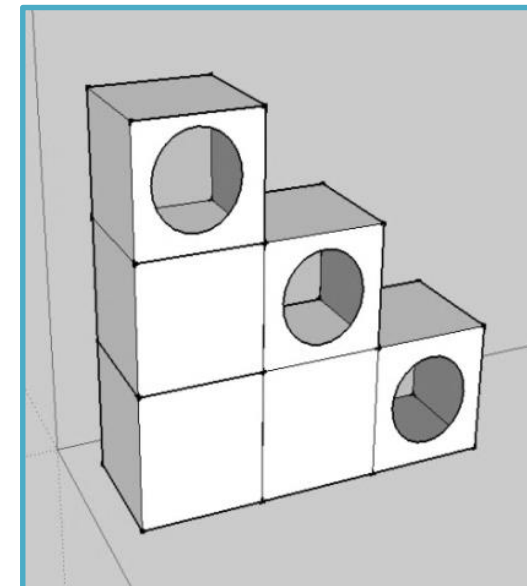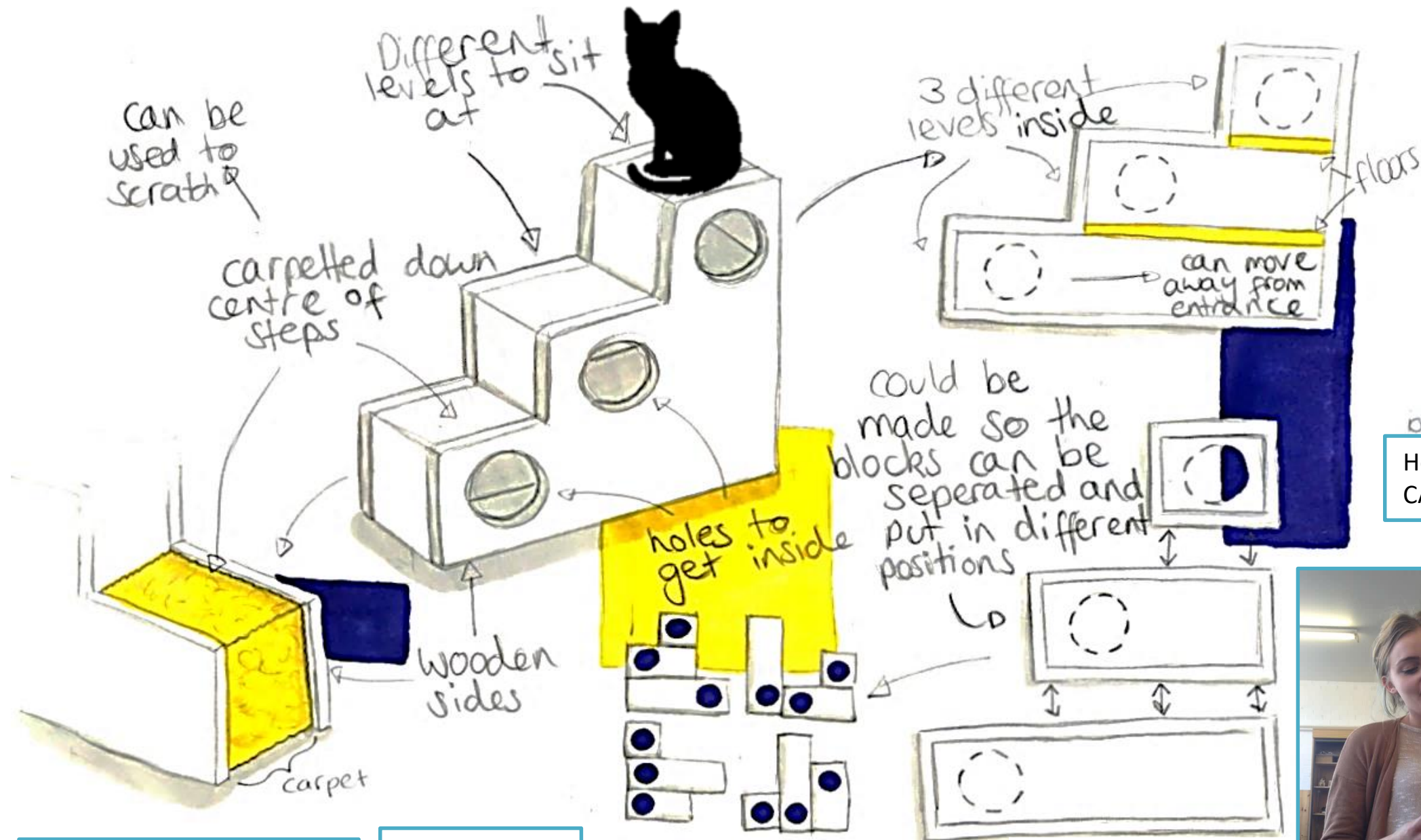
Safety:
- The furniture must not be made of any materials that will be harmful or toxic if chewed on or eaten by the cats.
- The cat furniture must have no risk of collapse while being used, so must be made of strong materials that can hold the weight of cats at around 4kg each.
- The cat furniture must have no sharp areas that could harm the cat, especially as cats often like to scratch themselves against furniture edges, so it must be safe for them to do this.
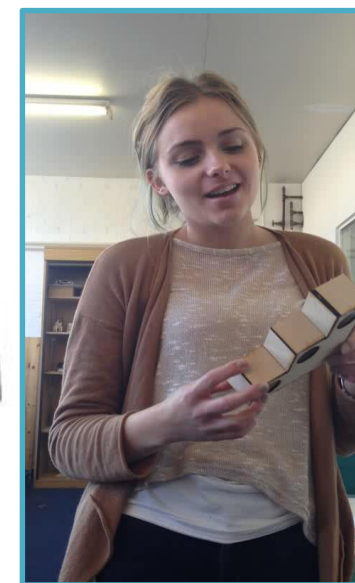
Marketing:
- The cat furniture must have a unique selling point that'll encourage customers to buy it
- The cat furniture must be marketed to a large variety of people as many different people own cats, not just one specific market.

Social Issues:
- The cat furniture must be made of recyclable materials in order to have minimum damage to the environment
- The furniture must be manufactured in a way that does not produce too many carbon emissions so does not cause too mush damage.
- It must also be manufactured in a European country so that the workers will be protected from exploitation as the working conditions and amount of businesses that follow human rights for their workers is generally better in European countries.
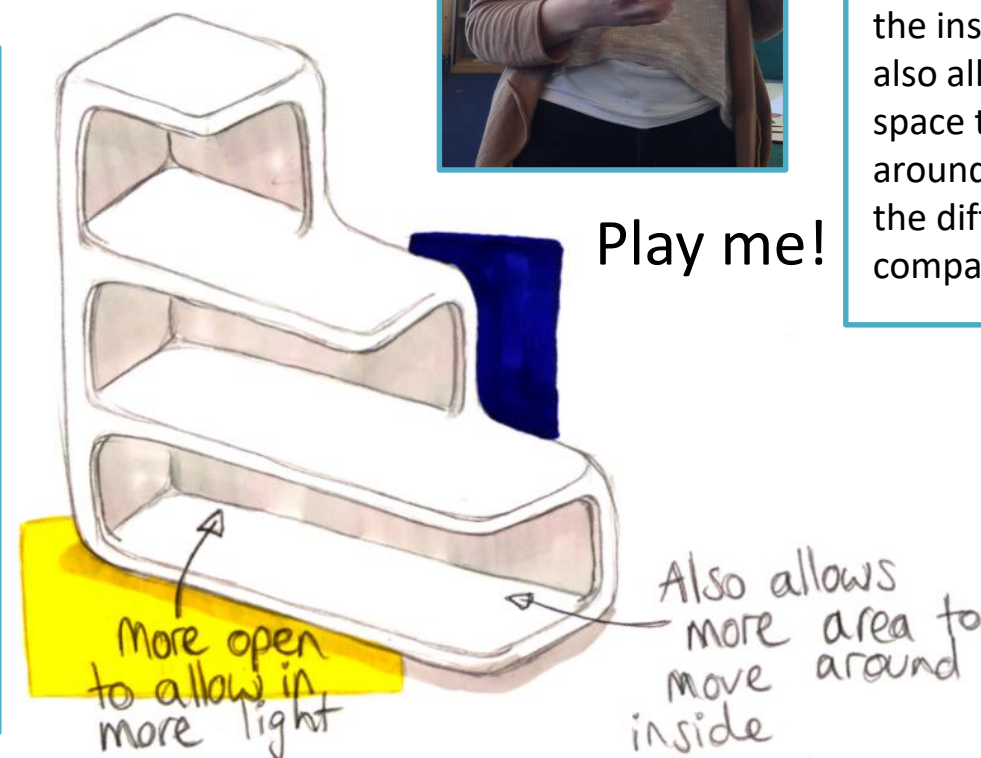
can be used to scratch

Different levels to sit at

carpeted down centre of steps

wooden sides

carpet

3 different levels inside

floors

can move away from entrance

Here I modelled the design using CAD on Google SketchUp.

could be made so the blocks can be seperated and put in different positions

holes to get inside

I responded to this end users comments by trying to design an alternative idea that allows more light into the inside and also allows more space to move around inside the different compartments.
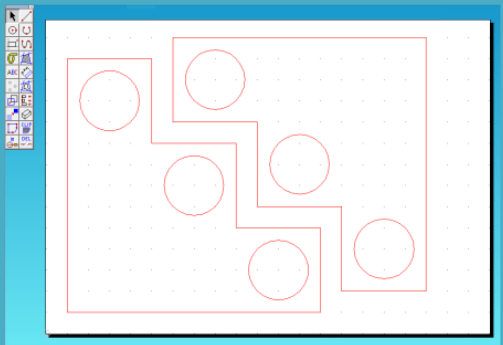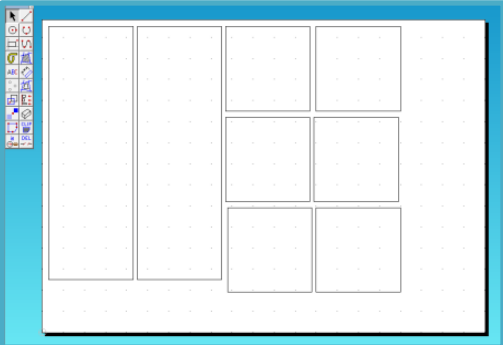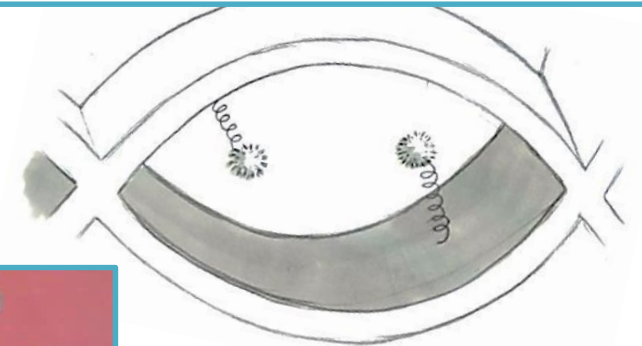
Play me!

I made a model of my design using 2D Design to create the shapes for it, and then printed it on the laser cutter out of MDF and glued the pieces together with a hot glue gun.

More open to allow in more light

Also allows more area to move around inside

would be wall mounted

area to sit inside

wide edges would be carpeted for scratching

could be stood upright

could have a solid back

I visited Pets at Home to get professional feedback for this design, from their assistant manager Ashley Henderson, however, for legal reasons, I was not allowed to film or take pictures of the employees looking at my designs. The feedback I was given for this design was that they really liked the different sections, and thought it would look best loose on the floor and not wall mounted, they also thought that I should add toys inside the different sections.

I responded to this end users comments by redesigning my idea so that it would be less static and have some movement.
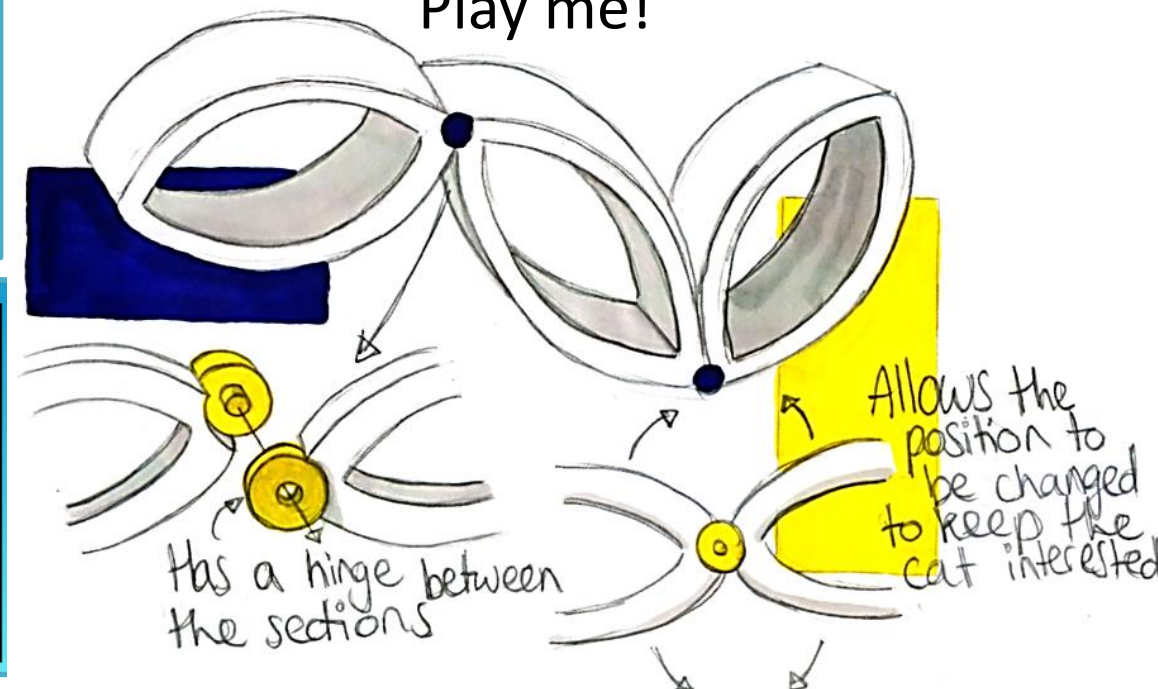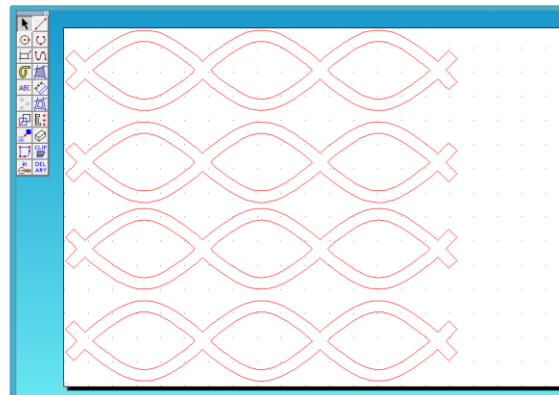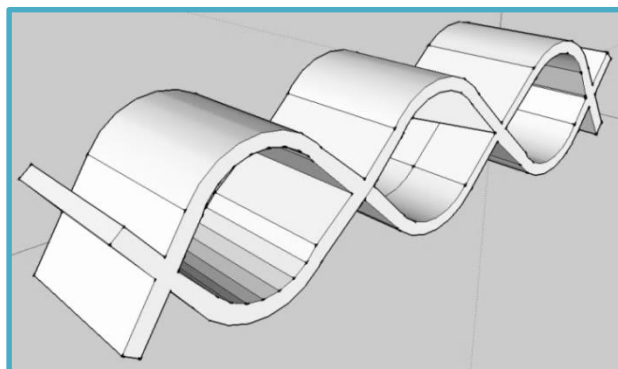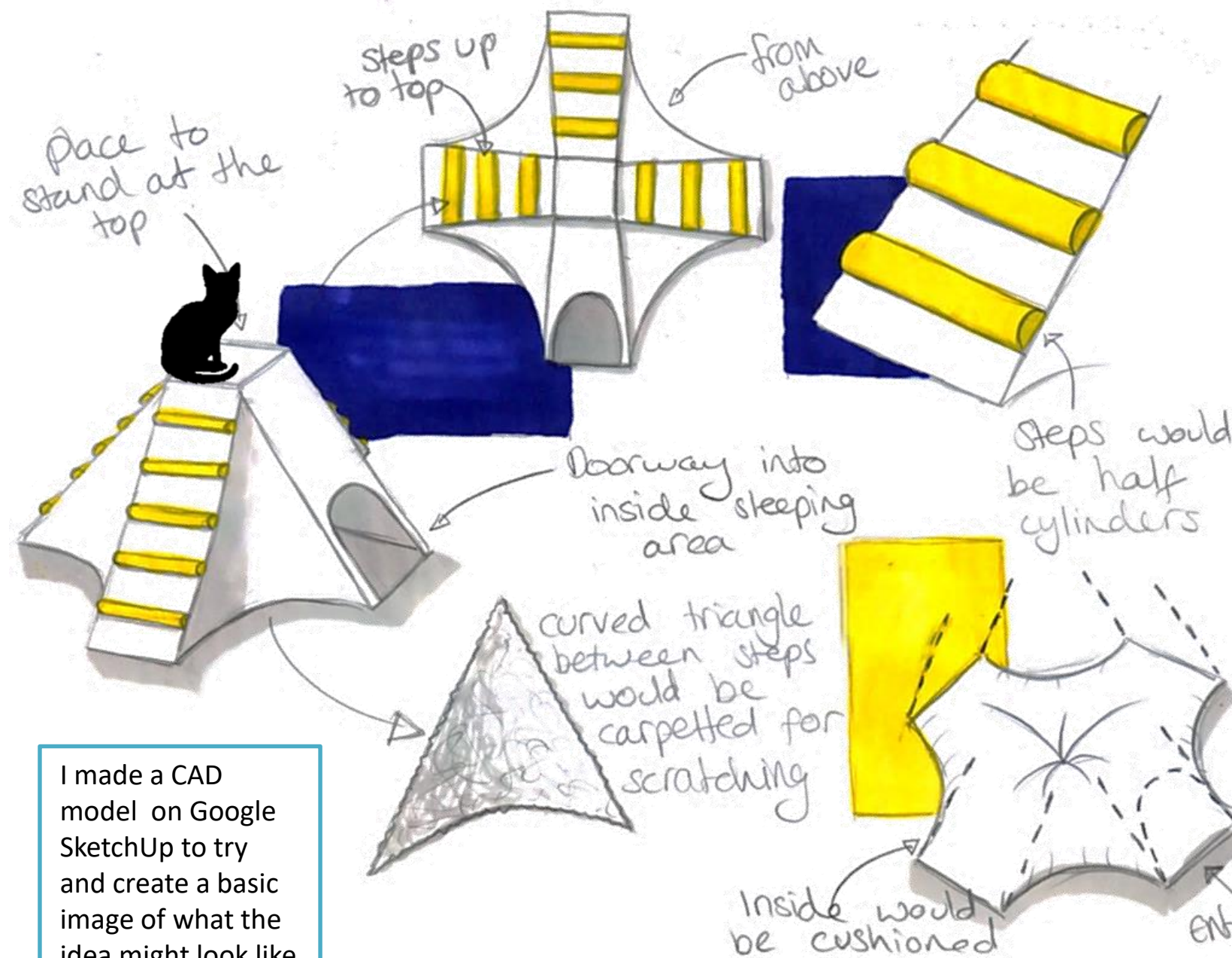
I made a model of this design idea using 2D Design and then laser cut it out of plywood and used blue card to show which areas of the design would be carpeted. This was useful to see how the design would look in 3D.

I made this CAD model of my design on Google SketchUP.

Play me!

Allows the position to be changed to keep the cat interested

Has a hinge between the sections

steps up to top

from above

Place to stand at the top

Steps would be half cylinders

I made a model of the design out of card, paper tubes, and fabric. I found that this was very helpful in viewing how the final model would look in 3D, and what dimensions would look best.

Doorway into inside sleeping area

curved triangle between steps would be carpetted for scratching

Kept the flat platform on top

Inside would be cushioned

entrance

tunnel to go underneath

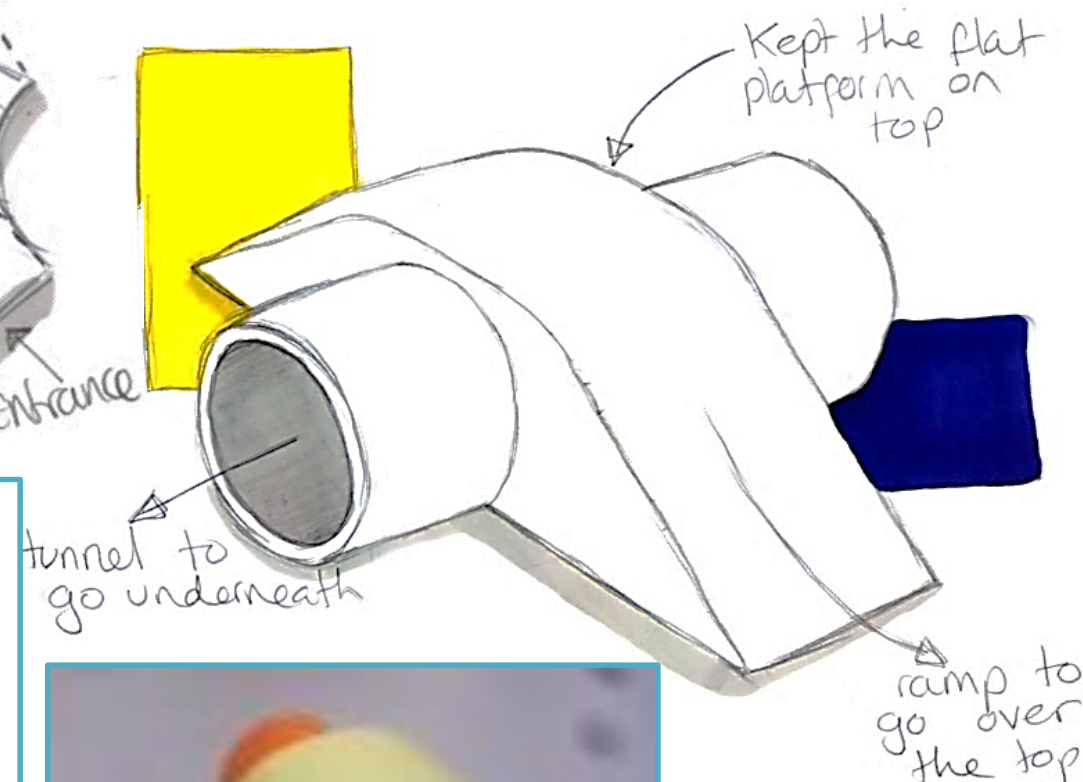I made a CAD model on Google SketchUp to try and create a basic image of what the idea might look like in 3D.
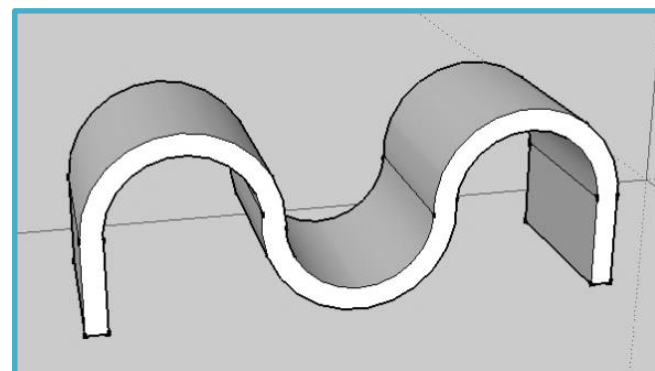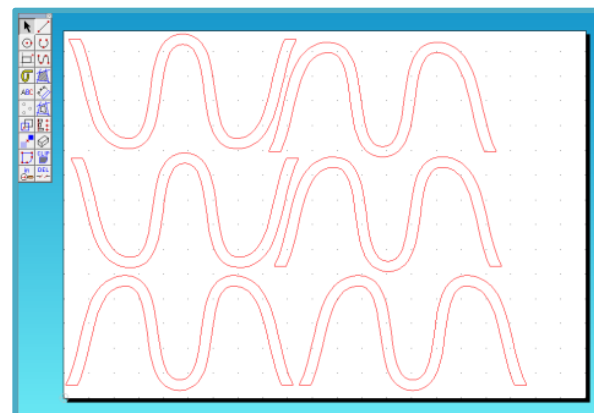
ramp to go over the top
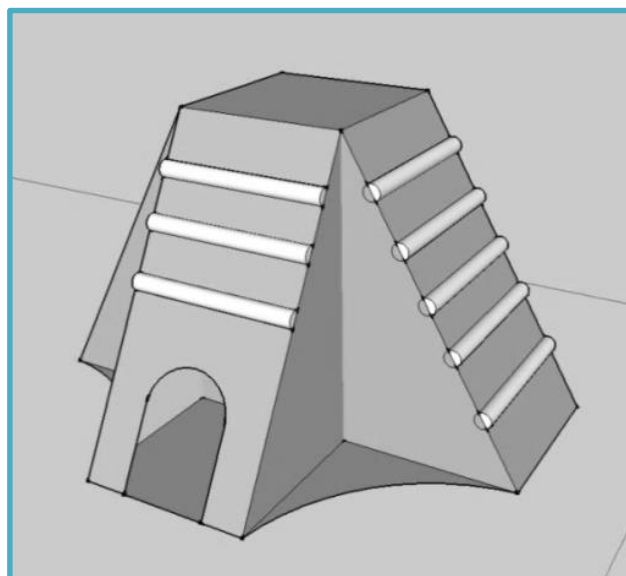
Play me!

I responded to my end users comments by redesigning the idea, incorporating his idea of the cat being able to run over the top and underneath, so designed a ramp going over a tunnel.

I modelled my developed idea out of card to show the size and proportions of it.

area to hide under

areas to lie in

can be flipped over into different positions

made of wood

can be encorporated into other pieces of furniture

carpetted on sides

I responded to this end users comments by redesigning the idea to have an area in the middle for the cats to sleep or hide in.

Play me!
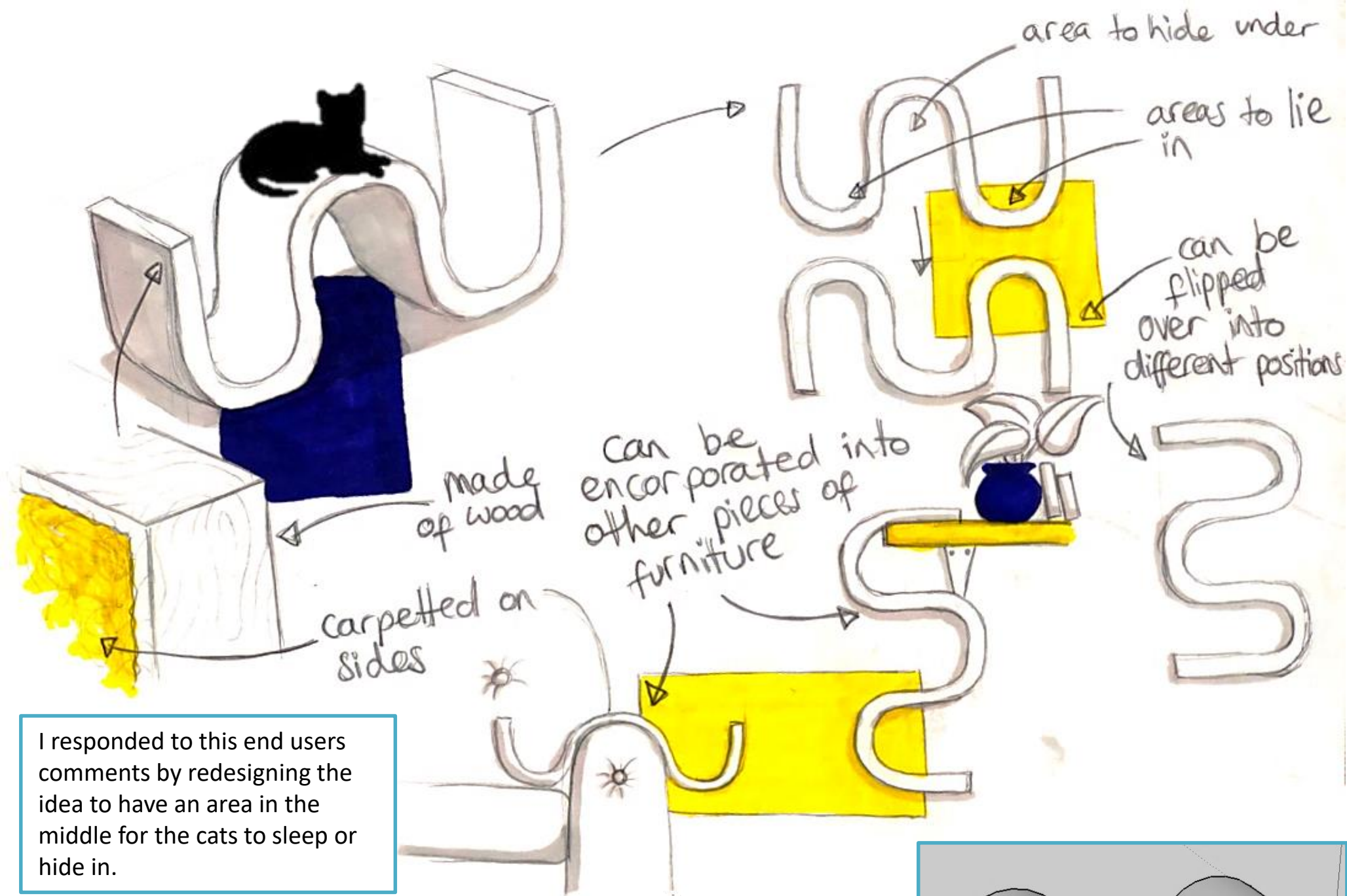
I also made this CAD model on Google SketchUp.

can go both ways up

area to sleep inside

On 2D Design I made multiple copies of the shape of my design, and had them cut out of MDF on the laser cutter. I then used a glue gun to stick them together to make it wider and more like my actual initial design. I then took photos to see how the design looks in different positions.
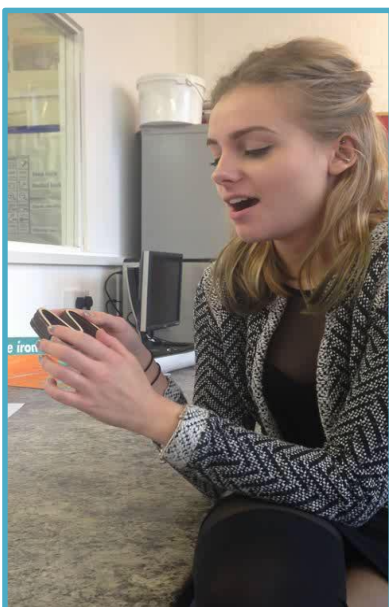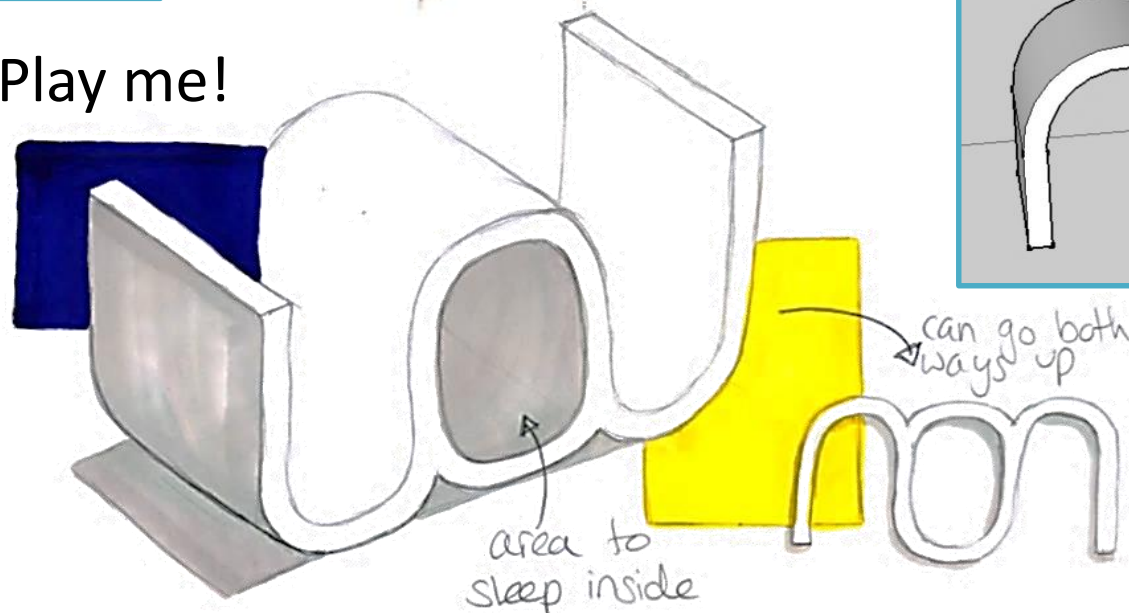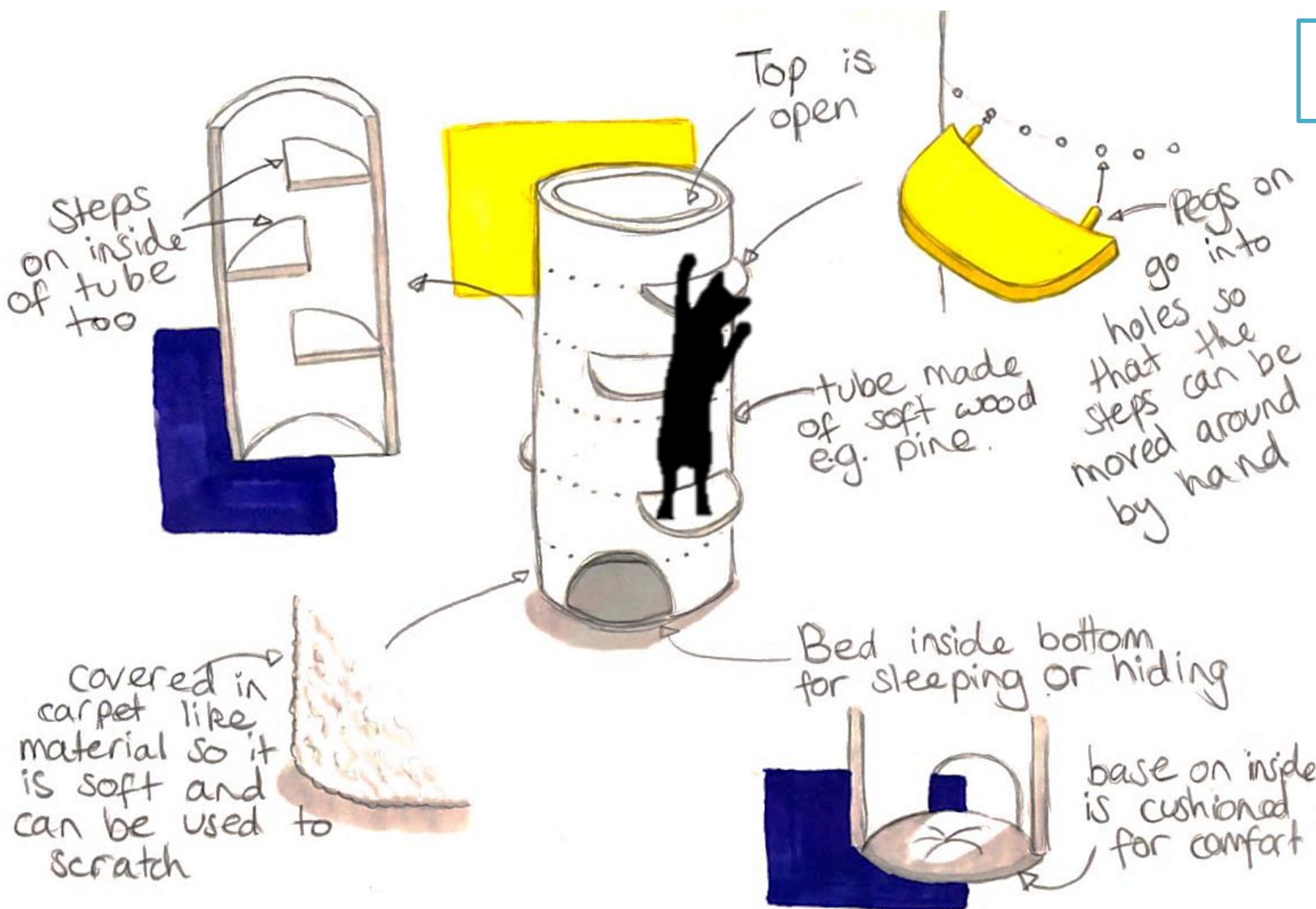
Steps on inside of tube too

Top is open

Pegs on go into holes so that the steps can be moved around by hand

tube made of soft wood e.g. pine.

covered in carpet like material so it is soft and can be used to scratch

Bed inside bottom for sleeping or hiding

base on inside is cushioned for comfort

Visit to Pets at Home:

For this design, I was given very positive feedback for this design, saying that they liked the way that the ledges can be moved around to change the arrangement, keeping it interesting for the cats so they won't lose interest. I was also told that it would be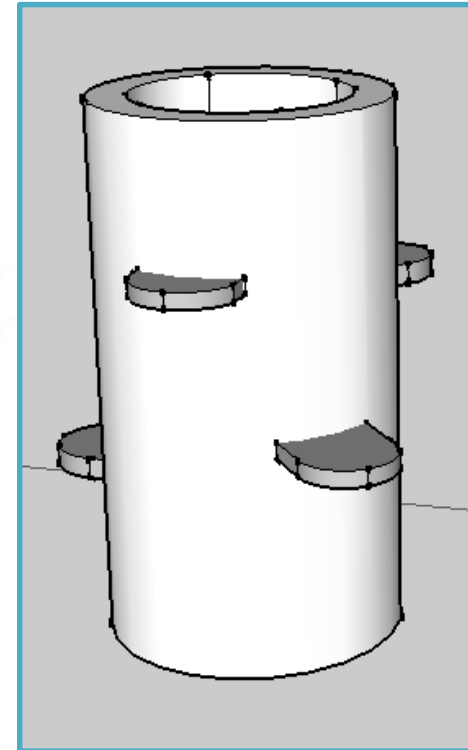 a good idea to change this design so that it is possible to have it on it's side as a tube that the cats can roll around on the ground.
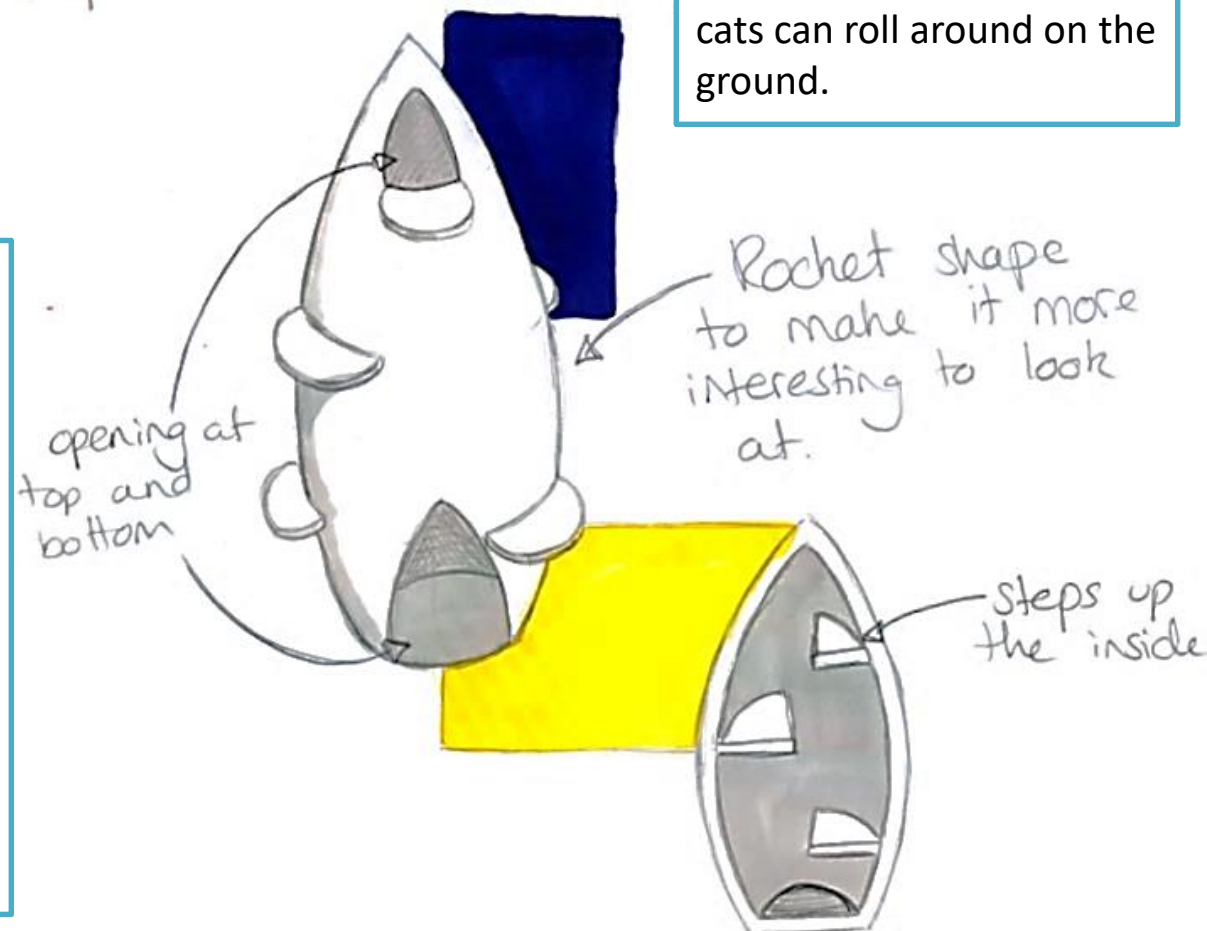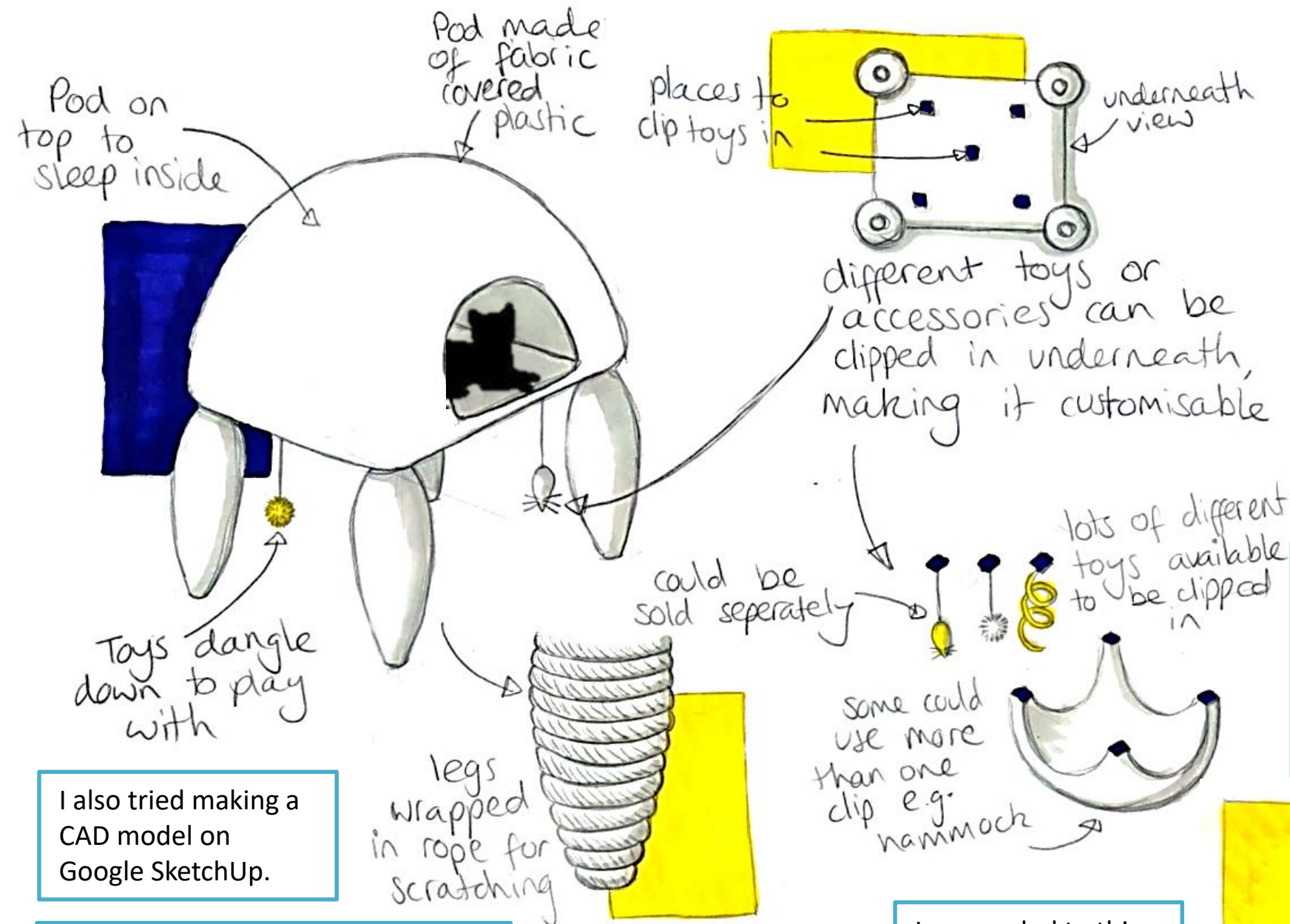
Play me!

I made a model of my design out of paper and card. I did this to test how the design would look in 3D.

I responded to this end users feedback by redesigning the idea into a more interesting shape, in order to keep both the cat and the owner more engaged with the product.

Rocket shape to make it more interesting to look at.

opening at top and bottom

steps up the inside

Pod on top to sleep inside

Pod made of fabric covered plastic

places to clip toys in

underneath view

different toys or accessories can be clipped in underneath, making it customisable

Toys dangle down to play with

could be sold seperately

lots of different toys available to be clipped in

some could use more than one clip e.g. hammock

legs wrapped in rope for scratching

I tried using a key ring, an eyelet and a miniature karabiner to model how the toys could possibly be clipped onto the underside of the product. The string with the toy at the end would be attached to the karabiner, and the eyelet would be screwed under the product, with the key ring hanging off it.

I also tried making a CAD model on Google SketchUp.
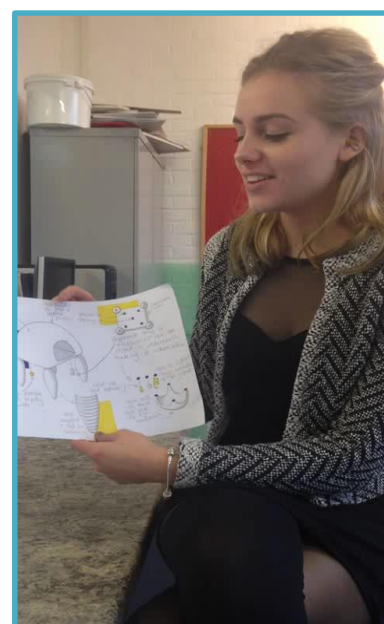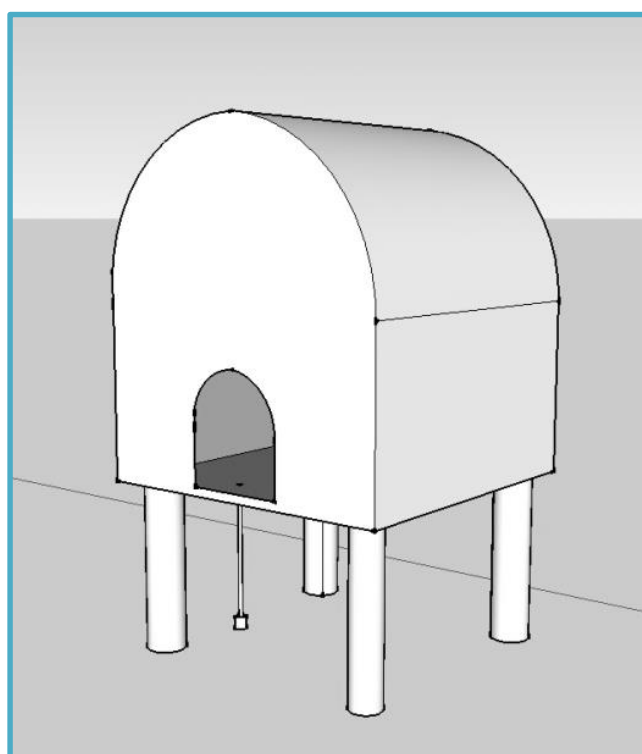
I responded to this end users comments by redesigning the idea so that it took up much less space but still incorporated the detachable toys and the bed, I did this by making it much thinner so that it wouldn't take up as much space around it.

Play me!

bed on top

tall and thin

toys available to clip in

dangle from top

spring from bottom

clips on top and bottom

could come in lots of different arrangements

some could have flat tops for sitting on

each pod could be a different colour or pattern

can get inside some of the pods

Made up of a series of spheres stacked together

could be carpeted for scratching

Play me!

The feedback I was given for this design said that the basic idea looks very good and is a very innovative and unique design. However, the base of this design would have to be wide and also solid, without a hole in, in order for it to remain stable while in use, as having a cat sitting in one side of it but not the other makes it likely to lose balance and fall over, which could be dangerous for the cat.
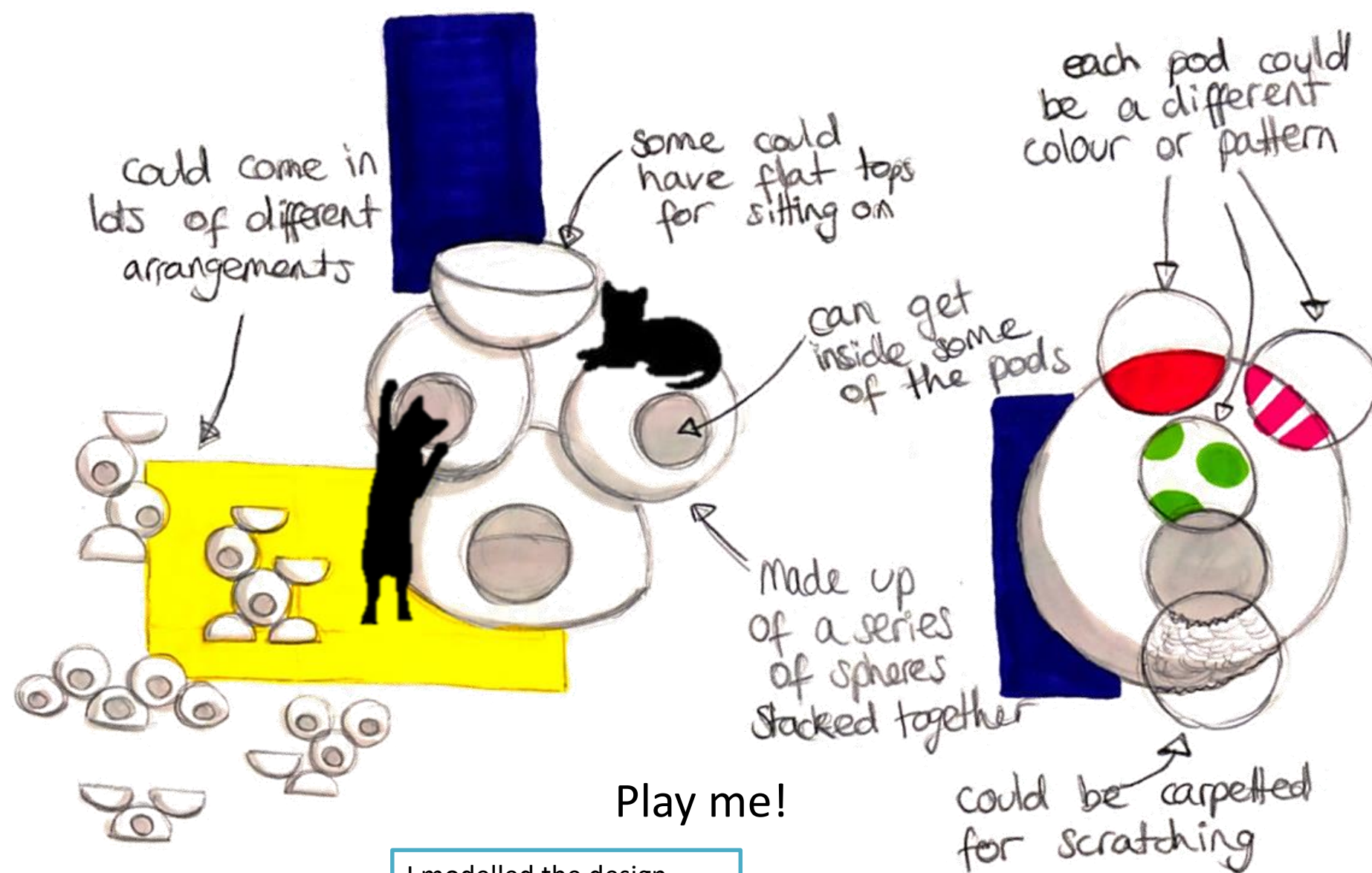
I modelled the design using ping pong balls to test out how the spheres would fit together and how well the designs would balance when free standing.
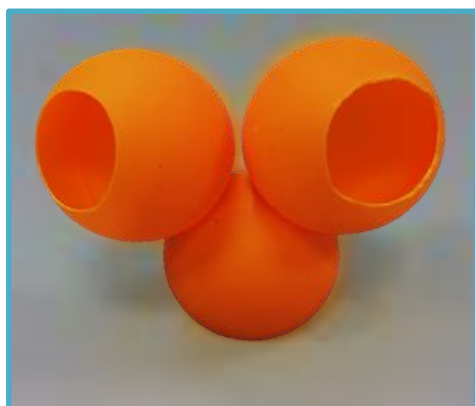
Here I used photos to show my model to scale in a room.

flat area where glued together

glued together to minimise having extra components
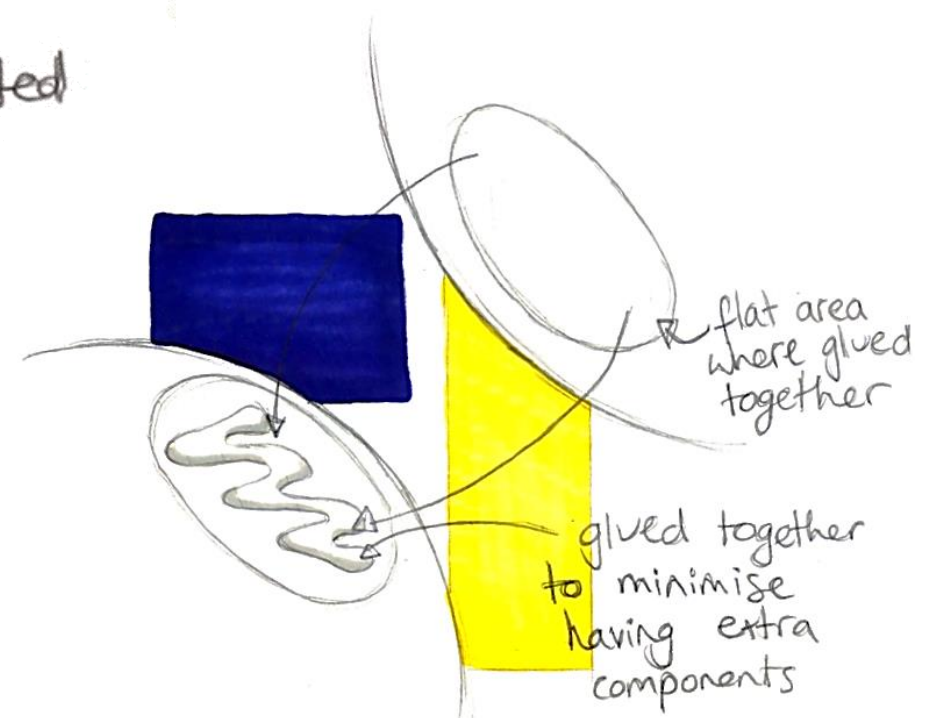
I responded to this end users comments by sketching out an idea of how the spheres could be connected together, I feel this would look very good but I am not sure how strong the join would be.

Using different coloured carpet

All three layers spin

3 steps up to top

Top section

each section could be different colour

can sit inside all three layers

Lazy susan between the levels allows them to spin

carpetted round edge of each section
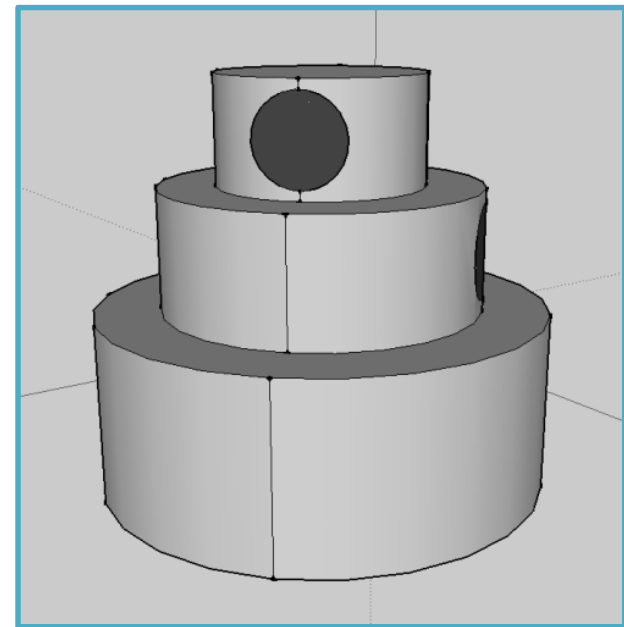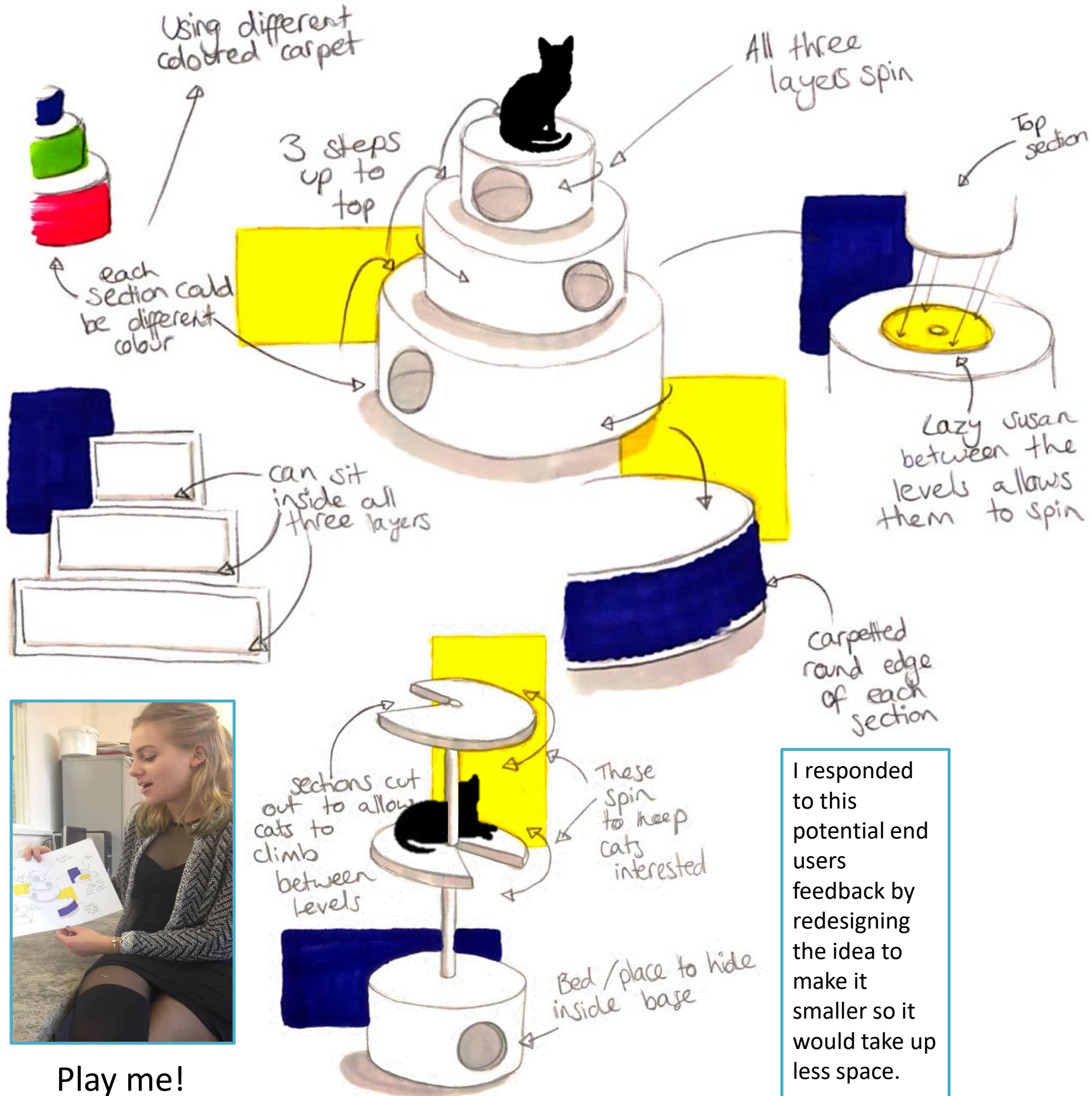
I also made a CAD model on Google SketchUp to try and see the sizing of the design.

sections cut out to allow cats to climb between levels

These spin to keep cats interested

I responded to this potential end users feedback by redesigning the idea to make it smaller so it would take up less space.

Bed/place to hide inside base

I also modelled the design out of card to test the size and shapes of the design.

Play me!

platform on the top

Steps up side

wooden base

from above

Bed

hanging from rope

Bed hanging from top

Hanging bed

Side panel with steps attached
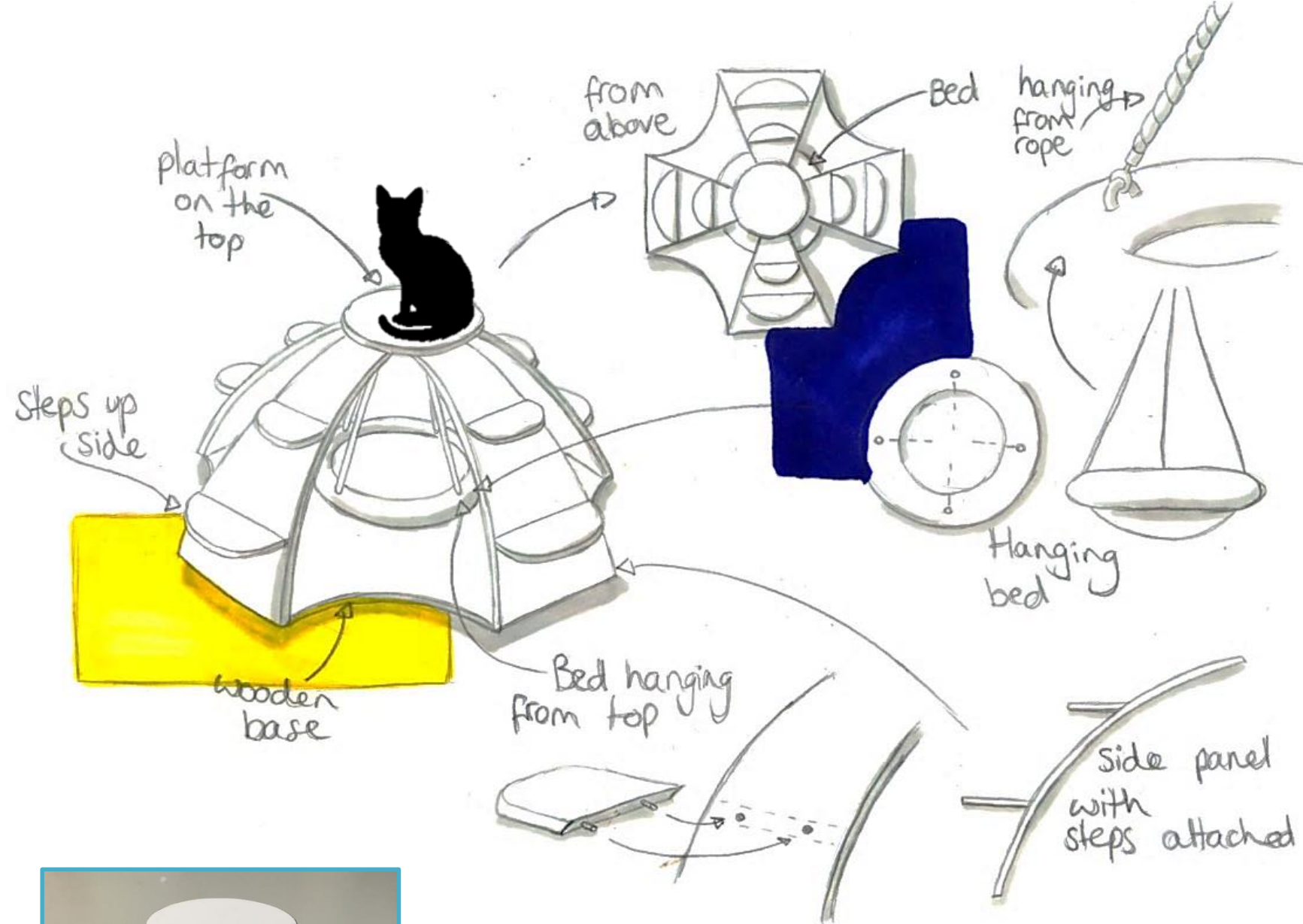
Here I tried making a CAD model of my design on Google SketchUp, I struggled to do this as the design has lots of curves and circular shapes involved, so was difficult to make.
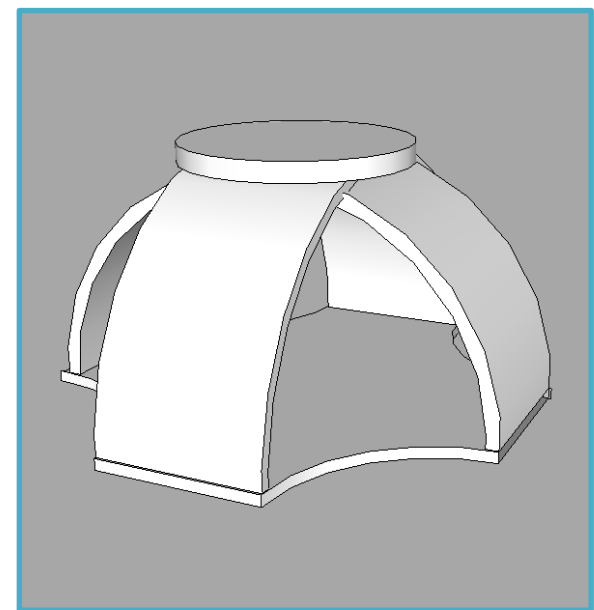
Visit to Pets at Home:

For this design, I was given positive feedback on the actual concept of the design. However, I was also told that the size might be too big, especially considering that cat owners usually have smaller homes compared to owners of dogs and other larger pets, so are usually looking to buy something smaller, so I should consider redesigning it to make it take up less space.

Here I modelled the design using card, this helped to show the proportions and sizing of the design on a smaller scale.

Here I showed how I would create the curved panels, using ratchet straps to curve two pieces of MDF glued together to stay in the curved shape.

This is a representation of how the design would look in a room, showing the sizing of it.

Original idea:

platform on the top

Steps up side

wooden base

Bed hanging from top

from above

Bed

hanging from rope

Hanging bed

Side panel with steps attached

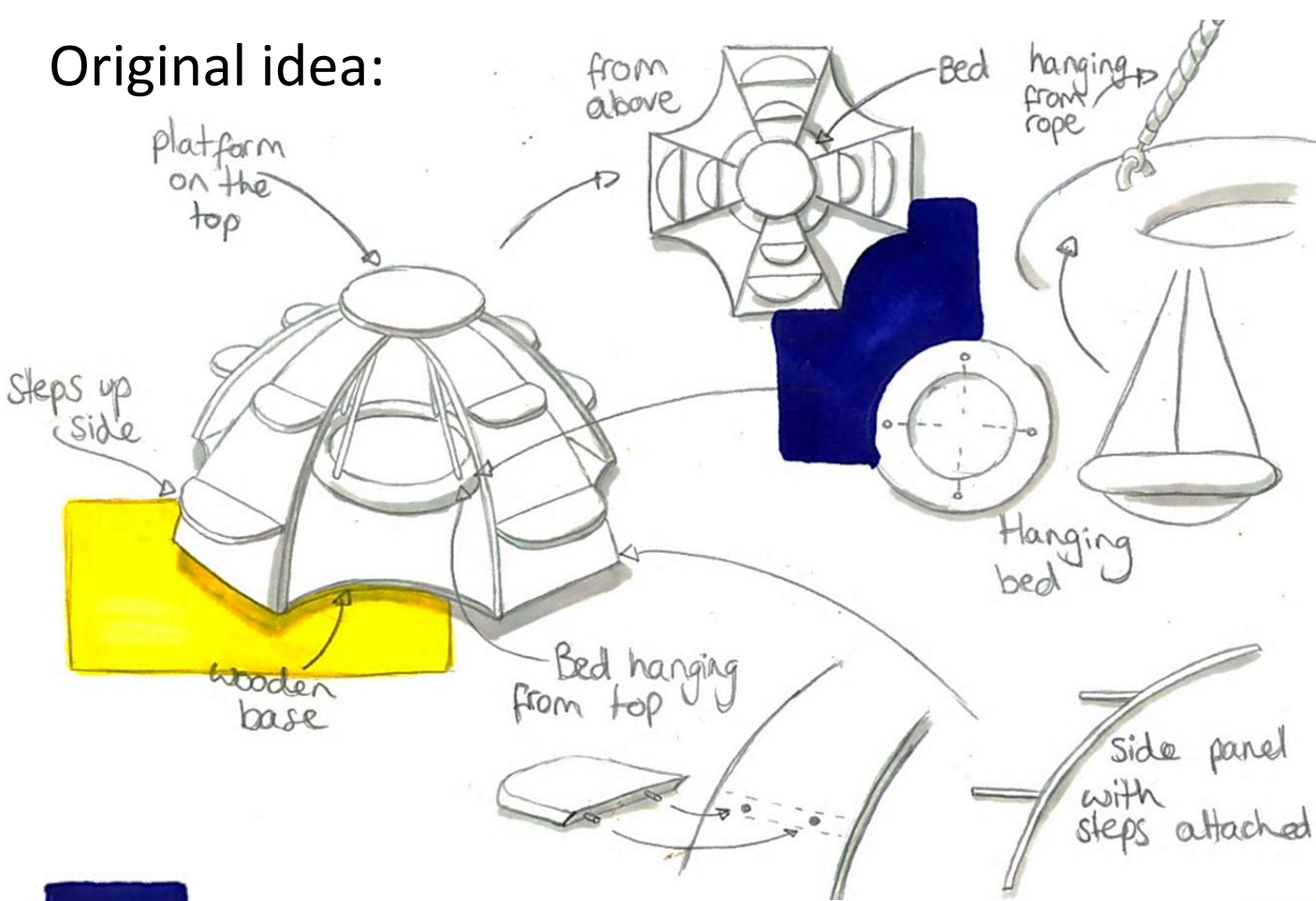Here I tried developing my last design to make it smaller so that it will take up less space, making it more appropriate for smaller homes, that cat owners often have, as suggested by the employees at Pets at Home.

half of the original idea

two half arches

hanging bed

from above

Below I experimented with different components to add to the sides of the arches to help the cats climb up the side. I felt that the beading is better than the ledges due to them being smaller and not sticking out as far, meaning they take up less space, which is emphasised as being very important in my feedback from pets at home.
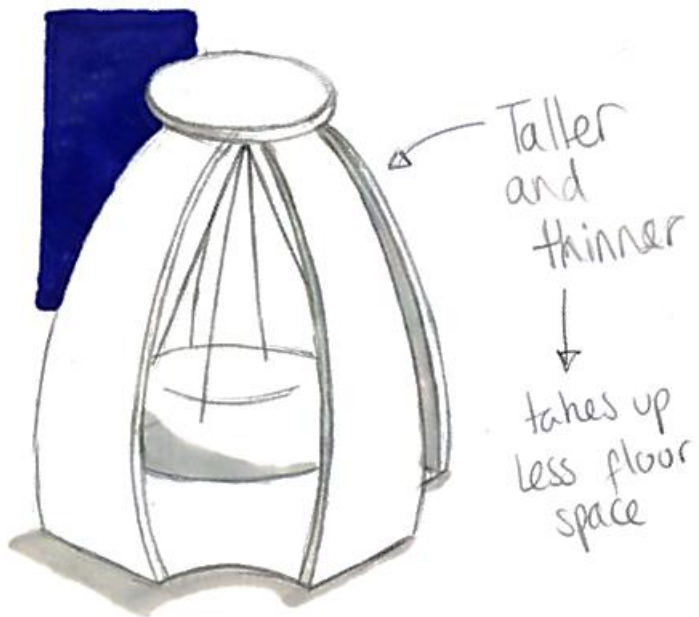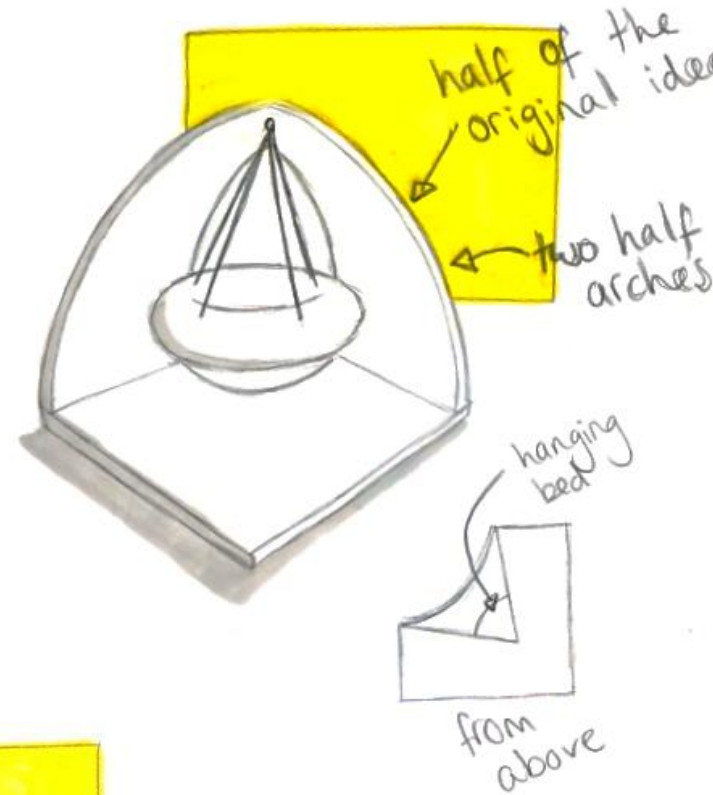
Taller and thinner

takes up less floor space
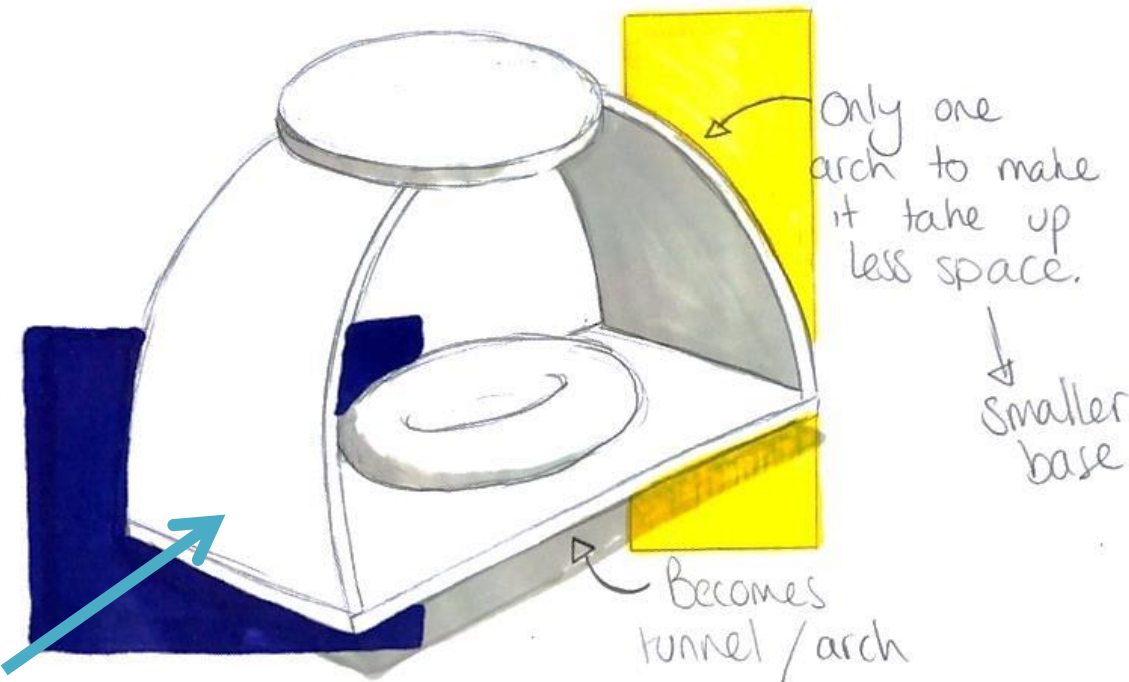
Only one arch to make it take up less space.

smaller base

Becomes tunnel / arch

wide ledges for climbing and sitting on
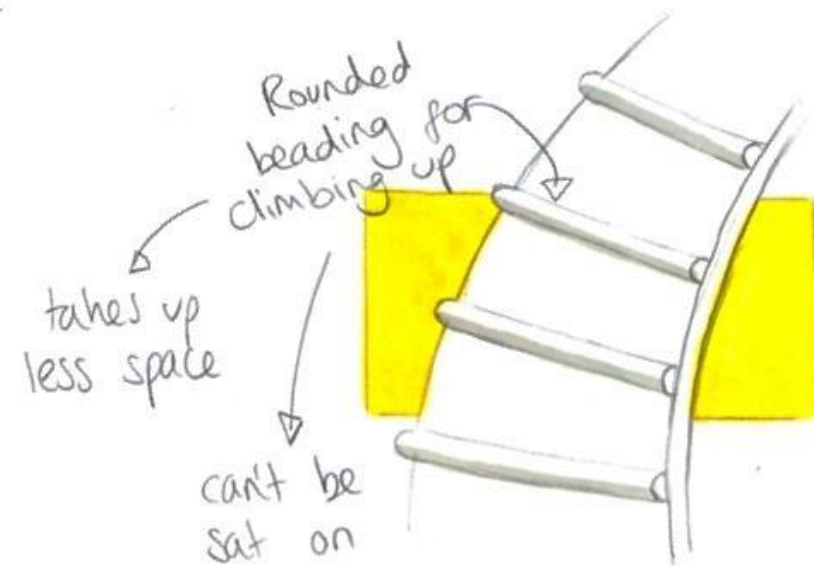
Rounded beading for climbing up

takes up less space

can't be sat on

Visit to Pets at Home:

While vising pets at home, I showed them these various different developments of my design. I was given the feedback that they felt that the design above, that consists of only one arch instead of two is the best one, as it incorporates all the main features of the original design, while taking up much less floor space, which is key for cat owners. They did however say that the platform on the top would be unnecessary, as cats have extremely good balance, so could easily sit on the top of the arch without it.

round beading up the side as steps

700 mm

400mm

1000 mm

bed hanging from centre by rope

base curves inward
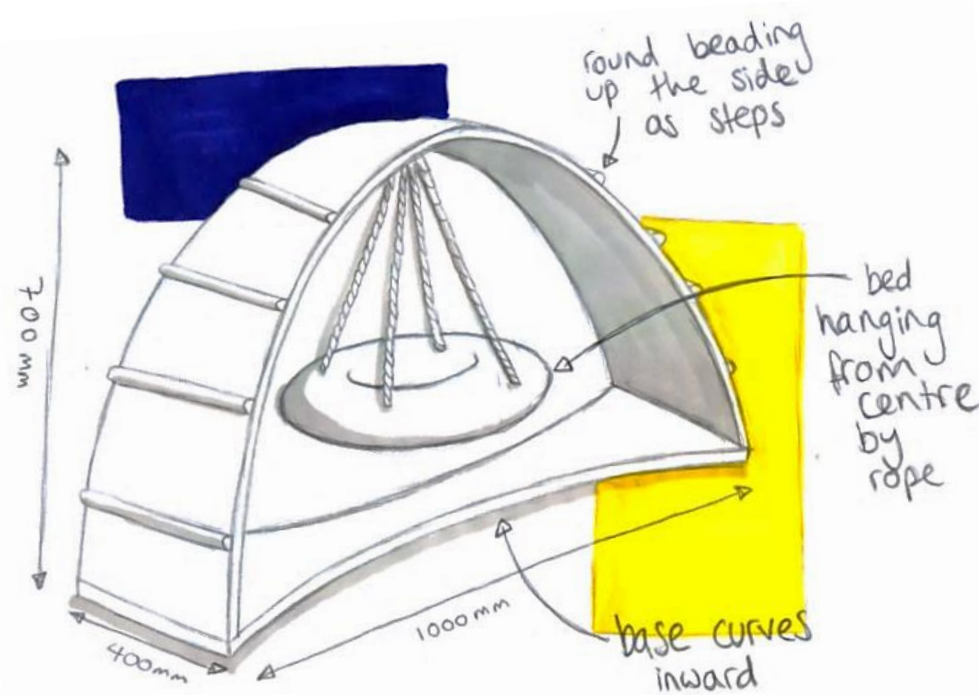
I decided to switch having the bed hang from ropes from above, to having it be suspended by ropes from either side. This makes the bed more stable and less likely to swing around while in use, meaning cats will be more likely to use it, as they will not be frightened by it.
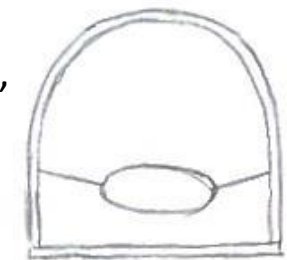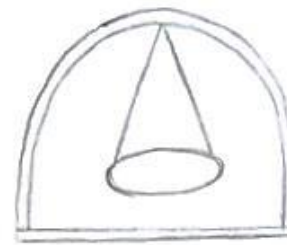
I decided to change the way the bed is suspended after looking at similar products on the market and seeing the way that they are hung.

Hung from sides instead of top for more stability

I used a piece of flexi ply to figure out the height of the arc that I wanted, by marking out different heights on a desk, and comparing them to decide which one is best.
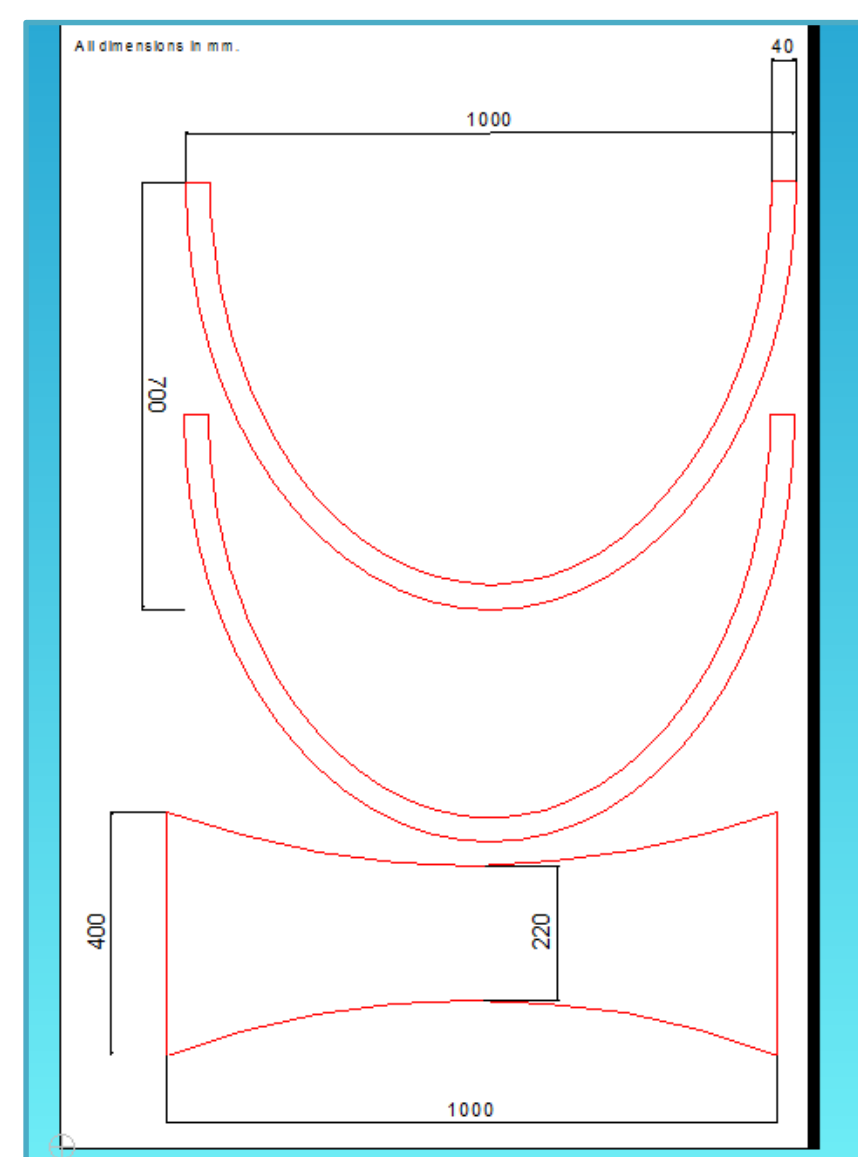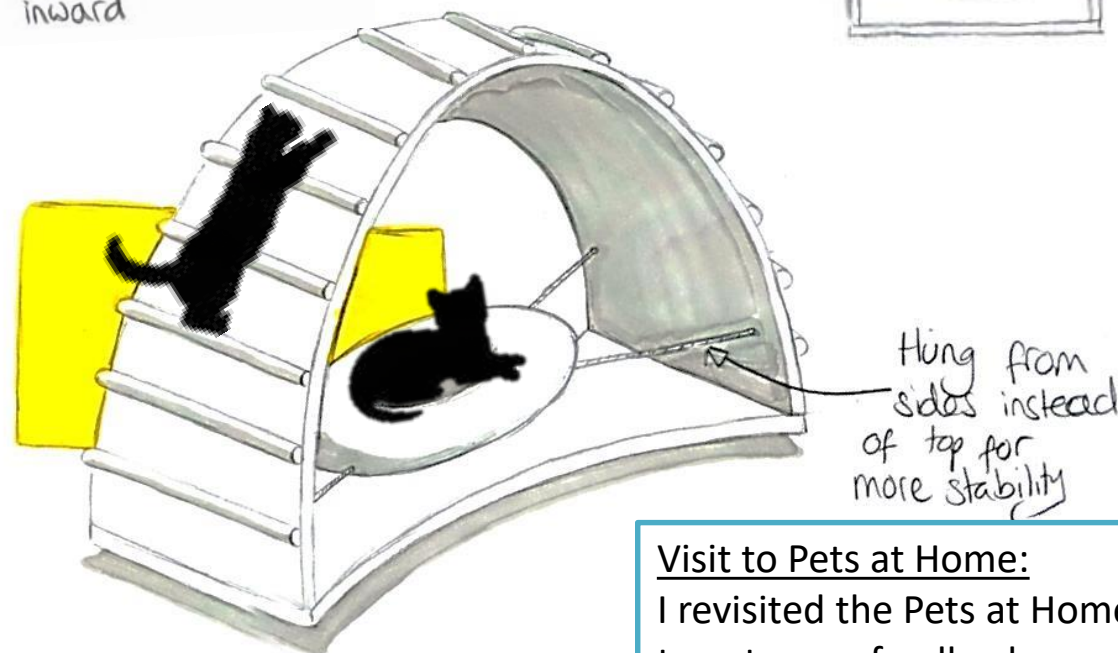
Visit to Pets at Home:
I revisited the Pets at Home store to get more feedback on my final design, to compare with the idea I originally designed and took in to show them. The feedback I was given was that this final design was much more appropriate as it is smaller and thinner than the original design, which they say is much more suitable, as cat owners are usually looking for smaller products that will take up less space in their home.

All dimensions in mm.

40

1000

700

400

220

1000

Here I attempted to create the basic shape of the outside of my design on Google Sketch Up, to see how the shape looks in 3D.

Final Design
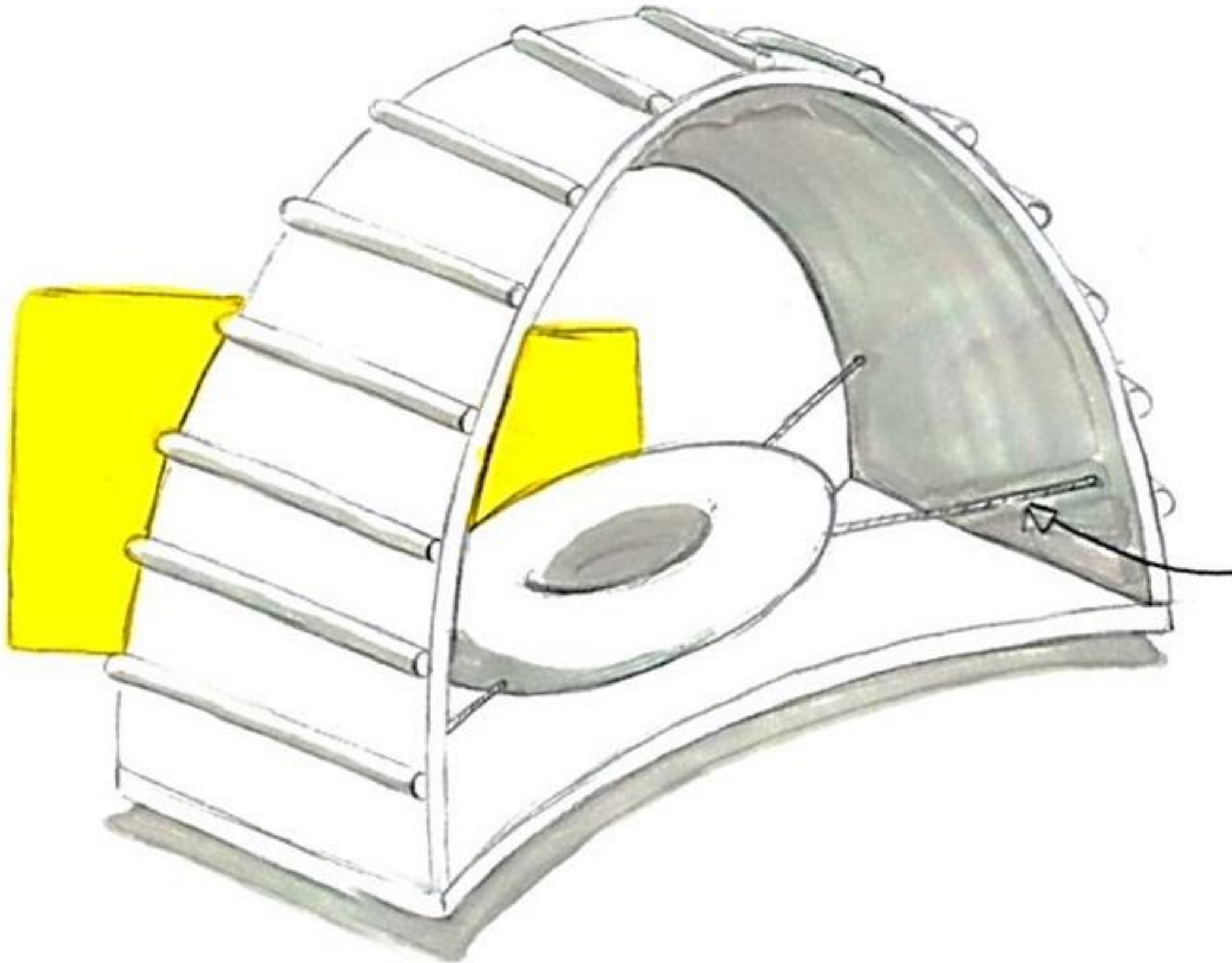
Plan of Making

1. I will have the base and the two sides of my arch cut out of MDF using a 3D router at a company called Contrax Furniture.

2. I will measure the width of the base and minus the width of the two side pieces to work out the length needed for the batons that will hold the two sides together. The width of these batons will be found by measuring the width of the side pieces. I will then cut 10 of the batons out with the circular saw.

3. Next, I will glue the batons to one of the sides of the arch using PVA glue and leave overnight to dry.

4. I will then glue the other side of the arch on top of the batons, and put weights on the top of the whole thing to keep it in place, and will leave it to dry overnight again.

5. Next I will measure the length and width of both the inside edge and the outside edge of the arch, and will cut two pieces of flexi-ply out this size using the circular saw.

6. I will next put PVA glue on the inside and the outside of the arch I have created, and use ratchet straps and G clamps to hold the flexi ply against the glued edges to keep them in place. I will leave this to dry overnight.

7. Once that has stuck solidly, I will remove the ratchet straps and G clamps, and cut up 15 pieces of rounded beading at 400mm long each. I will then stick them at regular intervals over the top of the arch using PVA glue.

8. Next, I will screw the base to the arch from underneath using a small drill bit and then screwing screws into the holes, into the bottom of the ends of the arch. I will then use an electric sander, and pieces of smaller sandpaper, to round off all the edges of both the arch and the base.

9. I will next paint all pieces in a few layers of white undercoat and leave them to dry, I will then paint over the undercoat with a layer of the final colour, which will be a light cream.

10. Finally, once the paint is all dry, I will use the school's Dr Stika machine to print out cat paw print stickers and a sticker of my logo to go on the sides of my final product, giving it a more professional look.

1. In order to make my final product, I sent the dimensions for my arches and base to a local company called Contrax Furniture, where they cut my shapes out 18mm MDF using their 3D router. I had this done at a company instead of doing it myself because the company have much better facilities meaning they can have the shapes cut out much faster and at a much higher standard than if I had done it myself.

2. Next I glued 12 pine batons between the two arches at regular intervals using PVA glue. I put bricks on top of the top arch to weigh it down and keep the batons in place while the glue was drying overnight.

3. Unfortunately, all the schools ratchet straps were being used at the time that I needed them, and I didn't have time to wait for them to be free. This meant I had to use only G clamps to hold the two pieces of flexi ply against the PVA glue I had painted onto the sides of the arch structure I had already made.

4. Because I only used G clamps and not ratchet straps, there were quite a few gaps between the MDF and the flexi ply, so I had to use filler to fill these gaps, and sand down these areas to make them flat and smooth.

5. Next, I cut a length of rounded beading that I bought from B&Q down to 12 400mm pieces. I then painted the back of them with PVA glue and stuck them at regular intervals over the top of the arch. I used masking tape to hold them in place while the glue was drying, to stop them sliding down the side of the arch.

6. I then painted both the base and the arch in two layers of white undercoat. Next, I drilled holes into the bottom of the base at the edge, and screwed through these holes into the bottom of the arch, attaching the two together.

7. Next I painted over the undercoat with a coat of cream coloured paint.

8. I then used the DR STIKA machine to print out some stickers of cat paws, and a sticker of my product logo, and stuck them to the side of the arch, to make it appear more professional.

Making

Testing

Once the construction of my product was complete it was important to test it. I took the product to the house of a possible end user, to test it with one of their cats. The key areas that I needed to test were: how easy it is for the cats to use, and whether the materials withstand the weight of a cat easily.

The cat I tested this with seemed to enjoy climbing over the top, and had no trouble getting to the top of the arch with ease, using the beading up the side as steps.

Play me!

The owner of the cat, the end user above, thought the design of the arch was very effective as her cat enjoyed climbing over the top of it. However, her cat was nervous at first about how much the basket swung around, so the ropes holding it up would need to be tighter, to keep the swinging of the basket to a minimum.

Once on top of the arch, the cat could lie on top with ease, and the arch itself showed no strain from the weight of that cat.

One issue I found while testing my product was the cat was initially quite nervous about getting into the basket as it moved around a bit when she tried to get in. After a while though she was comfortable enough to sit inside it for a period of time. For this reason I think the ropes holding the basket up should be tighter so that the basket moves around less when the cat tries to get in.

Strengths and Weaknesses

Strengths

The beading up the side of the arch is very effective for helping the cats climb up the side, and as they are just thin pieces of pine they take up very little space.

The product is lightweight so is easy to transport around and move around the house.

The product is multipurpose as it incorporates areas to climb, sleep and play.

Due to the small amount of components, the product is fairly quick and easy to manufacture.

The product is very strong and can easily hold the weight of multiple cats without showing any bending or splitting.

Weaknesses

The stickers up the side means the product does not fit in that well with normal home décor.

The basket is not very tightly attached to the sides so swings quite a bit when the cat tries to climb into it, which makes the cat quite nervous of being in it.

Due to only having one basket on the product, there is only one area for the cats to sleep. So a household with multiple cats may find this an issue.

Lots of cat products include an area for cats to scratch, my product does not have this, which might make it slightly less popular than my competitors products.

As the product is all one object and can't be taken apart, it can't be easily stored in a small space, and might be difficult to deliver if ordered online, so might be more feasible if it can somehow be flat packed.

Evaluation against Specification

Specification point met
Specification point partially met
Specification point not met

Function:
- The function of the cat furniture should be to provide a safe place for cats to exercise, scratch and hide. The product does provide an area for exercising and hiding, however there is no area for scratching, which I would add if I made the product again.
- The area for scratching should be rough and durable so that it will not be worn out after being used for a while. There was no area for scratching provided.
- There should be multiple levels for the cat to jump between, keeping it exercised. The arch of my product provides space for the cat can jump and climb up, and the area below the arch provides a lower level for the cat to climb down to, as well as the hanging basket.
- An area of the cat furniture should also be for hiding and sleeping, and should be soft and comfortable, giving the cat an area to be away from any people or other pets in the household. There is a hanging bed with a comfortable cushion, which is hidden under the arch, making it fairly hard to access for people or other pets.

Materials:
- The materials used should be strong and durable so they will not be worn down or broken by cats scratching at it with their claws. The MDF used is fairly solid and durable so should last a long amount of time, however, the flexi ply is less durable, but should still last a fairly long amount of time against a cat.
- They should also be soft and comfortable, so that the cat can sleep comfortably. The cushion used inside the basket is very soft and is covered in a soft fabric.
- The materials must be strong enough to hold the weight of at least two cats, at around 4kg each. Due to the materials used and the way the arch was put together, it is very strong and can easily hold the weight of multiple cats, and even holds the weight of a person.

Manufacture:
- The cat furniture must have minimal amount of components so that it will be quick and simple to manufacture. The product has a small amount of components, however, the manufacture of some of these components is quite complex. For example, bending the flexi ply around the inside and outside of the arch and keeping it perfectly flat against the MDF was quite difficult to do.
- The cat furniture must be able to be manufactured ethically so that it will not exploit workers or use machines that cause very large amounts of environmental damage. Because my product is quite a high end, expensive product, with the material costs still being relatively cheap, it can be manufactured in a European country at a higher price, to avoid exploiting workers. I used a 3D router to cut the MDF shapes out, which does have a negative effect on the environment, but the shapes are not complex, and could easily be cut out manually, causing less of an effect on the environment.
- The cat furniture must be able to be manufactured for a low enough price so that a profit can be made. The product uses fairly cheap materials only, and can made fairly easily, in a span of about 4 hours, not including times for waiting for glue and paint to dry. The cost of materials is around £60 for the whole product, plus around 4 hours work at £6.70 an hour (UK minimum wage), coming to around £86.80, leaving a profit of £33.20 per product. However, because I made my product myself, so did not have to pay labour costs, a profit of £60 would be made.

Ergonomics:
- The cat furniture must be comfortable for the cats and have a suitable amount of space for more than one cat to sit or stand on comfortably. The product provides lots of space on the arch for multiple cats, however, there is only one bed in the product, so only space for one cat to sleep at a time, which could be an issue for households with more than one cat.
- It must also be able to hold the weight of multiple cats, at around 4kg each, with no risk of breaking. Due to the materials used and the way the arch was put together, it is very strong and can easily hold the weight of multiple cats, and even holds the weight of a person.

Aesthetics:
- The cat furniture must fit current styles and fashions in the way it looks. The product is painted a very neutral cream colour, meaning it is likely to fit most styles and trends. However, the stickers up the sides with cats and paw prints on are quite unusual and may stand out against other styles.
- The cat furniture could have a cat themed look to fit with it's function. The cat stickers do give a very cat themed look, making it clear what it's function is the moment a viewer might look at it.
- The cat furniture must have an appearance that will fit in well to most houses styles and with other cat products that might be in the household. The cat stickers might mean that the product does not fit well with a person's furniture style, but it might fit in well with other cat products, in a cattery for example.

Marketing:
- The cat furniture must have a unique selling point that'll encourage customers to buy it. The product does have a unique selling point in that incorporates sleeping, climbing and playing for cats all in one product, and it is an unusual shape that has not been seen in this specific market before.
- The cat furniture must be marketed to a large variety of people as many different people own cats, not just one specific market. Due to the simplistic and obvious nature of the product, it could easily be marketed through lots of different advertising means, including, TV, radio, and magazine adverts.

Cost:
- The cat furniture must be sold at a fairly low retail price so that it is affordable for lots of different types of people as a large portion of households own cats, not a specific market. The product is marketed is fairly expensive, but as I have discovered, most similar products are marketed at fairly high retail prices, and considering the size and nature of my product, the retail price is not too high.
- The cost must also be low for manufacture so that a profit can still be made even with the low retail price. The product uses fairly cheap materials only, and can made fairly easily, in a span of about 4 hours, not including times for waiting for glue and paint to dry. The cost of materials is around £70 for the whole product, plus around 4 hours work at £6.70 an hour (UK minimum wage), coming to around £96.80, leaving a profit of 23.20 per product. However, because I made my product myself, so did not have to pay labour costs, a profit of £50 would be made.

Safety:
- The furniture must not be made of any materials that will be harmful or toxic if chewed on or eaten by the cats. The product is made entirely of different woods, which are natural products, so cannot be harmful to cats.
- The cat furniture must have no risk of collapse while being used, so must be made of strong materials that can hold the weight of cats at around 4kg each. Due to the materials used and the way the arch was put together, it is very strong and can easily hold the weight of multiple cats, and even holds the weight of a person.
- The cat furniture must have no sharp areas that could harm the cat, especially as cats often like to scratch themselves against furniture edges, so it must be safe for them to do this. All of the shapes of my product are curved with no corners, and I sanded down all edges with an electric sander to keep them smooth, to be safe.

Social Issues:
- The cat furniture must be made of recyclable materials in order to have minimum damage to the environment. Flexi ply and pine are both recyclable woods, and MDF is made of recycled wood. However, MDF cannot be recycled. All these materials are wood, so can be regrown, making them sustainable.
- The furniture must be manufactured in a way that does not produce too many carbon emissions so does not cause too much damage. I used a 3D router to cut the MDF shapes out, which does have a negative effect on the environment, but the shapes are not complex, and could easily be cut out manually, causing less of an effect on the environment.
- It must also be manufactured in a European country so that the workers will be protected from exploitation as the working conditions and amount of businesses that follow human rights for their workers is generally better in European countries.
- Because my product is quite a high end, expensive product, with the material costs still being relatively cheap, it can be manufactured in a European country at a higher price, to avoid exploiting workers.

Marketing and Presentation

Product name and logo:

- In order for a product to be marketed effectively, it is important that it has to have a well thought out name and logo.
- This helps to keep the product recognisable and easy to remember for customers.
- I decided to name my product "The Meowntain", as a play on the words meow and mountain. I used a pun to make the name slightly comical, meaning people are more likely to remember it.
- I designed to two logos on the left, and wanted to keep the text big and bold to make it easy to read and recognisable. I made the text in the shape of the mountain to make the design clear and simple, and get the basic mountain like design of the product across easily.

I decided to use the above design as my logo as I thought it was more clear than the other design and also looked more professional. I made the "meow" part of the word a slightly darker orange than the rest of the word to make it clear and obvious what the word play is. I made the colours contrasting to make it stand out well.

I also put a black and white, sticker version of my product's logo on both sides of the product that I made, using the DR STIKA machine. This is a key part of marketing, as although the owner of the product would not need marketing to anymore once they have already bought it, having a constant reminder of the brand it is from whenever they look at it may encourage them to shop from that brand if they ever need another similar product. It will also mean any visitors that come to the house will know the name of the brand, if they show interest in the product.

Unique Selling Point:

- For a product to be successful, it has to have a unique selling point, that will attract more business. A unique selling point is a feature a product has that is completely different from other products in the same market, so that customers will choose it over the competition.
- The unique selling point of my product is that it is multifunctional as it includes and area to sleep, climb and play.

Packaging:

- Packaging is an important part of the products branding as it is the first impression that a customer gets of the product, especially if they have bought it online, if it was delivered in poorly designed packaging, they may question the quality of the product inside.
- Because my product is quite large and heavy it would have to be packaged in a large cardboard box surrounded with polystyrene. The polystyrene is necessary to stop the product moving around inside the box, as it is quite an unusual shape so this is likely to happen as it does not fill out the whole of the inside of the box.

Marketing Presentation:

Here is a small clip from a presentation I did to my class, advertising my product. I outlined all the unique selling points of my product, and showed images of the product in use. I used a specific colour scheme and lots of images of my logo to create brand recognition. This was a great opportunity to test how well branded my product is, and how successful it would be if marketed commercially.

Play me!

Marketing and Presentation

Diablo Luxury Cat Furniture
★★★★★
£110.00
Buy now ▶

Willows Activity Centre
★★★★☆
£100.00
Buy now ▶

Tiger Luxury Cat Furniture (Web Exclusive)
★★★☆☆
£125.00
Buy now ▶

Climb and Hide Lookout
★★★☆☆
£45.00
Buy now ▶

Hideaway Or Play Tower
★★★★☆
£80.00
Buy now ▶

Merlin Luxury Cat Furniture (Web Exclusive)
★★★★★
£99.00
Buy now ▶

Promotion: I would promote my product mostly through magazine advertisements. This is because the kind of person who will buy this kind of product at this price is likely to be someone who is very enthusiastic about cats. For this reason, I think the best place to promote my product would be in a cat themed magazine, for example, the magazine "Your Cat", so that it will be seen mostly by people who are very enthusiastic about this subject.

Here I showed an end user looking over my product in the magazine article.

Here I made a magazine advert that would fit into the double page spread above, advertising cat furniture in the cat magazine "Your Cat".

The Meowntain
Price: £120
Buy it from: www.meowntain.com
Measurements: 1000mm x 400mm x 700mm
Description: A multifunctional paradise for cats. It incorporates sleep, climbing and play for the perfect piece of furniture for your feline friend.

Price:
- It is important for products to have a price that is high enough that the company makes a profit, but also needs to have a price that is not too high that it will be higher than all it's competitors prices, meaning the majority of customers are less likely to buy it.
- Above I looked at the average price for similar products on the Pets At Home website. I found that the average price is fairly high considering these products are smaller than the product I have made. However, my product uses much less components than these, so could be marketed at a lower price.
- Because of this, I would market my product at around £120. The cost for my components and making

Place:
- It is important for products to be sold somewhere where lots of customers can easily see it and have access to it, even if they did not set out to find that particular product.
- I would market my product in Pets At Home as it is generally the first place people will go if they are looking for a product like mine, so more people are likely to see it. Because my product is quite large, I would have it on a low shelf so it can be viewed easily, or displayed on the actual shop floor. To show the kind of area it would be put in in the home.

Website:
- Below I designed a website for my product using "Wix", a free online website creator.
- I used a colour scheme and a logo to make the website look professional and well put together, and to help create brand recognition. I also added both a professional looking photo of my product, and also a photo of the product in use, to show that it is a quality product, that cats do enjoy using.

THE MEOWNTAIN

| Home | About | Order Online | FAQ | Contact |

A multifunctional paradise for cats. Incorporating sleep, climbing and play, to create the perfect playground for your feline friend.
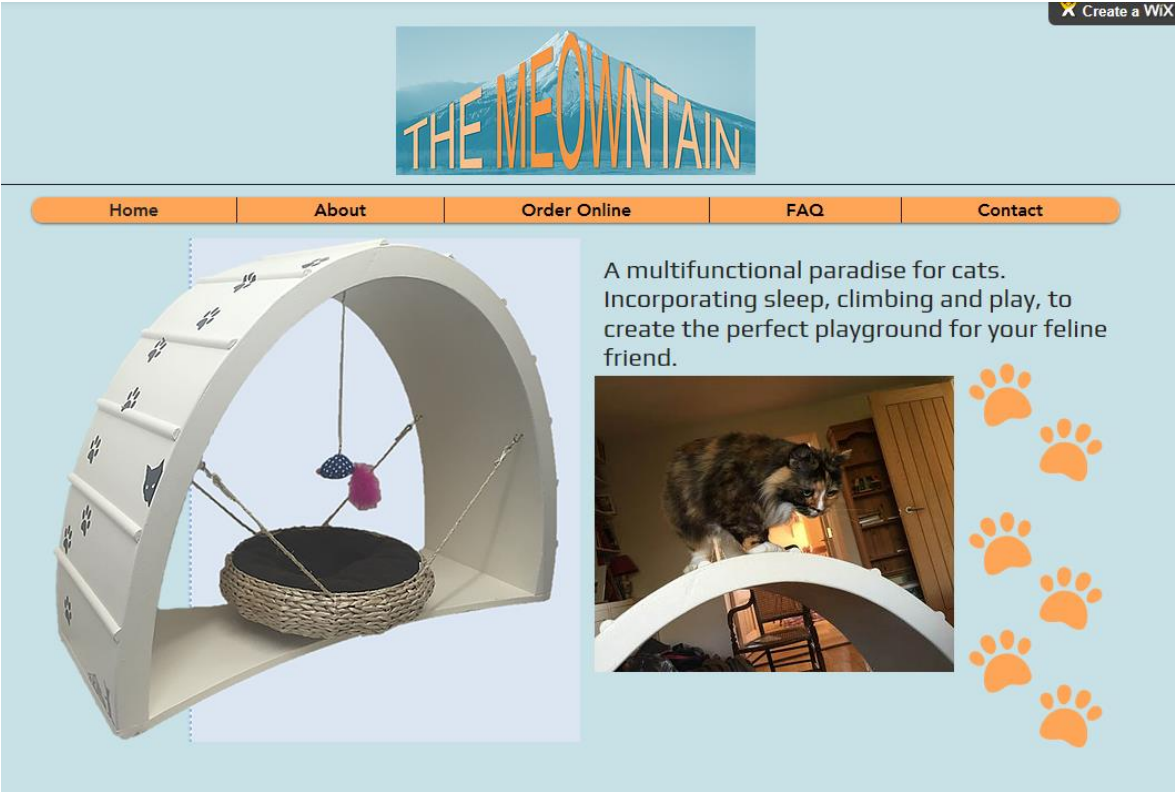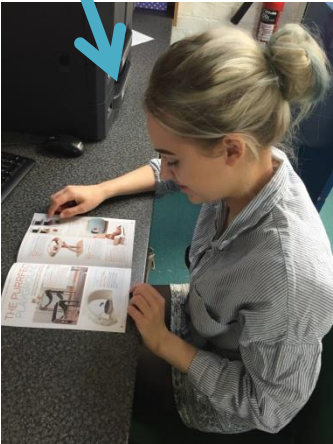
Review and Reflection

Problems Encountered:

- One problem I came across while making my product was that it was very difficult to keep the flexi ply sheet perfectly flat against the MDF arch while it was being glued down, this meant that once it had dried, there were a few gaps between the two pieces of material. I solved this by smoothing filler into all the gaps and leaving it to dry. This did however slow the process down, as if I did not have to do this step I could have moved on to the next stage of making.

- Another problem I came across was that as there were other projects being made in the classroom at the same time as mine, there were no more ratchet straps available when I needed them, and I did not have time to wait for them to be finished with. This meant that I had to secure the MDF to the flexi ply with G clamps only. This was very difficult to do and required lots of people working together to screw all the G clamps in simultaneously, and it was still not as effective as using ratchet straps would have been.

- A third problem I came across was that as there was lots of gluing and painting involved in making my product, I spent lots of time waiting for the glue or paint to dry so that I could move on to the next stage, this meant that the whole process took quite a long time, even though the actual time I spent making the product was not that long.

Effectiveness of the design process:

- For my design process, I explored an extremely wide range of shapes and structures for my design ideas. I was especially able to do this due to the free and unrestricted nature of this kind of product.

- I started off by doing nine initial ideas, and getting feedback on each one. I then did a second sketch for each design idea, changing it slightly based on the feedback I was given for it. This helped me to understand what kind of ideas worked well, and how my different ideas can be changed to make them better.

- After this, I chose one of my nine designs and found that the main piece of feedback I was given on it was that it was too large and took up too much floor space. I then looked at multiple ways to change and develop this idea to make it take up less space. This really allowed me to explore that individual design as a concept, and look at all the different directions I could take the idea in.

- I then picked one of these designs as my final idea, and did a few more sketches showing minor changes I was making to the design. This then became my final design, but before I could completely decide on this design, I had to consider a few more factors of it, costing and manufacturing methods for example.

Economic and manufacturing issues:

- The materials I used were very cheap as they were all either cheap softwoods like pine or flexi ply, or MDF, which is cheap due to the fact it is made from pieces of old recycled pieces of wood.

- Due to the fact that I only purchased the amount of materials I would need for one product, this increased the price slightly, as buying materials in bulk reduces the price of the materials. For this reason, producing my product commercially would be cheaper than just building it as a one off.

Moral, Ethical and Sustainability issues:

- If I was to produce my product commercially, I would be reducing unemployment by providing jobs in manufacture, advertising and sales.

- As I would be producing and selling the product in the UK, I could ensure that all employees would be treated fairly and equally, and would not be at risk of exploitation.

- I would also be producing my product in batch production, meaning I would need to find effective ways of reducing wastage of materials, which is a risk due to the fairly high number of products being produced at one time.

- I would also need to carry out constant quality and safety control checks throughout the manufacture of my product, to ensure the safety of all the workers, especially when using larger machines.

- My design is made of mostly sustainable materials as the flexi ply and pine are both recyclable, and although the MDF cannot be recycled, it is made from old recycled materials. Also, because all of these three materials are wood, they are all sustainable as they can be constantly regrown.

Review and Reflection

Feedback issues:

- While trying to get feedback for my different designs, I found it very difficult to find people who work professionally in the field that would give me feedback, as the topic of my product is very specific.

- I started by emailing a fairly local cat club, asking if they would kindly give me some feedback on a few of the designs I attached to the email. Unfortunately, I never got any response to them. I did resend the email, in case they had not received it, but they still did not respond.

- I next emailed a woman who works in a local cattery, who my teacher had happened to meet at a social event, and gave me her contact details, as she said she would happily give me some feedback. Unfortunately, she too, did not respond to my email.

- I have included both of these emails that I sent here.

- Next I went to Pets at Home, in order to get feedback from their staff. Unfortunately, when I asked if I could film or take photos of them giving feedback, I was told my their assistant manager at the store at the time, Ashley Henderson, that I could not do that in store, as I could not put their brand name to any of my ideas, but that they were happy to look over the designs and answer some questions for me.

- All this obviously made it very difficult to gain professional feedback on my ideas, which is the main problem I encountered when creating a product for such a specific market.

| Delete | Forward | Resend | Move ▼ | ← → |

Wallingford School

⌃ **From:** (Esme Stillaway ⊕)

🖨 💾 Close Fullscreen ☆
2/8/16 at 4:04 PM ⓘ

To: (bshcatclub@hotmail.com ⊕)

PPTX Designs to send... ✕

Dear Sir/Madam,

My name is Esme Stillaway and I am an 18 year old A-level product design student from Wallingford School Sixth form. For part of the course we have to design and make a product of our choice, and in order to get the highest marks possible, we should get professional feedback from people who specialise in our chosen topic.

I have chosen to make and design a product specifically for cats, and would like to ask you at BSH Cat Club, to kindly give me some pros and cons of the designs I have attached to this email.

Thank you for your time.

Esme Stillaway

| Delete | Forward | Resend | Move ▼ | ← → |

Wallingford School product design

⌃ **From:** (Esme Stillaway ⊕)

🖨 💾 Close Fullscreen ☆
3/6/16 at 6:34 PM ⓘ

To: (natasha221081@yahoo.co.uk ⊕)

PPTX Designs to send... ✕

Dear Natasha,

My name is Esme and I am a product design student at Wallingford School, and I am designing a cat furniture product for this course. My teacher Mr Holden has given me your contact details in order to ask you for some professional feedback on some of my designs. Could you kindly take a look at my designs that I have attached to this email, and respond with some feedback in a pros/cons type format.

I really appreciate your help with this, as it has been difficult to find someone to give feedback on this topic.

Thanks, Esme Stillaway

Industrial and Commercial production:

- In order to produce my product commercially, I would have to look into a way of changing the size of my design slightly, so I can get the maximum amount of arches and bases out of one sheet of MDF as possible. I can do this by tessellating the shapes together, meaning minimal amount of the sheet will be wasted, saving both money and materials.

- Another way I would change my design in order to manufacture it commercially, would be by spray painting the paint onto it, which would be much quicker and give a smoother more even finish than if painting it by hand.

Review and Reflection

Life Cycle Assessment:
- **Harvesting Raw Materials:** The pine I used all come from harvesting trees, which requires energy. The MDF I used comes from pieces of recycled wood and flexi ply is made from any type of normal wood, which needed energy to be harvested in the first place, and then also requires energy to be recycled into MDF or plywood.
- **Transporting Materials:** Pine is mostly grown in European countries, so has only a small amount of air miles compared to if I had used a wood that is grown in other parts of the world, therefore meaning using pine has a minimal impact on the environment. MDF and flexi ply can be made out of any woods, so if it was constructed in the UK, would have zero air miles, so therefore only a very small impact on the environment.
- **Processing Raw Materials:** The MDF I used has to be made by mixing tiny chips of either soft or hard wood, and combining with wax and a resin binder, and compressing under lots of pressure and high temperature, making a sheet of MDF. Flexi ply is made by combining lots of thin strips of different woods and layering them on top of each other, giving it the ability to bend.
- **Manufacturing the product:** As I manufactured my product at school, I used the school's energy for the machinery and lighting in the workshop. If I had been producing my product commercially in a factory, I would need to power the factory's lighting, heating, machinery, and provide food for workers.
- **Using the product:** My product requires no energy to be used.
- **Disposal:** My product is very large so could not just be thrown in a household bin, and would have to be transported to be disposed of, using energy. The MDF on my product would have to be incinerated as it cannot be recycled, causing a negative effect on the environment, and using energy, while the rest of my product can be recycled, which uses energy.

Likely success of the product:
I believe that my product could be fairly successful if it was sold commercially. This is because:
- It is multi functional, providing areas for the cats to play, climb and sleep, meaning people will more likely want to buy one of my product, instead of buying a different product for each of these functions.
- It is ergonomic and aesthetically pleasing, due to it's curved flowing appearance, and soft, neutral colours.
- It appeals to a wide range of cat owners, and is not made for people with specific types or numbers of cats.

Improvements:
- If I was to change my product in some way, I would make have the basket attached solidly to the base, instead of hanging from the arch. This is because as I found in the testing and feedback of my product, the cats were slightly nervous about how much the basket moved when they tried to get into it.
- Another way I would change my product would be by incorporating more than just the one toy that I have, and adding more. I would look into adding more modern technology to the product, for example I could try having LED light around the inside of the arch that flash different speeds and colours, in order to keep the cat entertained and interested.
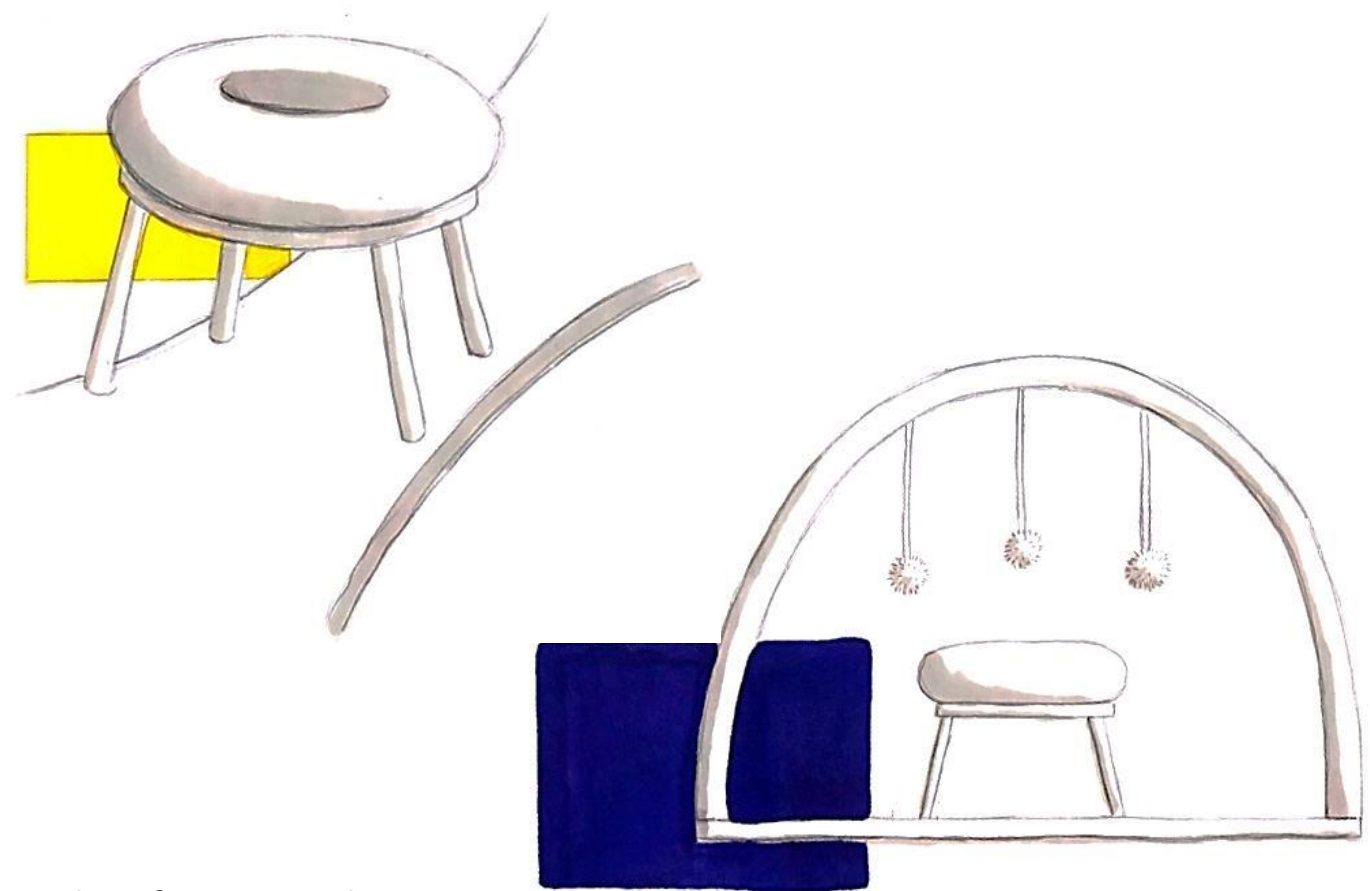
Value of my Research:
- By doing research I into the product's market I was able to look into the kind of products that are already on the market, and what kind of themes are consistent throughout these products, that I would need to include I my product in order for it to be successful.

Protection:
- In order to protect my product, I would need to register the design so that I own the appearance of the design, and it cannot be copied.
- I would need to patent the function and of my design in order for it not to be copied, so that my opposition is limited.
- I would also need to copyright the logo and branding of my product so that this also cannot be copied or recreated by my opposition.