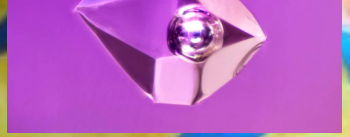
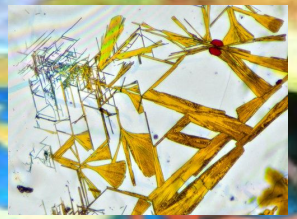
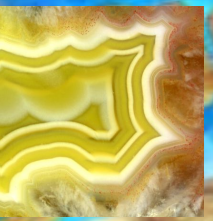
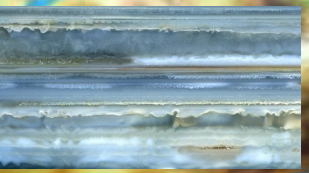










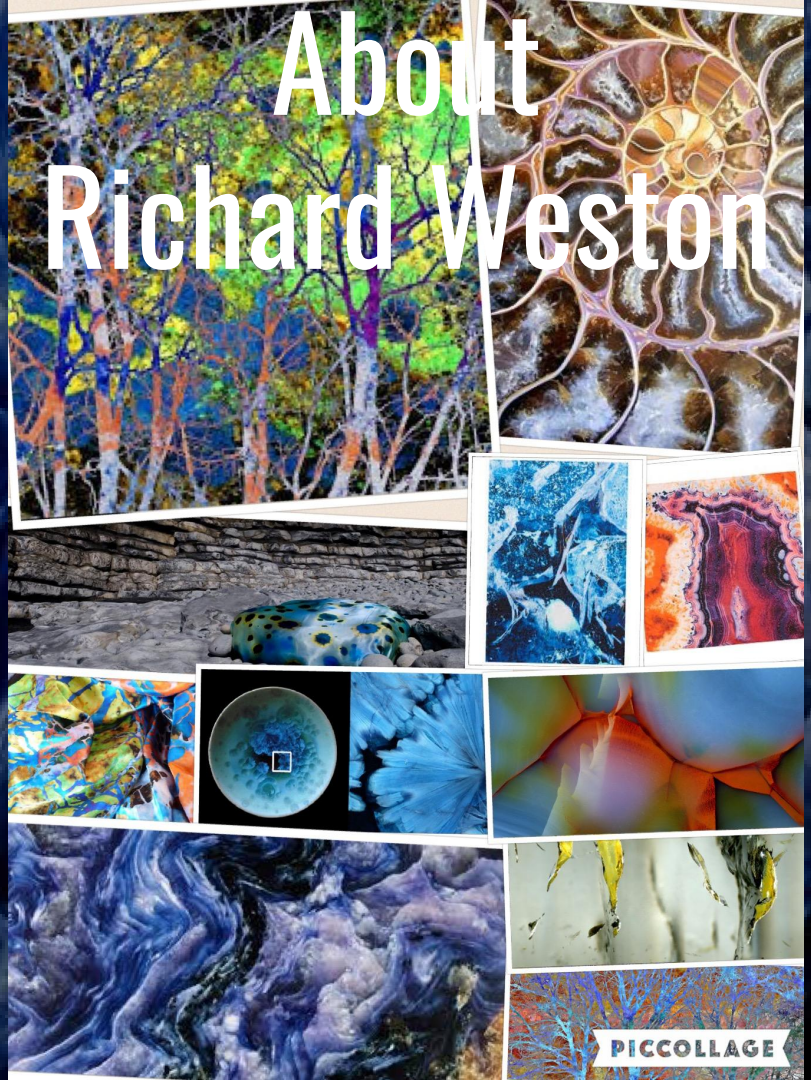
Richard Weston Inspired Light Design

Rebecca oldreive
AS level Design Technology

About Richard Weston

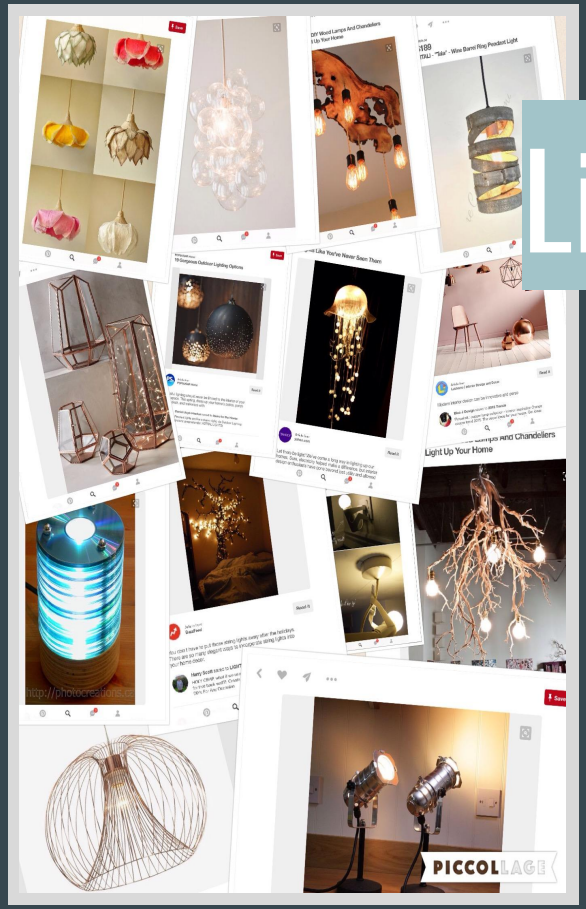
Richard Weston a General background
Richard Weston was born in 1953, and is currently an architect, landscape architect, author and professor.

Architectural background
He studied landscape arch University of Pennsylvania in America to study landscape architecture, gaining an MLA (Penn) in 1979. From 1979–1982 he worked in practice and was appointed as a lecturer at the Welsh School of Architecture (WSA) in Cardiff. He subsequently taught at the Leicester and Portsmouth schools of architecture before returning to Cardiff in 1999 as a professorial research fellow. In 2003 he was appointed to the Chair of Architecture, a position he holds today.



Richard Weston is the owner of a Studio that creates high-resolution digital images and 3D models for beautiful, vibrant and innovative applications that have been used in architecture, urban spaces and gardens. They capture the true detail and beauty formed in these natural products of the earth, that the eye is unable to see and recognise. Theses images have focuses on minerals such as agate, quartz, fluorite, orbicular jasper and Paesina Stone; fossils such as ammonites and marine conglomerates; geological 'thin sections.

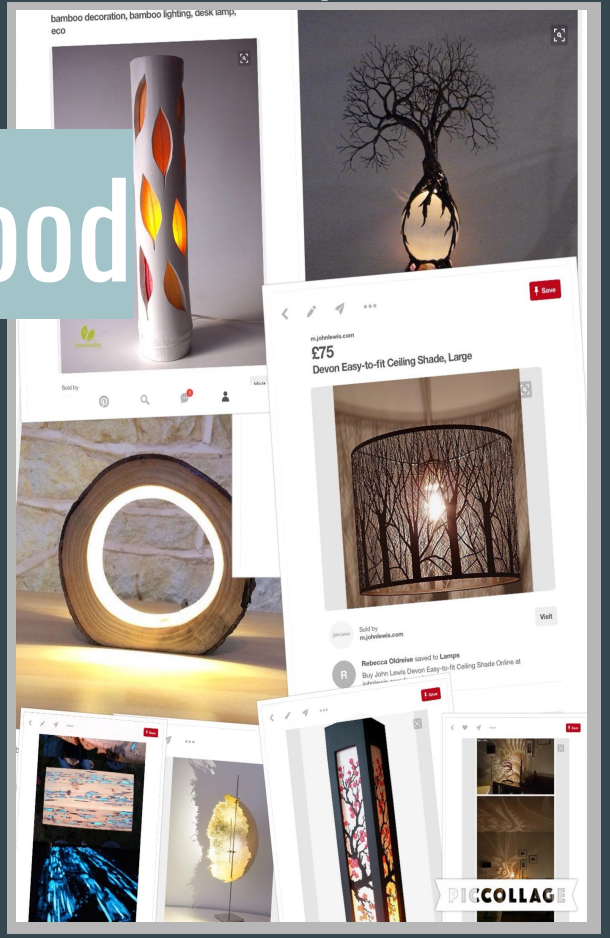
I created these mood boards out of my initial research. I tried to categorise them so that each lamp and light was placed with designs that correlated positively and shared similarities.



Light Designs Mood Board

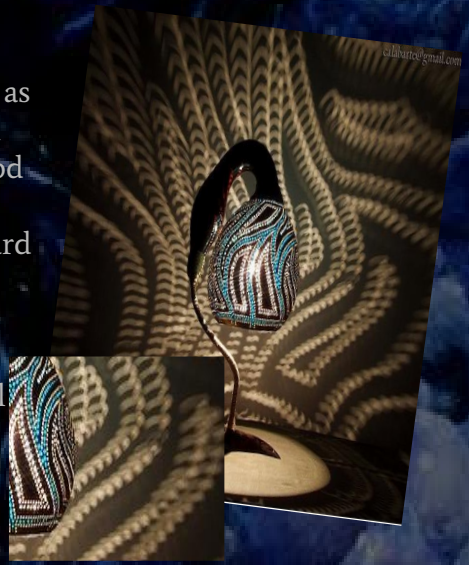
Doing this made it possible for me to chose my favorite designs, because having them next to one another it is easier to eliminate ones once you have decided the positive and negative factors of each one.

I tried to research all different lamp designs and ideas so that i did not narrow my choices or mind set in order to collect a variety of innovative ideas, that may later on inspire me



Favorite Light designs

I appreciate the shape of this lamp, as looks to be made of clay. The finish and quality of this product is to good standard. The choice of material is unusual and different to any standard basic light and that stands out. The use of the orange material for the leaves adds a pop of colour and draws the eye to the intercuts detail of the leaves



This design court my eye because not partially the actual lamp, but the patterns that it creates on the walls and all its surroundings. In my opinion, this is a clever idea and add to the design, which actually takes a different perception of the function of the light because this light not just illuminates its surroundings but decorates in a sense. It fills the room with different patterns and colours, some of Ben forming an image of the surrounding walls like a projector

This light or lamp shade design is very unique and clever as it takes a simple idea and develops it so that it is possible to have petals coming down, so it looks like a flower. I like it because they have taken inspiration from nature, so that you are bringing the outside in. I think that the design is elegant and pretty, I think that this is due to the materials chosen, because they make it look delicate like petals.

I like this light design because of the way the light is reflected off the gold metallic material. The unusual shape and edging of the lamp shade is what makes this lamp different and is what attracted me to it. Another factor of the lamp that makes it innovative it's its simplicity with a long thin stand which adds a modern feel and touch to the design, and makes the eye focus on the finer detail in the materials used. .

Favorite Light designs

I like the design of this product because of the way the light is shown in different shades, this is due to have the material bent and layered. This shows the unusual curves and bends and interesting shape.

This is one of my favourite designs because of the lattice structure that has been cut from a laser cutter. What makes this design so attractive to me is the design and pattern of the laser cut sections, because when the light is turned on it recreates the design of its surroundings. On the other hand I think that this design is perhaps not every unique as I have seen many lamp designs which have very similar, if not identical, design.

Because of my interest in art I like this light design because of the painted screens. In my opinion, the use of the dark rich coloured wood used in contrast to the white cloth material screens, makes you focus on the painted details. However, I think and know that this design is a bit too plain and simplistic when it is comes down to its basic shape box shape, and in my opinion the base of the lamp is clumpy and is unattractive

This design is a very creative, waterfall wood effect, which I think looks modern and is an innovative use of geometric shapes to create this interesting effect

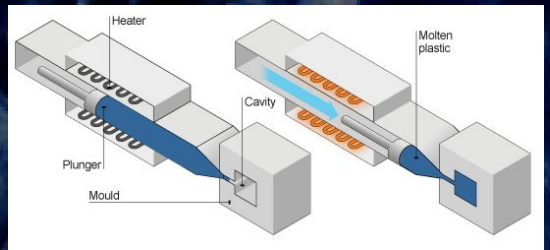
Laser cut

Laser cutting

Laser cutting is a relatively new introduced process in the design industry, but despite this it is already widely used in many levels of production. Laser cutting refers to when a computer-controlled laser beam burns through a sheet of material, such as thin sheets of plastic, MDF or aluminium. It can cut simple 2D shapes that can be joined t n enclosure.

ADVANTAGES OF LASER CUTTING

- able to cut many materials and thicknesses
- it is very efficient as it cuts narrow kerf widths, which means part nesting is more efficient, yielding better sheet utilization and material savings- less waste product
- Fast- improves and reduces production time
- Easily and accurately repeatable
- Reliable
- Reduced time for set-up with the ability to react and adapt quickly to changing production needs that are market or quantity driven
- Efficient processing, as multiple jobs or parts can be nested and cut in a single program.
- No secondary clean up process required for most materials, and is usually ready for immediate shipment



DISADVANTAGES OF LASER CUTTING

While some disadvantages to laser cutting exist, the benefits far outweigh the downsides. And in most cases, F2O mitigates these disadvantages:

- High power consumption – F2O continually invests in new equipment to utilize the latest technologies available
- Can be expensive vs. like processes (plasma or water-jet cutting)
- Rate of production depends on the material – F2O utilizes high wattage lasers to keep cutting speeds high, even for thicker materials
- Poorly adjust lasers can cause burning – F2O has years of experience and modern technology to minimize this
- Difficulty cutting reflective metals (like copper, brass, and sometimes aluminum) – while our lasers cannot cut copper or brass, we are able to cut aluminum with excellent edge quality and high cutting speeds

Location

The location of a product can affect may aspects of the design, to be the best and most sustainable to its environment. Aspects that may alter the design maybe as follows;

The Power Source- the power source may vary due to where the light is put, such as it would be possible to use solar energy and power to power the light if it is exposed to a lot of good natural light. Another method used is battery's. Batteries are a good source of power and enables the product to be mobile and unrelent on having an electricity plug. However, batteries may be not cost effective over time and unreliable, because batteries are expensive and don't last long, it used often. The most common and popular power source method used is the plug, which is because most people have very easy access to a plug and a light would not be very expensive to run.

Space- depending on the room the space available for the light will vary can this factor may affect your design ideas, because having a small room, such as offered in student accommodation, etc, has limited space therefore the light designed can not be too big. Or in comparison, you have a large room with a large floor space, you may like to design a large flamboyant light so it is lost in the room.

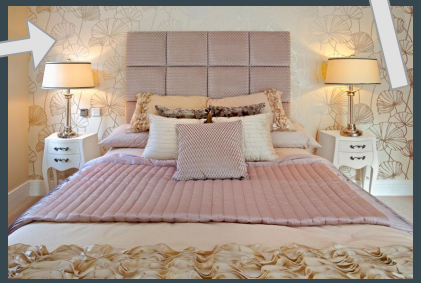
Hanging lights in this case for the central point of a ceiling, we would only be able to design the lamp shade because the electrify is already supplied through a light fitting

A free standing light, is used often when there is no table to place a smaller lamp. They are also larger in width to balance this out

A lamp can be made to be placed upon a side table,desk. This means the the lamp is usually at eye level therefore the stand or height of the lamp is not large in height.

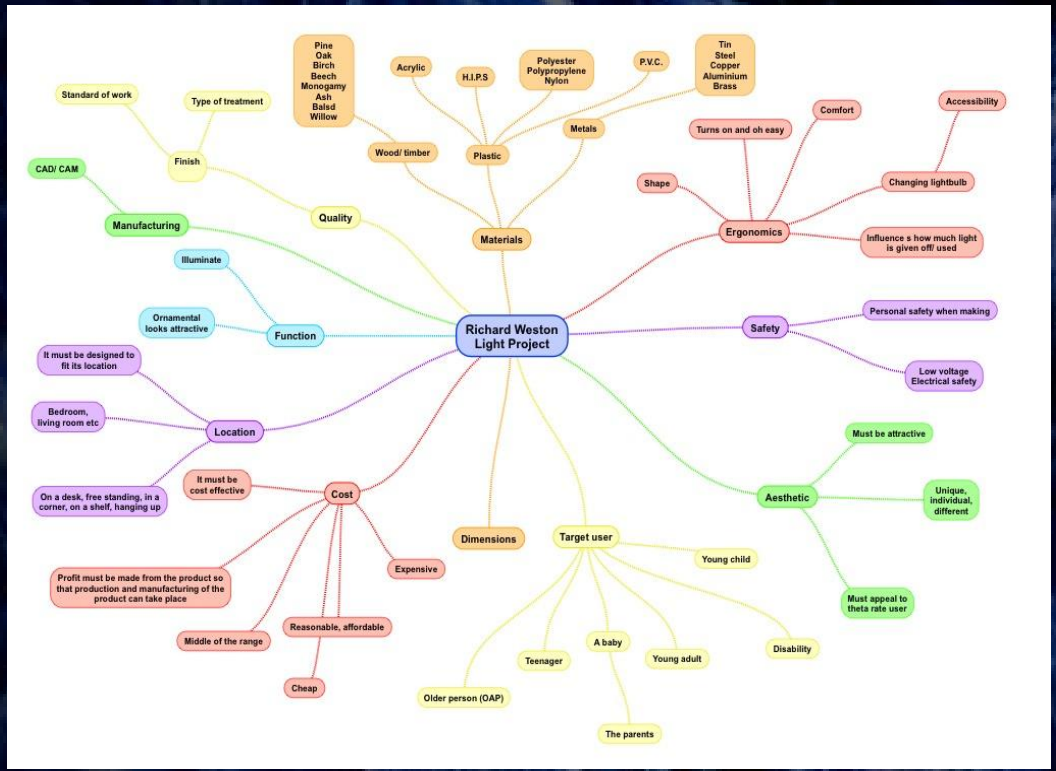
This photo demonstrates different locations the lamp could be placed within a room.

General location you must consider many factors, these factors vary on different rooms



Levels of furniture, where you want light to illuminate the room, for what purpose would you like the light, how much space the room has, design.

Initial Specifications



- My light must be inspired by and include images from Richard Weston work.
- The light must be suitably designed to cater for the needs of the target user and appeal to them.
- ACCording to the location the size and shape of the light must be designed accordingly and accurately so that it fits suitably and correctly.
- The quality must be of a high standard with a good quality finish, where all techniques, measurements and materials are executed correctly and measured with precision and accuracy
- The function of the light must be clear and function correctly. The light must light the area in which it is placed.
- The safety of the target user is very important, meaning that all electrics must be checked and pass a risk assessment
- I will use the appropriate materials for my target user
- The design of my lamp must consider its location and environment as it must be easy to use in its situated space.

Product analysis

Location

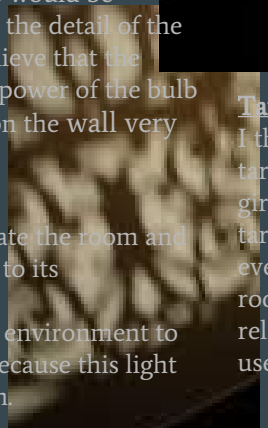
As the picture shows the current location is in the corner of a room, perhaps this is because then the pattern projected is best seen on the walls. In its current location in the image above with one of the key features of the lamp in mind in was cleverly placed in a corner at close proximity to the two walls, where the pattern was projected clearly, because from observation the further away it is to an object the more distorted or fuzzy the pattern/ image projected is.
This effect however may be desired by the target market, and is a decision that is made by an individual.
However, the location of this lamp could possibly and potentially be anywhere, where the mood and atmosphere is relaxed and calm.

Cost

I think that the cost range of this lamp would be between £30- £60. I think this because the detail of the CNC machining has created, also I believe that the edges as very clean and crisp, also the power of the bulb is good because I can see the pattern on the wall very clearly.

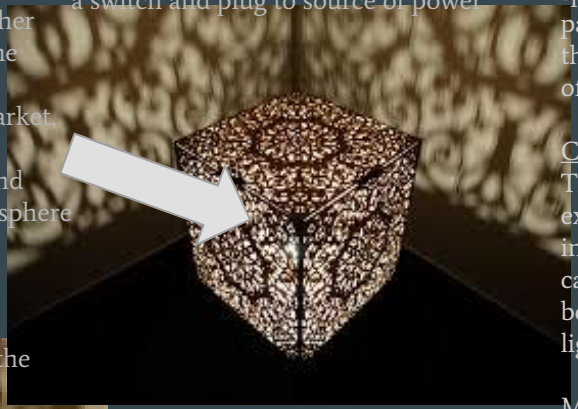
Function

The function of this light is to illuminate the room and project this beautiful floral pattern on to its surrounding walls and surfaces.
I feel like this lamp look be used in an environment to add a relaxing calm feel to the room because this light purpose is purely to decorate the room.



Materials

Steel sheets, that has been cut using CNC machining. Perhaps it is also painted as a finish, however that is not clear in this picture. For obvious reasons a bulb will be located in the centre, connected to a circuit board, which makes and completes the system/ circuit of electricity to function as a light, this will also consist of a switch and plug to source of power.



Target user

I think looking that this product that the target user may be very feminine, and girly as the pattern is very floral. The target user would be using this in the evening however not to illuminate the room to read but to create a calm and relaxed feel, reflecting the person/ target user relaxed personality.

Below the line features

Materials

A paint finish may have been used to steal sharp edges and resist scratching. This making it more aesthetically appealing and durable to move around, which the is a desired factor to the target market.

Function

This lamp categories for two purposes to illuminates its surroundings, but it is this way it does this that makes it unique and special. This is because it casts the pattern of the metal lattice panels and projects it on the surrounding objects like the walls in this image. Creating a relaxed atmosphere vibe. It is turned on and off using a switch on the electrical cord connecting the to the plug.

Components

There are five laser cut metal sheets and base that creates the exterior shape of the lamp. In addition to this concerning the interior of the lamp, the components may vary. Nevertheless, we can conclude that an average light fitting was used in the centre, because of the power of the light, only a bulb can cast, but LED lights may have been used.

Manufacturing Process

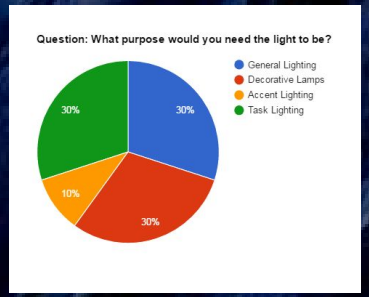
The manufacturing process is standard and often used in many areas of design and product of a huge variety and range of products. However, saying this what makes this product unique is not the manufacturing processes used but its intricate lattice design structure, and the idea behind it. The main processes here are the CNC machining involving the laser-cutter, paint strayed achieving an even coat, assembling of the panels to form the exterior shape that we see in the photograph, i should think that these were sealed in a process like soldering, where metal is melted to join the pieces together wiring of light fitting, cord, and plug.

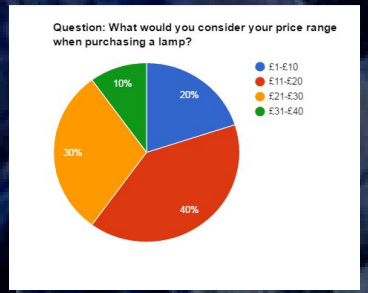
Target Users

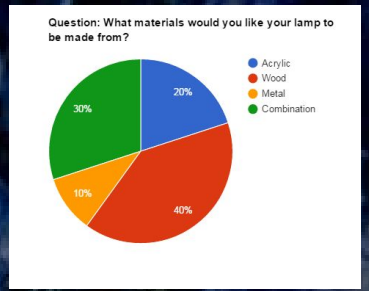
My target user is female, whom is around the age of 24. She is fairly new in her current job working for a design company, this is her dream job opportunity and as she recently finished her degree in fashion and design. Which provides her with unique experiences like visiting fashion events like, catwalks, which take place around the world. She is currently living in an apartment in the centre of the city so that she is near to her work. She shares with two others and is saving to eventually purchase her own home, but is in no rush. Her favorite past time is spent on creative arts, such as dancing. She also enjoys meeting up with friends often going on long trips to festivals or holidays aboard. She would describe herself as adventurous and loves to explore different places. She has a great passion and interest in fashion and trends that follow, so she likes to keep her wardrobe and house up to date with these.

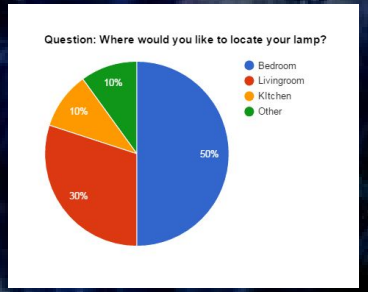
Questionnaire- I conducted a questionnaire where i asked 10 people that fitted in the age range of my target market. I concluded that carrying out this questionnaire would help me understand the needs of my target user. Therefore i will be able to design my lamp to target my aimed audience.

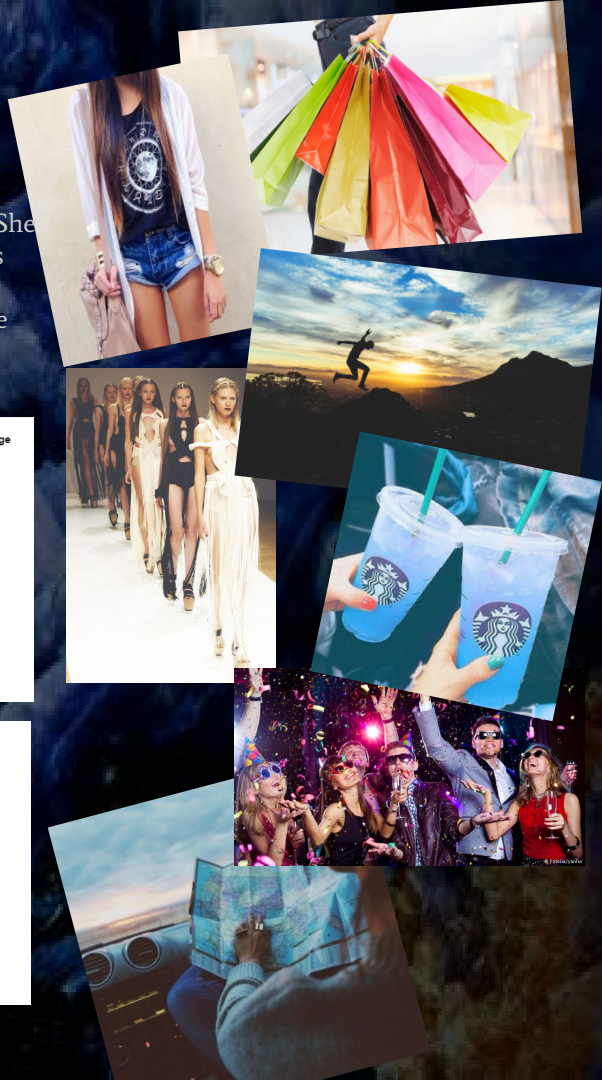
To summarize my results, my light will made from wood mainly but i will use other materials to add variety of textures and tones. Using wood allows me to create a range of different high quality finishes that can be achieved with various different methods and techniques. The price will fall into the 11-20 price range, i have chose that the main purpose and function of my lamp will be decorative that will be most suited to a bedroom. This is because i think that this will not limit me with my design and i will then be able to test new techniques and skills.











Specifications

Order of Importance	Initial	Detailed	Testing and design	Testing in manufacturing	Testing after construction
Function- 1 most important	To help illuminate its surroundings, in a decorative way The secondary feature is that it looks are appealing to the target user	Although this light will not be the primary source of light, it will provide enough light to see comfortably when the main light is off. It will also look aesthetically pleasing to the target user and links back to Richard Weston's work.	I will research other lamps and see how they functions and what power source they preferably use. I will also do this with light bulbs.	I will consider all different power sources and light bulbs and test them to identify the best one	The lamp will be tested in a similar location that it is designed for Several people of different ages will be asked to test the product and gather their opinions on it success
Aesthetics- 2	Be unique, and different in its design Link in with and designed with the current trends in mind Inspired by Richard Weston's work	The overall look and finish of the product will be based on creating a unique and different design aspect. Considering the current trends in design will help appeal to the target user.	I will show my 5 best lamp designs to a group of typically target users, and i will take feedback from them. I will also ask them their thoughts on the Richard Weston aspect.	I will consider the finish and quality that my product could achieve wilist in manufacturing	I will show a group of people that are typical target users the final product. I will ask for their opinions on the design and what needs to be improved
Target user- 3	My lamp must appeal to my target user therefore the design must consider the factors that may affect this It must be suitable for a young women	My light must be linked with Richard Weston's work. It must be fun and pretty, with a unique design and pattern.	A questionnaire will be completed to ask a group of typical target users enquiring about what aspects they look for when buying a lamp	I will complete a review on all the materials and components that will be used, checking and testing to find out if they are suitable	I will show a group of people that are typical target users the final product. I will ask for their opinions on the design and what needs to be improved

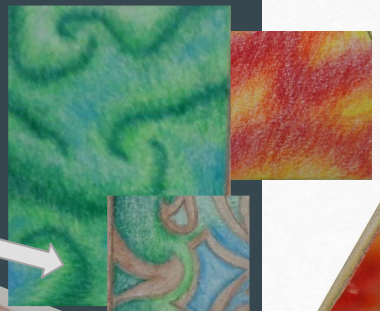
Quality- 4	The overall quality of my product must be to a high standard expected by the target users	To meet this specification, the overall product must be constructed with high quality material to achieve the look of high quality and a well finished product. This is essential if you want the end product to appeal and attract to the target market as much as possible.	I will ask the target market to assess my light and the quality of its finish and materials.	I will test and explore a range of finishes and materials such as varnish and wax. I will conclude what finish is the best quality and standard required.	I will ask a focus group if they think i've used a range of materials.
Materials- 5	My light should be made of a range of materials. Therefore i will be researching alternative materials that meet the requirements of my lamp.	The main material of my light will be wood as it is the one of the easiest materials to work with on the laser cutter and allows a lot of possibilities of finishes and techniques to be used, which adds to the products character and cost. Other possible materials incorporated into the design will include plastics and metal.		I will experiment with range of materials through model making to see which one looks the best.	I will ask a focus group, which contain people that come under my target user brackets, if they think that the material of my choice is the best.
Cost- 6	The light should be made to be a affordable to our aimed target market. Therefore it is at a reasonable price and not too expensive to the customer.	Recognising that cost can affects the number of sales made significantly, it is very important to get the price correct in the eyes of the target market so that it will appeal to them. To conclude I will ensure my light is made to a reasonable price of around £25-35 which is seen as a good starting place. i will try and make it cost effective.	To achieve this I will research material, and manufacturing costs and see which is the most cost effective to use, that saves money.		This means I will ask a group of people from my target users to completely evaluate the light and its key aspects such as the cost. Their feedback will give a good insight into the pricing and its worth.
Processes/ construction- 7	It is essentially necessary that the lamp is made using a great range of processes. This adds value to the product, but not only that it adds character, with such details. Doing this means that you create a unique, well thought out, quality product	I will ensure that my light will be produced using a plethora of processes including the laser cutter and the lathe. This means that the product will have to be well thought out and designed to make these processes link together and have the best end result. It will be constructed thinking in the most efficient way possible to save time and costs.	I will research the best type of method to use when constructing each part of my light and which ones i am able to carry out in a school environment with the resources available	I will conduct tests using different construction methods on scrap and spare materials to see the result and gain practice. By doing this i can establish if i can incorporate them in my design.	

Specifications

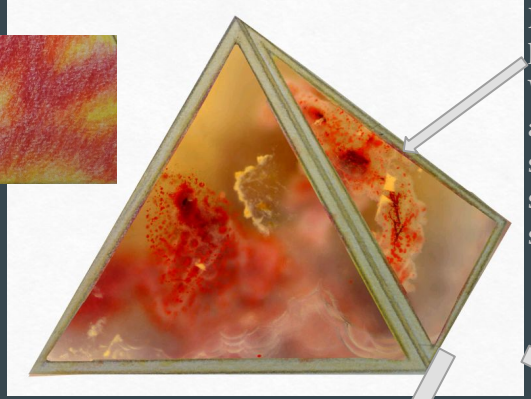
Safety and quality control	My light must be safe to use because there are many risks that could occur involving electricity and the final product produced will be to a high quality.	I will make sure that throughout the process of manufacturing i will check and test that what i have done is safe. I will also check for sharp edges and all wires are safely in place this will reduce the risks	I will ensure that i am aware of how my light will fit together. This will mean that all correct components are in a safe place.	I will check my light continuously during the manufacturing processes to ensure the light is a safe as possible.	I will ask a group of people whether they believe my light is safe for use.
Ergonomics	The design of my lamp must consider its location and environment as it must be easy to use in its situated space.	it should be lightweight so it's easy to move around making it mobile which is a desired characteristic.		i will test and note the weight of all the materials and test out different components for use.	i will ask a focus group to test my light to see if they feel it's easy to use and if they would be able to move it around

Initial ideas Annotations

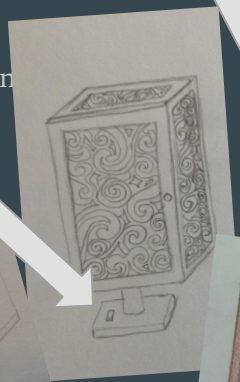
painted thin plastic layer/ sheet or cotton dyed material, inspired by Richard Weston's photography.

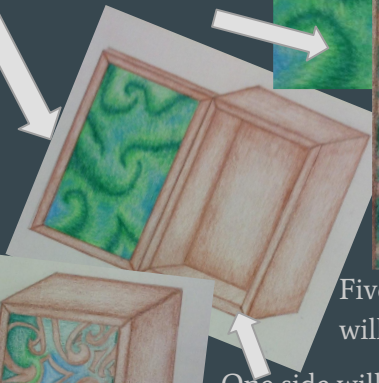


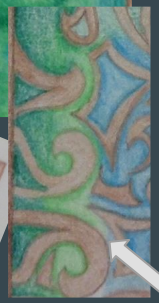
Here i used an app to show how i would use Richard Weston's images in this design and how it links in with my sketches. I like it looks very striking and frames the image so it is the main focus



Adjustable stand, inside the height of the stand could be changed, using a similar method to an umbrella when it is extended



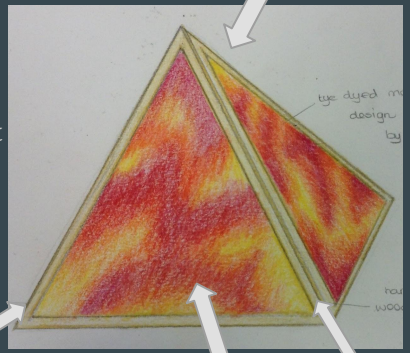




Five sides of the cube/ box will have a pattern laser cut

One side will be a door, that can open so access to bulb is possible to change it if needs be

Richard Weston's photography showcases the beautiful natural shapes and patterns created by nature in agites this was my inspiration for this light and its main feature

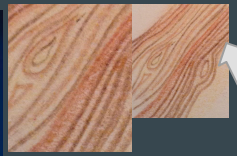


Material will be tie dyed to instill create unique piece with natural blends of colour, patterns and shapes like each agite Richard Weston looked at

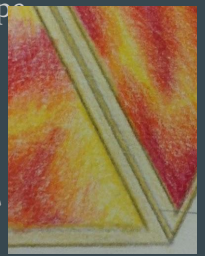
Simple frame made from plywood, pyramid in shape

Initially LED light strip used and wrapped around or inside wooden or transparent acrylic cylinder in centre of box.

I got inspiration from these images when resulting this element

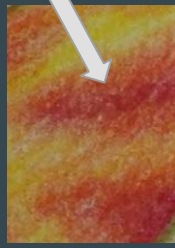


Small, non dominating or overwhelming or heavy, light in colour, to not distract from the fabric



Material will fill the frames behind transparent acrylic this adds structure and stability for the fabric

One side will be a door, that can open so access to bulb is possible to change it if needs be

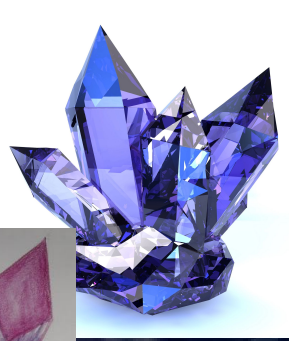


Initial designs

The idea will work and look like a cartoon strip comprised with many images where the size of the crystal varies every time, from small to big. This is so that when the lamp shade is spun it will look like it's growing Projected onto the wall when light is turned on. The shade is spined and the image of the crystal begins to move like a film showing the growth of the crystal.

Very simple basic, average lamp design, however, it's hidden feature is what makes it different from any other lamp

Richard Weston's images used to make up the lamp shade design, a lighter picture for the background and different colour photos to make up the crystals.

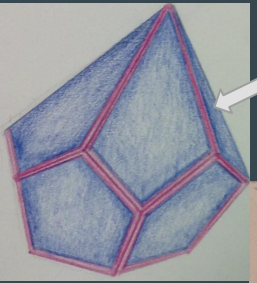


This was my initial idea of how it may look

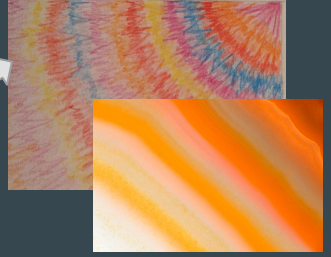
A wooden, round stand that it is not to high because the shade will be large heavy and has to spin relativity quickly. The closer to the surface the light would be the more stable the lamp shade will be

Here i used an app to create a realistic version of the design so that i could clearly show Richard Weston's images. I am very pleased with the way that this turned out i wanted to use a pale coloured but texted image for the background and a colourful smooth image for the crystals to create contrast which i think works really well.

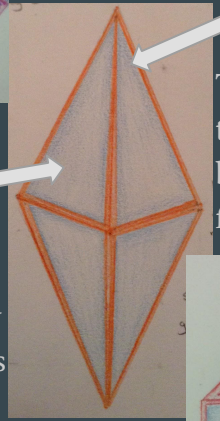
Initial design ideas



Richard Weston's inspired design will be hand painted on the pains or printed

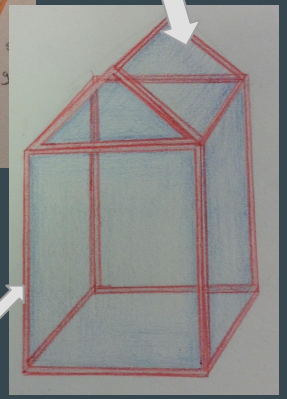


Acrylic is good alternative to glass, a lot safer



Transparent material will show the below the line features that are typically unseen, this adds to the industrial feel that these geometric shapes have

This design was adapted to the industrial trend that many young people have bought into because of its popularity in fashion

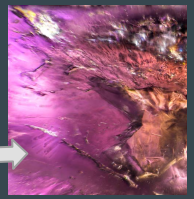


Painted (steel) metal frame

Bold painted frame gives an outline to the structure and adds to the industrial feel to the design created here

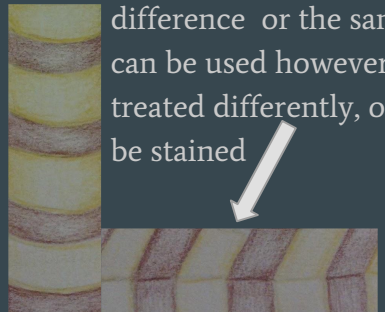
Five sides of the cube/ box will have a pattern laser cut

painted thin plastic layer/ sheet or cotton dyed material, inspired by Richard Weston's photography.



The shape will create a pattern projected on the surrounding walls

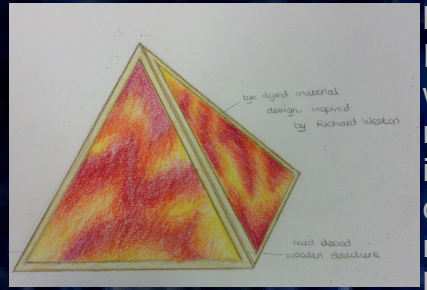
Two wood types used that is considerably different colour for there to be a noticeable difference or the same wood can be used however they are treated differently, one may be stained



Design inspired by lamptons shape

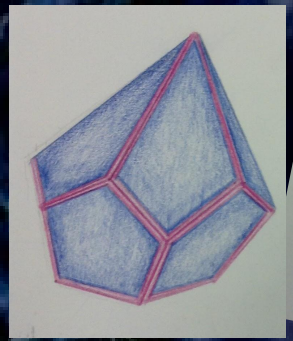
Layer cut plywood, behind material (cotton) has design and colours inspired by Richard Weston's photography

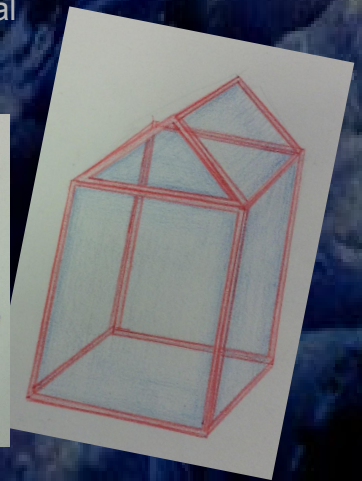
Best Designs



This pyramid shaped lamp, consist of a wooden frame most likely to be pine holds together the pane of acrylic or cotton material. It is a fairy simple design, this would make manufacturing and process it easier than the rest. However this design is innovative because it meets the specifications.

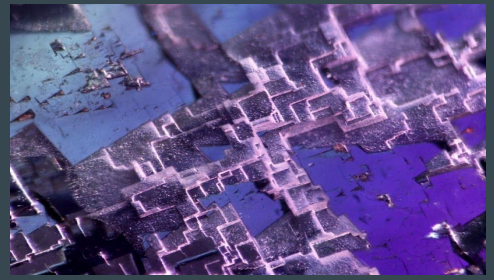
Either a This would be used instead of glass because this would be as after risk of breaking even though it is a hard material due to it being brittle.
I would like to achieve a watercolour wash design which is inspired by the micro images by Richard Weston. This is a technique used in art where a blob of paint letting the paint dry for several minutes, then is wiped away. This leaves a stain mark that has a bond ring around the edges, and a light shade in the centre. The effect given from using this techniques allows natural lines to form, like all of Richard Weston's work relies on the natural form of agites. However is rather boarding in design.

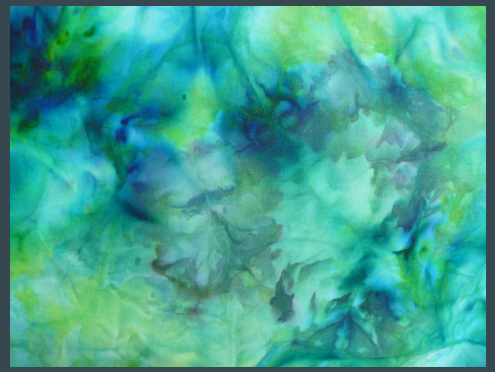




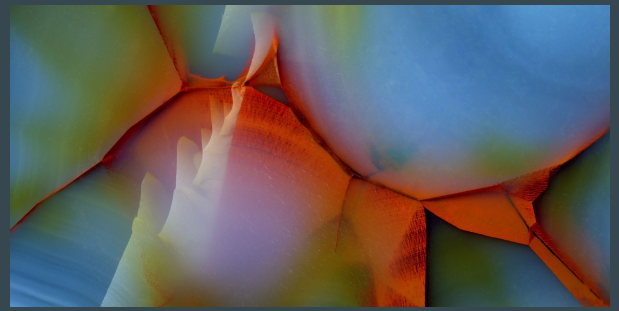
I have grouped these designs together because they are very similar in design and processes applied to them.
Mixed wood type used , one dark and the other light in colour or a treatment is applied to the same.
Laser cut screens that make up 5 sides of the box this will
A painted thin plastic layer/ sheet or cotton dyed material, the design will be inspired by Richard Weston's photography. This will also filter the light so that the light emitted is the colours and pattern of the designed cotton/ plastic layer
The laser cutter is a key feature in these designs the laser cut designs are what makes the design attractive and applying to the target market. Having this feature means that when the light is on it creates shadows on the walls.

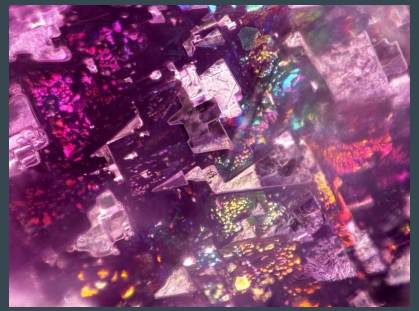
Richard Weston



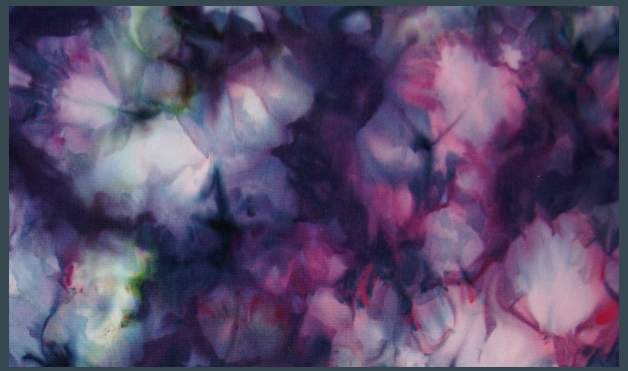


As part of my project Richard Weston's photography is a key unique feature that will give my design the edge and difference that will make it stand out against all other lamps. Therefore i feel that this must be the very essence that attracts people to the design. Here are my selected favorites of Richard Weston's photographs that i would like to take inspiration from and incorporate in my design. I went for colours that are bold and bright, looking mainly at the purples, pinks and blue tones, where there is a contrast between the sharp dark rich colour and light pale shades.



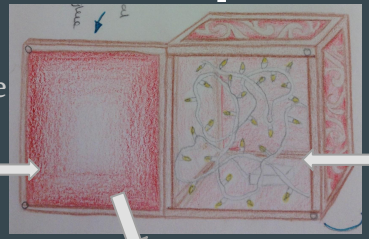


As i was researching methods i could use to feature Richard Weston's photographs in my design, i considered using fabric as the medium that it will be placed on. There are a variety options that i could use on fabric like printing. Continuing research i came across ice dying, which i have decided is the technique i will use to feature my Richard Weston inspired fabric design. It is very similar to Richard Weston's photography, i have put some pictures below (pink/orange/red) (purple/blue) and above(green/ blue).



Design development

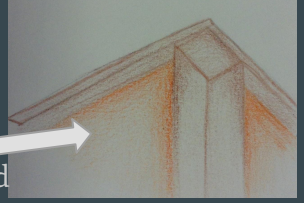
Lights are durable, enable movement of the boxes



Battery powered. String lights distributes light on each side equally

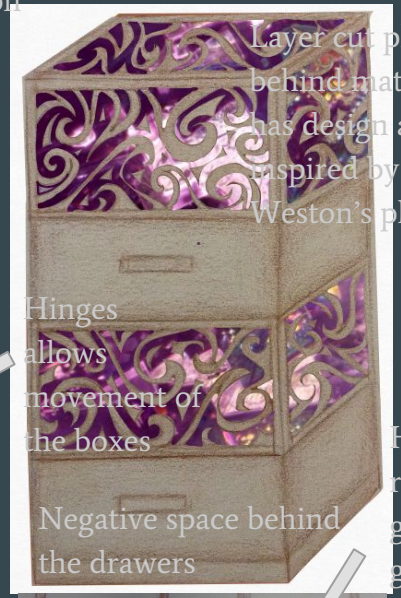
Material stuck on with hot glue gun

Laser cut plywood 3mm a frame must be made to make structure strong and secure



Multi functional, “two in one”, two lights and two drawers,larger interest to target market

Layer cut plywood, behind material (cotton) has design and colours inspired by Richard Weston’s photography



lights

Fully functional drawers

Flush drawers

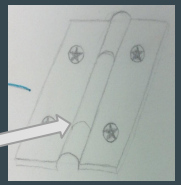
Colours and patterns optional, customize your own all inspired by Richard Weston

Hinges allows movement of the boxes

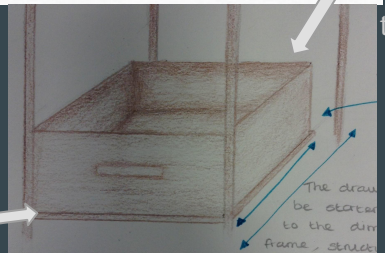
Handles rectangular, long good and easy to grasp to pull out the drawer

Each box is sold separately

Hinges provided, detatched from light to allow creativity to its owner, more versatile.



Drawer will be shorter compared to the dimensions of the frame and main structure



Negative space behind the drawers

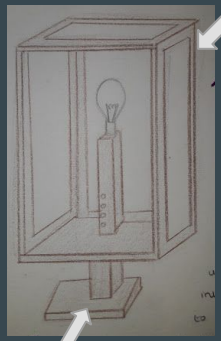
Wires from top light will be threaded through the space to then me connected to the the second light near the bottom all jointed in one lead to the plug

Base is large and thick so that dawer does not drag on surface below

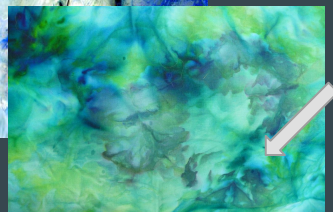
Design Development

Push the button to move up and down adjusted to desired height. Their will be several buttons, one will click into place which is secure and can't move

Interior structure gives the laserply the needed support, securely glued together

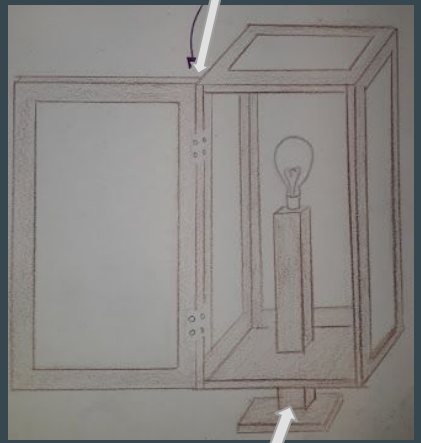


The stand helps spread the light it increases the surface areas hit by light, which it improving the functionality

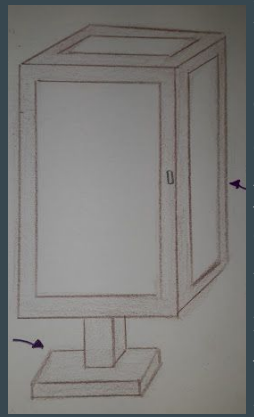


Before i completed this design i picked out two of Richard Weston's photography's to use as my inspiration

A panel will be made into a door to allow access to the light bulb and the stand. So that the user is able to change the bulb and adjust the height of the stand



Stand made of good quality wood, adds to the aesthetic of the design also adds value for the stand and base pieces



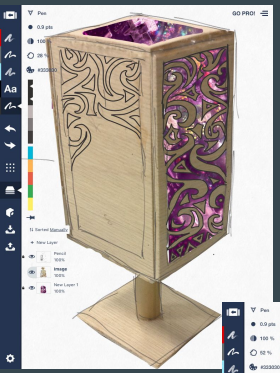
Wooden handle fixed, to open the door

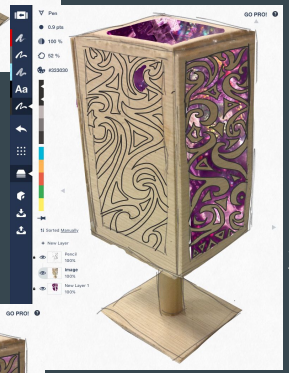
Tye dyed style technique used to create this effect

Ombre style all inspired by Richard Weston's photography

Lattice structure, cut out design panels done on the laser, richard weston inspired design behind this

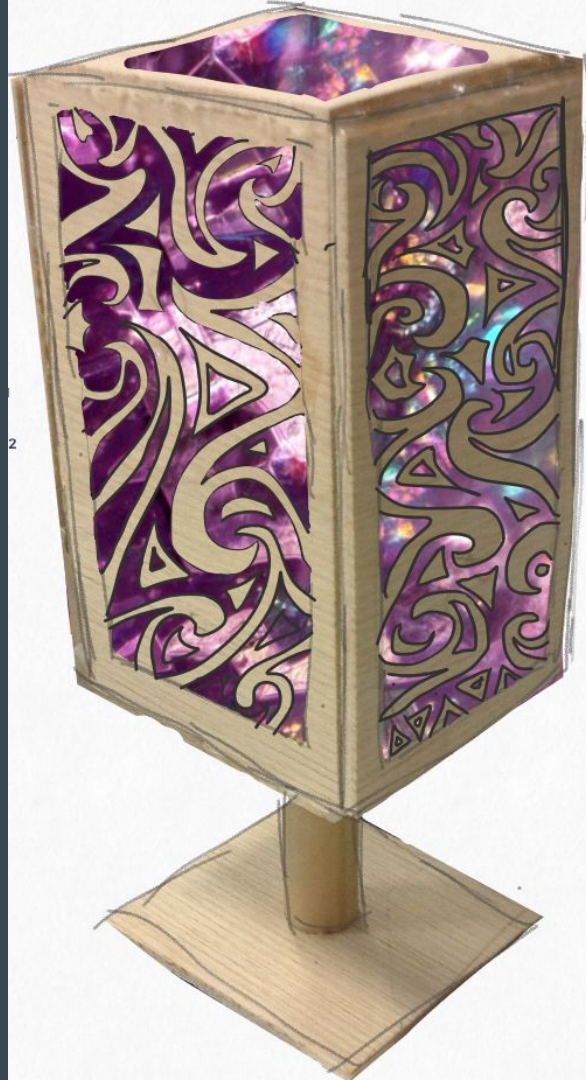
Concepts and Google Sketch-up





Concepts is an app that allows and enables you to create designs using various tools and layers. I'm glad that I used concepts because it enabled me to draw and create the design in final technical detail that is very realistic. It helped me to check the dimensions, and think of the sizes and practicality of my product that is will be producing. When the final measurements are made it is a lot easier to work out how much material is needed. The process

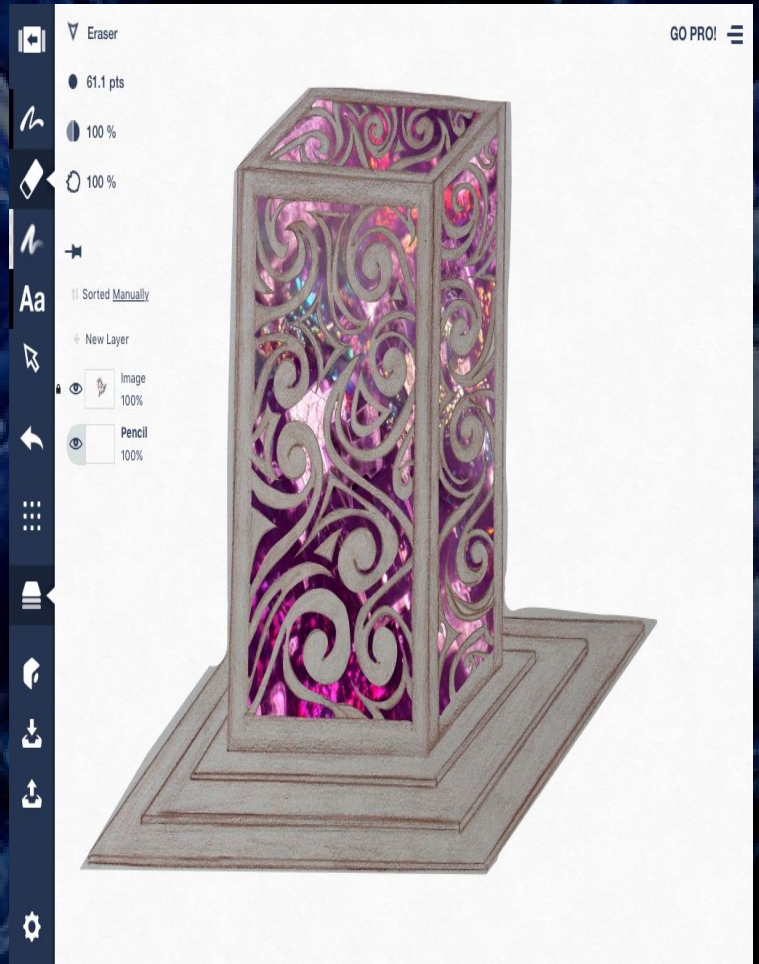
1. Firstly, I imported the image of the model that i made based on my finalised design ideas. The app allows me to delete and rub out parts of the image so I used the rubber tool to erase the background of the photo. This was my first layer
2. Richard Weston's photograph was imported after this. This allowed me trace and rub out the areas not needed, going around the edges. I however then I had to change the layers around so that this image was underneath the image of my model then locked the layer
3. Next, I used the pen tool to draw out the outlines of panel design.
4. Then I locked the pen layer and used the eraser to rub out the areas that will be laser cut out of the panel exposing the Richard Weston's photography.

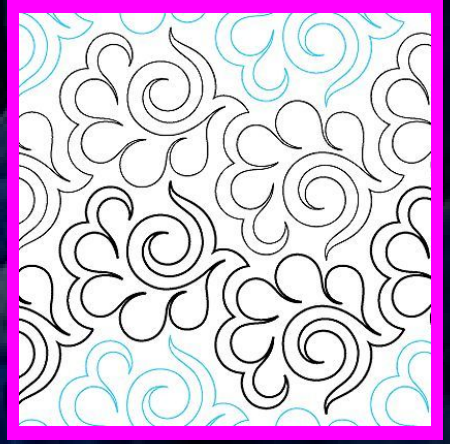


Design development

Lattice structure, cut out design panels done on the laser, richard weston inspired design behind this

This is my choice of light

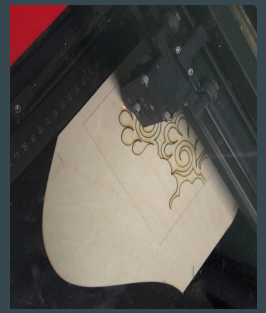


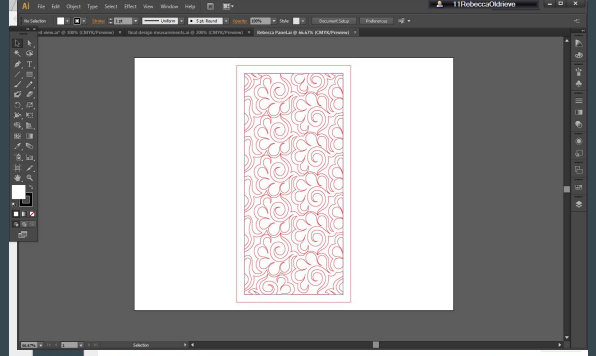


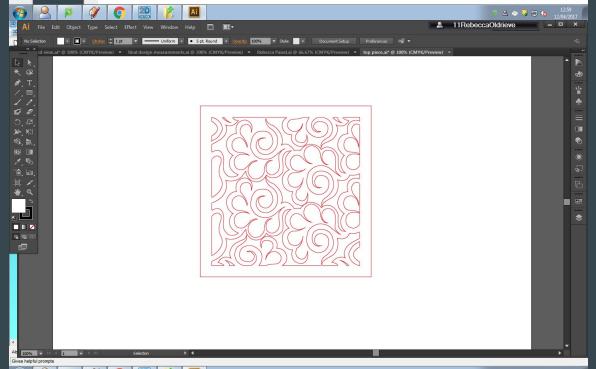
One of the first steps was to figure out the design of my lattice structure/ the laser cut panels. My original drawings showed pieces that were not attached to each other this had to be changed so that the design pattern was secure. The panel would be designed similarly to a stencil, therefore meaning that all pieces were attached the surrounding frame. At first i was not sure how i would create this in any of the CAD systems. So i researched patterns that are used for various other things that i may take inspiration from i chose this one. This is a quilt design. I had to edit and change the design so that it would work for my design. I did this on Illustrator.

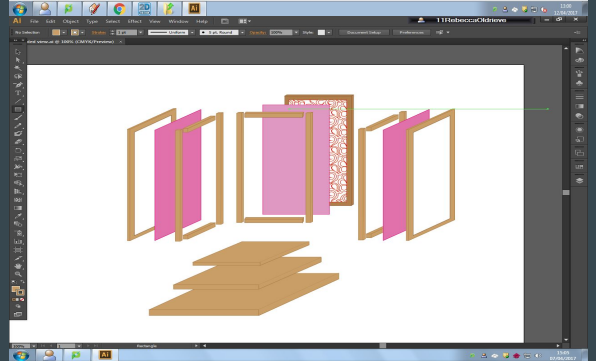
Illustrator

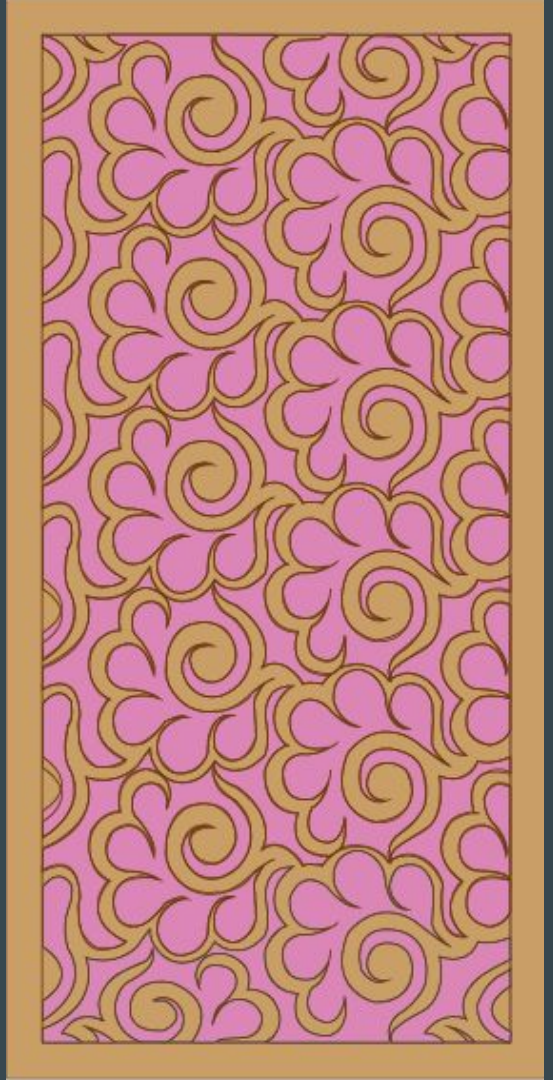
This required the illustrator documents to be transferred on to 2D design. I had chosen to use illustrator because i was most familiar with it however this coursed some issues. Such as when the final design was copied on to 2D design, the size of the line needed to be adjusted and we changed the colours of the lines, because this instructs the laser what to down whether to cut and engrave. Red was to cut, Blue was to engrave. Unfortunately, we discovered that under these lines there was a black line that stopped the laser from cutting and the design only ended up engraving. This was rectified and changed. And we started the process again.











My models

First/ Initial model

My first model was to get a feel of how the design was going to turn out. It was the step from paper to making

The Process

I firstly collected scrap materials that resembled the materials that my design will use. I did this because it will give me a greater understanding of what it like look like and how the material ill affect the design, allowing me to make adjustments if needed. Due to my design being laser cut laser ply i chose a this thin plywood. Then measured out roughly the dimensions i would like it to be. Doing this made me decide that i would alter the height making it longer in the body. This is because i found it to be too short not allowing much surface space for the design, which is the main attraction to the lamp. These pieces where then cut out on the bandsaw. Using the hot glue gun i glued the pieces together. I found this useful because it made me consider the manufacturing process and how i how actually construct these pieces to fit together so that the structure is stable and

Due to my design using mainly laser cut panels that makes up the lamp. Because of this factor it was essential for me to get this part correct down to the tiniest of details. This required me to go over the design and redraw using illustrator, i made sure that the lines were straight and linked. I did this because if some lines were not linked this would mean that when it goes through the process of the laser cutter the laser cutter will not cut those gaps meaning that the some of the card and area would not come out.

My attempts

The first attempt showed me that i made an error because the intersquare sections needed a red line on these parts so they would fall out, only leaving the trellis like panel. I made drawn a blue line which caused it to only engrave those those sections did not come out, and i therefore it was possible on the model with the card to cut this out using a craft knife. however , this solution was not possible on wood so i rectified the mistake on 2D design drawing the red lines to join the cut lines.

2D design measurements

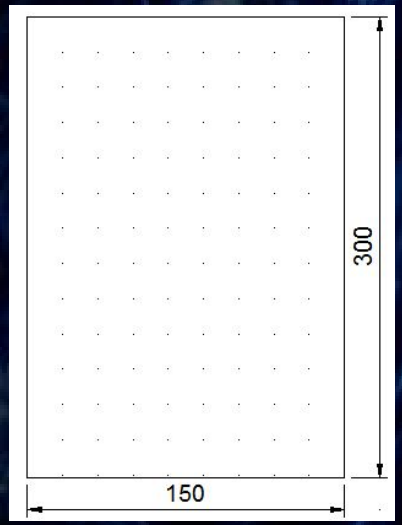
All dimensions and measurements are in mm

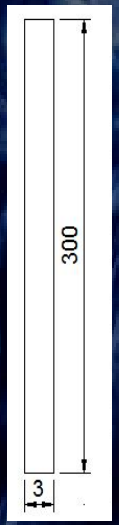
Dimensions of laserply panels- 300x150x3mm comes/ordered in 600x300x3mm sheets. The cotton must be cut to 295x145mm pieces to fit behind the panels is cut onsite and payed for.

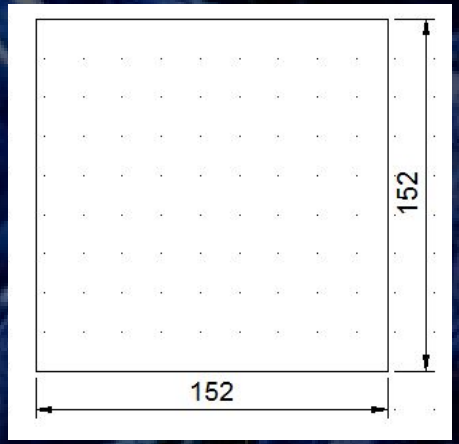
Base and the top pieces- 150x150x3mm layer plywood.
Cotton underneath- 145x145mm

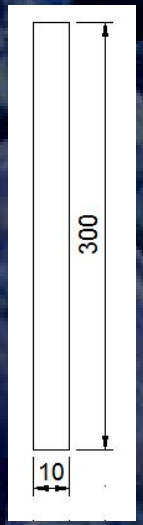
Inner support frame measurements

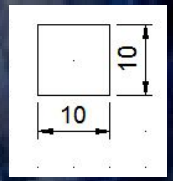
Materials		Pieces
Planes	Laser-ply	x5
Base	Oak	x4/ x1
Support frame	Pine	x8

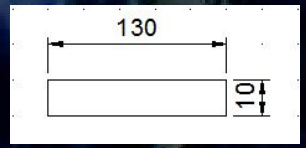




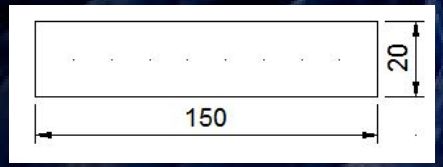


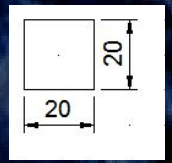




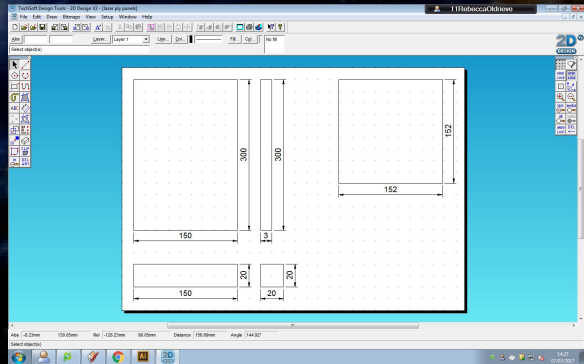


base wood piece dimensions





2D design is a computer software programme that enables its user to map of and draw their design pieces completing the final technical detail of the design. It helped me to check the dimensions, and think of the sizes and practicality of my product that is will be producing. When the final measurements are made it is a lot easier to work out how much material is needed.

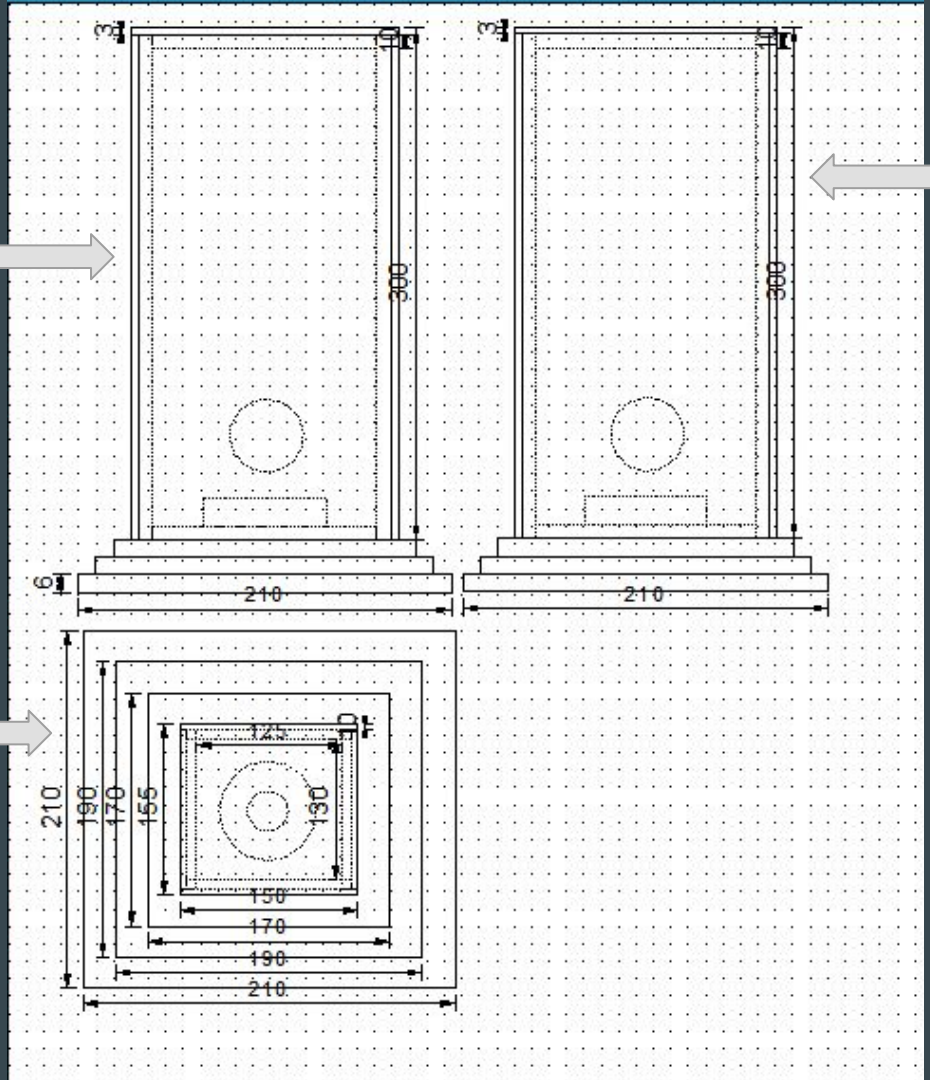


Working Drawings

Front view

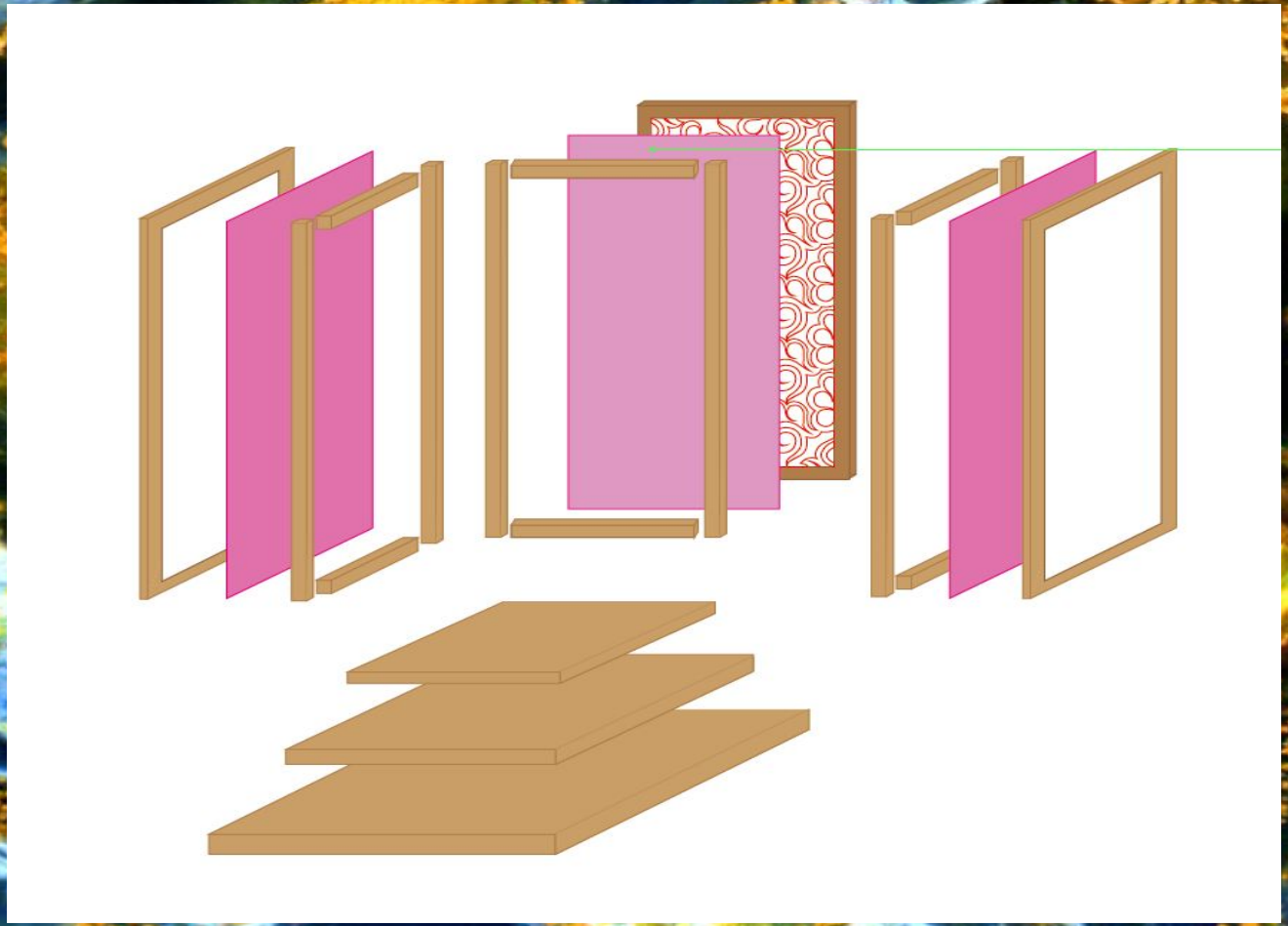
Side view

birdseye/ top view



Exploded View

Creating an exploded view

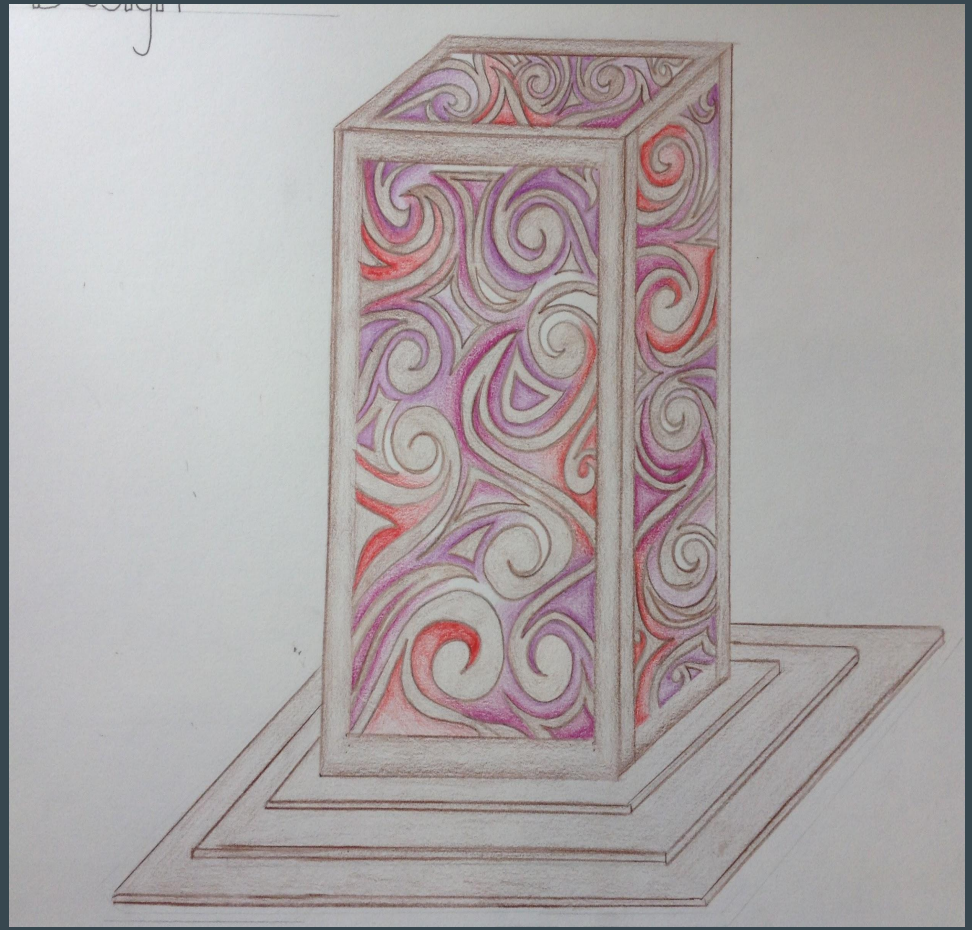


Materials

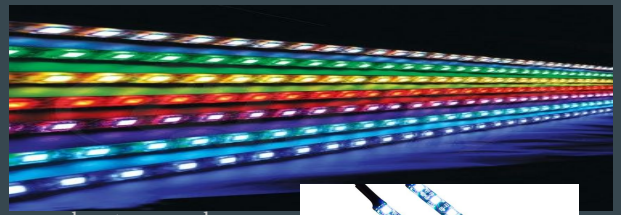
Component	Possible Materials	Advantages	Disadvantages	Cost	Workability/ Stability	Score (0/10)	Conclusion
Main Body- laser panels	Acrylic	• Easy to work on the laser cutter • Stiff, hard and durable polishes well •Comes in large pieces.	Can be costly depending on thickness Scratches easily Brittle in small sections	Low	Acrylic could be used in the design, however would not have the same effect as wood, it would look cheap or tacky	6	Plywood, because it works well on the laser cutter and i will be able to purchase it in the size i need to use in my design. Considering that these panels will make up most of my design it will be a cost effective this
	Plywood	• Easy to work with. • Comes in different thicknesses. • Inexpensive	• Edges are aesthetically poor. • Wood needs to be treated before painted.	Med	Plywood would be suitable for smaller parts, it is harder so could be used for its strength.	8	
	Oak	• Aesthetically pleasing • Very strong. • Good finish.	• Expensive • Very hard, difficult to work with.	High	Oak would be aesthetically pleasing but very heavy.	4	
Support structure/ body	Pine	Low-cost Paint well Pine develops a nice rustic patina from age and use Resists shrinking and swelling. Easy to purchase	It's a softwood Prone to scratches and dents.	Low	Cost effective, will be able to support and not change shape over time. The look is not important because you won't be able to see it	9	Pine has all the qualities that will satisfy the needs of the framework that will aid support of the panels
	Firn	Water resistant. Knot free. Durable Easy to work.	Splits easily Availability in workshop	Low	Has qualities that add to the design improving it, eg water resistancy	7	

Component	Possible Materials	Advantages	Disadvantages	Cost	Workability/ Stability	Score (0/10)	Conclusion
Richard Weston's Photography	Acrylic and paper	• Easy to work on the laser cutter • Stiff, hard and durable polishes well •Comes in large pieces. Images easily printed on paper to a high quality	Can be costly depending on thickness Scratches easily Brittle in small sections	Mediu m	The acrylic would act as a plain between the pictures of Richard Weston's photographs and the laser cut panels. This will give a glass	5	I have chosen to go ahead with cotton fabric because i would like to be able to create my own design inspired by Richard Weston, instead of just printing it out. I think this will add to the uniqueness of the design and it will teach me a new skill and technique with using dye and fabric.
	Cotton Fabric	Inexpensive Adsorbent can dye Breathable thin Soft Images can be printed on fabric	Not wrinkle resistant Long time to dry. Color fades in sunlight Can stretch or shrink.	Low	Enables me to create my own design using Richard Weston's work as my inspiration. Explore different dyeing or fabric printed techniques.	8	
	Plastic sheets	Images can be printed Lightweight Water resistant, Durable, strong Cheap to buy	Expensive to print pollute the environment,	Low	Is cost effective and safe. However, the effect i have used in my design can not the achieved using this method	5	
	Mahogany	less liable to warping, shrinking, swelling, and twisting Available in wide and long boards. easy to work, fairly strong.	Expensive Rare	High	It is a hardwood therefore it may be more difficult to work with however this woo=d achieves great results in finish and	7	I would like to add a

Final design

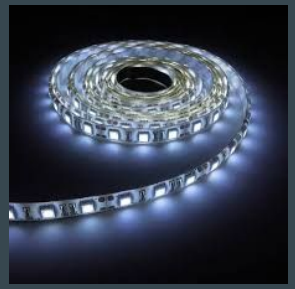


Lighting



LED light stripes-

Advantages- There are many advantages such as LED are very energy efficient as you can now purchase capable of outputting 135 lumens/watt. Long Lifetime which can last as long as 50,000 hours, this would be a great factor for some target users. They are also made of solid material with no filament or tube or bulb to break which means that a lot of risks are reduced. There is no warm-up period meaning that they light up to their maximum instantly. Excellent Color Rendering meaning that it does not wash out colors like other light sources. Making them a good choice in my design considering that i will be using dyed material, which i would not like to fade as time goes on.
They are also environmentally friendly because they contain no harmful chemicals/ substances. One of the most attractive factors about using the LED lights is that they enable you to control and change light colors.



Disadvantages- however the disadvantages are that they are currently more expensive, price per lumen, on an initial capital cost basis, than more conventional lighting technologies. Personally, i don't think that these LED lights will be able to fit the purpose in my design therefore rendered useless. This is because the size limits the amount of light seen and that light is strong enough so that it will create the patterns and shadows on the wall

Bulbs-
CFLs – Compact Fluorescent Bulbs or LEDs – Light emitting diodes Bulbs

Advantages
The greatest advantages of choosing CFLs bulbs are that they are cost-effective. While these bulbs cost more at first, they are actually less expensive in the long run because they last longer than incandescent bulbs. And since they consume about 60% less than incandescent bulbs. CFLs are up to 400% more efficient than incandescent bulbs. This means that you can replace your 100-Watt incandescent bulbs with 22-watt CFLs for the same amount of light, with less energy used. Also, they come in various sizes and shapes perfect for lamps. They too are environmentally friendly as they help reduce emissions of carbon dioxide. Just a single bulb reduces half a ton of this gas in the atmosphere.

Disadvantages -However, there are disadvantages such as they cannot be frequently switching. By switching them on and off often will reduce the lifespan significantly. This means that you should not use them in places where you would turn them on only briefly, which may be an issue with a lamp, but this lamp is most likely to be put on in the evening and left on throughout. They cannot endure outdoors elements meaning that they are sensitive to extreme temperatures. Luckily this is not a worrying concern in the UK.

Opinion

I have chosen to use bulbs in my project because mainly because the raised covers a greater surface area. This is a very important part of the lamp design because i would like it to be able to illuminate a room single handedly, to create a relaxed atmosphere. So much so that it can be bright, for practical purposes, or more subdued to create a pleasant mood. Either way, it's purpose is not to draw attention to the room around it creating patterns on the walls in a light coloured shade that is easy on the eyes.

Planning for making

	Task	Estimated time and Actual time	week 1					week 2					week 3					week 4					week 5					week 6					Comment
			M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	
3		Est.																														
4	Cut and Measure out materials	Act.																														this was easy because i already worked out and planned my materials and measurments. however i did some of this as i went along
5		Est.																														This was a simple task as it only required me to use the bandsaw to cut these pieces which takes a few minutes. However, later on i altered the measurements therefore i sanded the edges down with the beltsander sufisicantly
6	Cut measured Pine wood for interior support frame structure, finishing with lightly sanding each surfaces	Act.																														
7		Est.																														using the correct equipment such as a tri-square to check and measure the right angles i was able to get this task done efficeintly
8	Glue pine pieces to make two frames of interior structure	Act.																														
9		Est.																														Laser cutting is a very key part of my manufacturing and design, i found that i made many minner avoidable mistakes with the software
10	laser cut laserply wood panels	Act.																														
11		Est.																														i completed this quite easily, following the instructions, it is a very long process that takes a lot of prepation
12	ice dye material	Act.																														
13		Est.																														siffisicient amount of glue, the glue was watered down. a craft knife was used to cut the excess away from the frame, i need to add pressure and pull at an angle so that the fabric did not fray
14	iron material and glue on to panels	Act.																														
15		Est.																														
16	glue the pine frames made to two panels	Act.																														masking tape used to keep glued pieces together left over night so that glue dried completely
17		Est.																														I found this to be fairly easily but time consuming. i used a good amount of glue so that it will be sucicure and safe with i used masking tape and rubber bands so that it was under pressure
18	creating the box glue the other two panels to frames	Act.																														
19		Est.																														Sanding and adjusting these pieces so that they fit perfectly took a while with measuring and remeasuring
20	add the four pine pieces to add support	Act.																														
21		Est.																														once the pieces where cut i used the sanding belt to sand off the dark edges that the laser cutter leaves
22	laser cut laserply wood base pieces	Act.																														
23		Est.																														the drying process takes along time, i left the bass clamped in over night
24	siture base pieces together with glue	Act.																														
25		Est.																														This had to be done by a qualified electriction and was completely done in a day
26	light fitting, cord and plug wired	Act.																														
27		Est.																														this was a difficult section because the hole that had to be drilled was quite large as the cord required and the piece of wood was not very large so it was easy to get this wrong and spilt the wood.
28	hole drilled for cord and fitting strewed on	Act.																														
29		Est.																														This posed alot more difficulty that antisipated due to the light fitting been fitted prior to the the gluing, so that made it hard to lift the top section so that i could see properly where the glue was going and how much glue was on there
30	base glued on to the shade structure	Act.																														

Rethinking Design Elements

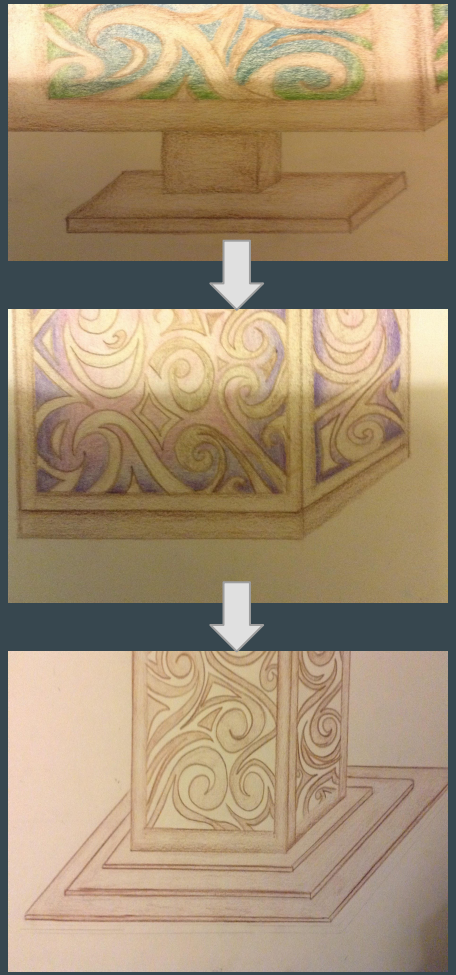
The base

I altered the base, because it was a lot easier to use the laserply rather that a hardwood like mahogany. In addition to this it made a lot more sense to use laserply because it was in keeping with the design. This change came about when i was remeasuring my materials of which was was base which was already cut to size before hand. Due to this, the dimensions had changed slightly but this still made an impact because the base no longer fit. This made me rethink the design of my base. The material i had available to me was 6mm laserply so i used this as a replacement, however i did state originally that i wanted my base to measure 20mm in height so i made up for this by using three different layers of the 6mm laserply. To add more dimension to the design i had them staggered like steps.

The doors

I had brought the hinges and screws so that i could make one of the panels into a door to have access to the bulb. However, once i had got to that stage in manufacturing of the lamp i released that it would not be essentially and that adding hinges and screws would deface or spoil the look of the design. Concluding this meant that i had to rethink the door feature and design a new way to access the bulb. This was fairly simple instead of having one of the larger side panels opening the top panel would work sufficiently and just as well it not better more direct access to the fitting.

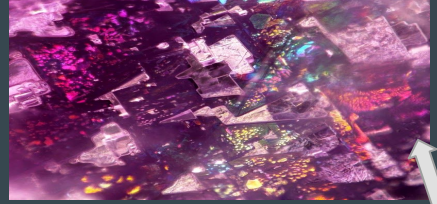
Design stages

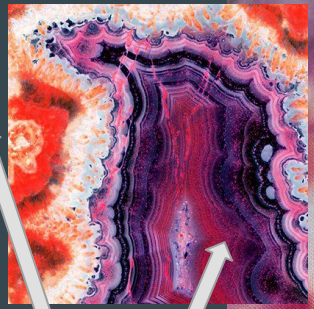


Construction Page- Ice dying

A rank was used so that when the ice started to melt it would drain and not stain the material not having the desired effect

Gloves provided with the tye dye kit, to avoid the staining on my hands. I had two separate pieces of fabric one i folded in a different way as suggested in my research





These are the two final Richard Weston photographs that i based my design on. The kit i bought came with three dyes that were purple, pink, red, which are the dominating colours in these photos

The Process

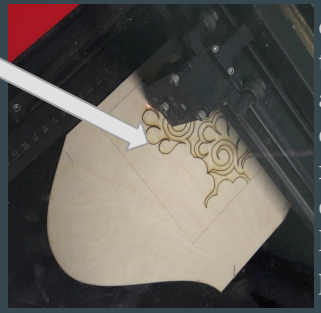
1. I had all of my needed equipment set out and collected. I used an old 100% cotton pillowcase because i knew that this would be more than enough material for my project and i also reduced my initial costs by not buying material. I purchased a tye dying kit from an arts store that came with three of colours, purple, red and pink. These were the colours that i wanted to recreate one of Richard Weston's photography's.
2. I rinsed the fabric in water then scrunched it up lying it on a rack in a box.
3. Then placed the ice cubes on the fabric evenly, not covering the fabric entirely
4. The dye came in bottles i added the adequate amount water to these, shook and mixed them until the dye was dissolved.
5. The dye was then applied on the fabric. I tried to vary where each colour was applied so that the colors would blend together making sure that they weren't put on top of each other so that it didn't turn out muddy and not over saturating the fabric so that i wouldn't get the effect that i was after.
6. Once the i had added the dye to the fabric, it was left for 8+ hours overnight to let the dye work, the longer it was left the more intense the color would be.

The result

I am pleased with the outcome of the ice dying because it looks very similar to the Richard Weston's photographs that i used as my inspiration. What i have learnt from this experience is that it is extremely hard to predict the outcome of the fabric and the pattern up until you take it out. Some parts of the fabric turned out better than others such as this section above where the colours are bold and bright in contrast the the lighter sections, almost creating a galaxy effect where the colours blend into each other

Construction Pages

Firstly, the panels had to be cut using the laser cutter. This required the illustrator documents to be transferred on to 2D design. I had chosen to use illustrator because i was most familiar with it however this coursed some issues. Such as when the final design was copied on to 2D design, the size of the line needed to be adjusted and we changed the colours of the lines, because this instructs the laser what to down whether to cut and engrave. Red was to cut, Blue was to engrave. Unfortunately, we discovered that under these lines there was a black line that stopped the laser from cutting and the design only ended up engraving. This was rectified and changed. And we started the process again.



Once all the panels were finished on the laser cutter. I used masking tape to temporarily attach them together. I did this to give me a rough idea of what the design and pattern looked like. I was pleased with the result.

The 10x10mm frame pieces of spare material cut using the and glued using PVA glue, taped together with masking tape and left overnight to dry. Two of these were made using four 300mm (length) pieces and four 13mm pieces, they were then glued on to two panels

Then i looked at my fabric and concluded the best sections on the fabric where the dyes colour was at its most bold and intense in contrast against the lighter background, to achieve the best results and likeness to the Richard Weston picture i chose and based my design around. Watered down PVA glue was painted on the back of the panels and stuck on the fabric and left to dry overnight.

A craft knife put closely against the edge of the panel and pulling the fabric tightly allowed it to glide, not fraying the material.

Construction Page

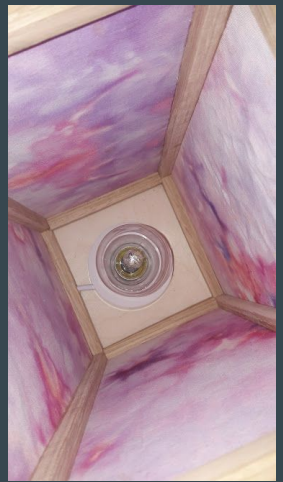
Assembling the box structure, i used glue to secure other two panels to frame. This was time consuming as the glue is always left for 24 hours to dry completely.. i used a good amount of glue so that it will be secure and safe with i used masking tape and rubber bands so that it was under pressure.

Once the pieces were cut i used the sanding belt to sand off the dark edges that the laser cutter leaves. The base was constructed using 3mm laser ply
and each piece was cut on the laser cutter. Glued together with PVA. The drying process takes along time, i left the bass clamped in over night

A hole was drilled in the side of one of the panels. The hole was drilled in the centre of one of the support frame pieces because it needed to be near the bottom of the light. This was a difficult section because the hole that had to be drilled was quite large as the cord required and the piece of wood was not very large so it was easy to get this wrong perhaps causing the wood to split.

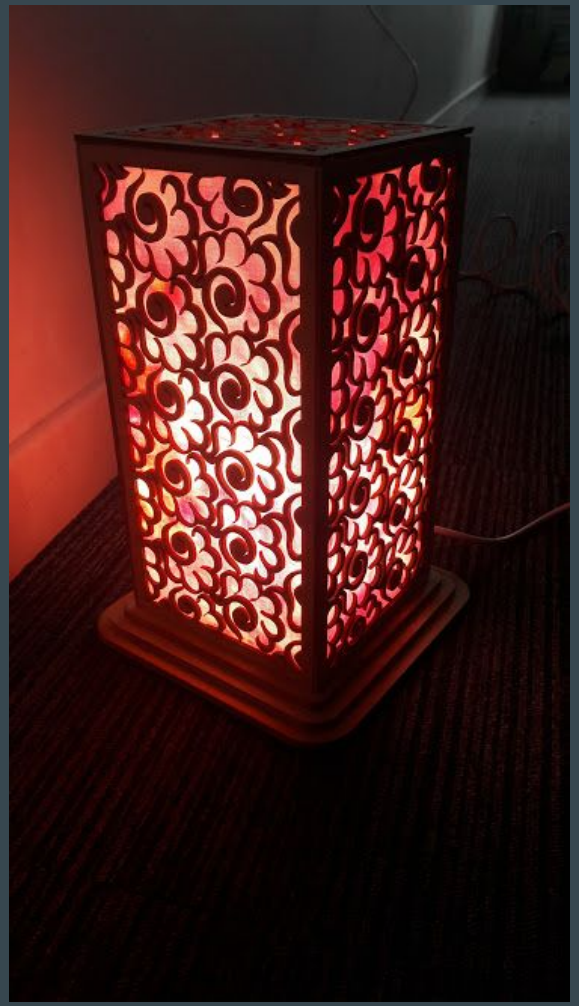
The electrical wiring of the plug and the cord and the plug had to be done by a qualified electrician and was completely done in a day

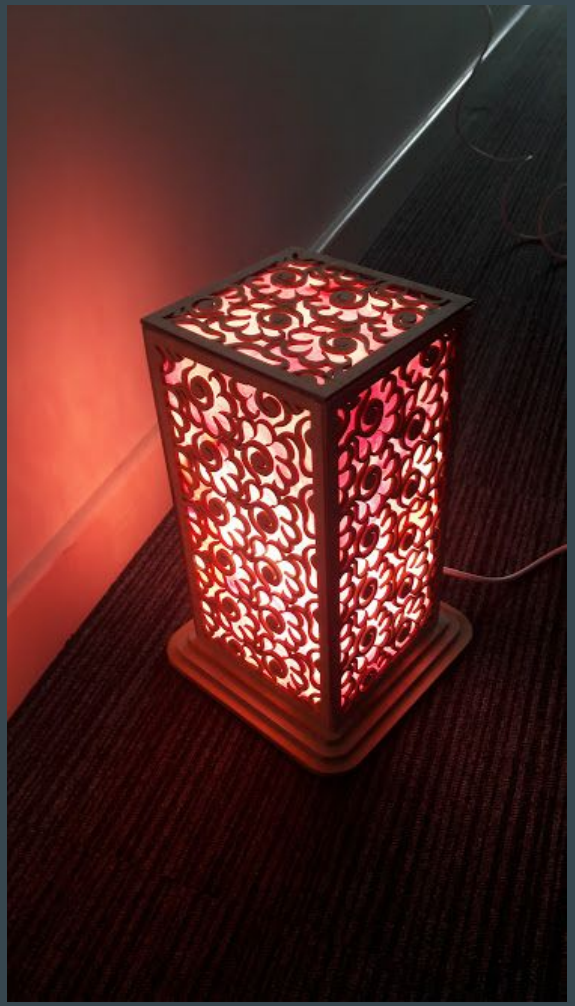
Here in this image you can see the interior of the lamp, where the light fitting is screwed in centrally. The final step was to glue the top section to the base which was difficult to maneuver. due to the light fitting been fitted prior to the the gluing, so that made it hard to lift the top section so that i could see properly where the glue was going and how much glue was on there



All that was left to do was to test it, placing a bulb into the light fitting and plugging into the socket then flipping the switch. To which it worked!

Final Product





Evaluation

The brief

The brief for the overall project was to design and create a lamp that incorporated elements inspired by Richard Weston's photography. However, I set myself a personal brief for the product that I would be making, throughout the designing process I narrowed the original brief so that the completed product would meet all the specifications. I said that it the design will be suitable for the bedroom area where it will set a relaxing atmosphere, for young adults as its audience. Function was the first specification set because it is very important that the lamp successfully achieved this aspect. Although the light is not be the primary source of light, it provides enough light to see comfortably when the main light is off. Not only that but it was important that it also looks aesthetically pleasing to the target user and of course links back to Richard Weston's work, which it successfully achieved. To test this specification after construction I tested it in a room with dimmed and limited natural light coming in, so that I could see the result. It worked extremely well and the result was very pleasing, in such conditions were the light was clearly not going to be as bright as possible, it would have to be tested at night to see that result.

Next, atheistic was my second specification. It specified that it should be unique, and different in its design, with the current trends and fashions in design in mind. It also must feature an aspect that is inspired by Richard Weston's work. The overall look and finish of the product is be based on creating a unique and different design aspect. Which I think I have done, however, I think that the shape perhaps is not as original and unique that it could have been, but be ideas that he actual lattice panel design is completely one of a kind designed. Considering the current trends in design will help appeal to the target user. Referring to the target user looking at fashion and trends what I felt was in trend and fashionable was the lamp tins and flowerpots that have this design that resembles lace like pattern, cut out, like the lattice panel I designed. I showed a group of people that are typical target users the final product and I asked for their opinions on the design and what needs to be improved. The feedback I had back was positive and agreed on the design for the location and aesthetic.

I produced a questionnaire for my target users to complete so I could receive feedback on key aspects of the design specifications. This enabled me to trailer the design to the target market's wants and needs. For example, I was originally going to make and sell my light for £30 and then I decided to change this because the results showed me that my target market were more likely to purchase a lamp priced at around £11 to £20 as a given price range. However, by the time my light was completed I think that it cost around £20, this was due to the fact that I had to buy things like die and 6 metre cable which came with unnecessary extra product that I didn't need but I could only purchase like so. This meant if I were to sell it with the manufacturing process costing £20 it would be sold at £30, which is not what I specified. This would be different if I was to manufacture this product on a larger scale like batch or continuous for example, where the leftover excess product can be used.

Evaluation

Opinion of others

I have enquired about people's opinion towards my light. The opinion of my peers were fairly the same were they thought that it was very pretty with the swirl design and the colour that the cloth projected. One, made a valid point that it would have been interesting to see it with an LED light that changed colours, which I agree on to an extent. So perhaps, it may have been an idea to use LED colour changing lights so that it could be altered to your mood and have other fun interesting function. Others again thought that it was innovative the way I used Richard Weston's photographs as inspiration process of ice dying the material. To improve, someone said that I could have stained the wood perhaps so give it the illusion of more expensive wood, therefore making the product more attractive atheistical but also to its target user.

If my light was to go on and be further developed and manufactured as a part of the industry, to be sold in shops. This would mean that potentially creating employment for many people as a team of people would be needed to help produce and manufacture this light. This would be depending on the demand for the light delighting the number that would need to be produced. This would ultimately decipher the size of the workshop and how many people are needed. Most of the light will be designed on formers and CAD so the work force would be trained on these or already have experience, this does not require many people to do. The manufacturing of the product will be mostly produced on machinery. Initially the light would be sold in probably in small, independent shops rather than companies like John Lewis as the light is original and its target audience go to a smaller shops and find or look for unique pieces such as this that follows trend but isn't something that everyone has.

When it came to resources and materials I feel that I had no options to buy pieces of materials and equipment that were offered to me. Some things I thought were overpriced of the amount that I needed so I was left with a lot of somethings like dye and cord. However this I could not help because it was the only or the smaller amount I could get. Whereas in other areas I feel like I was resourceful such as u recycled an old cotton sheet for my material pieces. Therefore I conclude that in I was sensible economically in some areas that made up for the others.

Conclusion

Overall, looking back at this, I am pleased with the outcome of my light that I produced. Looking back at my original designs I can see the development in my design and how it came to this outcome. I feel that this experience has taught me many new skills and techniques that are extremely important in the design and manufacturing process of a product. I have now developed my skills and knowledge of manufacturing processes like when using the laser cutter. And I have also further developed my sketches and designing skills, however I found it very difficult to manipulate my design on different CAD programs because of my intricate design, it was very hard to replicate that so that it was the same each time. This meant that I stuck to what I was comfortable with. I think that to improve I should practice more CAD programmes. I have improved my knowledge of different ways to use and manipulate images into your work such as with material, printed on paper or transparent plastic sheets, using dye.

Modifications

For the design to be sold in the actual market there would be some modifications that would have to be made to improve the design so that it would be eligible and suitable. Starting with improves such as having the top with magnets attached to the top piece panel and the framework so that it doesn't fall off and is secure at all times. This would also prevent it from getting lost easily if it was to be knocked off, it would also be safer to travel, not letting anything inside the light its access to the bulb if it smashed or something would smash it.
Taking on board the comments of the target users after the light was constructed I think that it would be a good decision to contemplate the options. To do this I would have to carry out some more processes of designing. This would be having a CAD design made with the altifications on it then another survey questionnaire carried out asking the opinion. I would do this because only few people made these comments on how to improve so I would see if the more target users agree or prefer these changes only then would I act on them. This would be changing the light bulb to an LEDs with a changing light function. In addition to this i would also look at staining my laser plywood looking at the different shades and the outcome of testings to see what it would turn out like.