Night Light

Cat Jones

9SWL

Resistant Materials

Enw:

Year 9 - Lighting

Lighting plays an important role in our lives and takes the form of many different types of lighting. If light is required at night, instead of switching on the main light it is handy to have a small night - light on a nearby bedside cabinet.

Brief: *Your task is to research, design and make an imaginative night light suitable for a particular user of your choice, e.g. night-lights are often used in children's bedrooms to make them feel more secure and provide low level background lighting.*

Your work will be assessed using grades 1-5 (1is the top grade) and you will be compared against others in the **whole year group.**

All assessments are explained on the Assessment Sheet displayed on the wall and are similar to those used in the school reports.

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SELF ASSESSMENT

Use the list shown below to help you check that you have all your folio work and that you have put it in the right order.
Compare your work with the notes on each topic and the work of others in the class. Give each a grade from:

1 – very good, 2 – satisfactory, 3 – needs improvement, X– missing.

FOLIO WORK

TOPIC NOTES	Grade
Design Process – good understanding.	
Research – good understanding of the purpose of research.	
Analysis – detailed notes on an existing product to help you understand and aid your design.	
Mood Board – wide range of thinking extended form example given.	
Specification – a clear list of what the lighting should do.	
Graphical techniques – good quality, accurate drawings and shading.	
Ideas – a range of interesting ideas, with good shading and notes to help explain.	
Development – development of the 'look' & style, with good shading and notes.	
Presentation Drawing - a neat, 3D drawing with realistic materials shading..	
Planning – a list of the making processes using notes and sketches and quality control details.	
CAD/CAM – an accurate drawing/outcome of your acrylic top.	
Testing/Evaluation – a detailed judgement of how successful your work is.	
Modification – detailed suggestions as to how your design could be improved	
Your opinion- Your chance to give your views about the project	
Average grade	

PRACTICAL WORK

TOPIC NOTES	Grade
Organisation – how well you have organised yourself and used your time	
Independent working – did you need much help and support	
Tools and equipment – correct, skilful and confident use	
Accuracy and skill – accuracy of marking out, cutting, drilling, joining etc	
CAD image- design, quality and layout of display image.	
Manufacture – quality, accuracy of the joints, PCB, soldering, CAD/CAM.	
Safety – using tools and machines correctly and safely.	
Quality of finish – work to be free from marks, smooth and look of 'shop' quality.	
Average grade	

Write a **sentence** to explain what you are best at and what you need to improve.

In folio work I am good at …….

In practical work I am good at …….

In folio work I need to improve ……

In practical work I need to improve ……

Lighting

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Research

TASK: List possibilities for each of the following then underline your final choice:

USER?

- Young children
- Old children
- Adults
- Teenagers
- Old people

LOCATION?

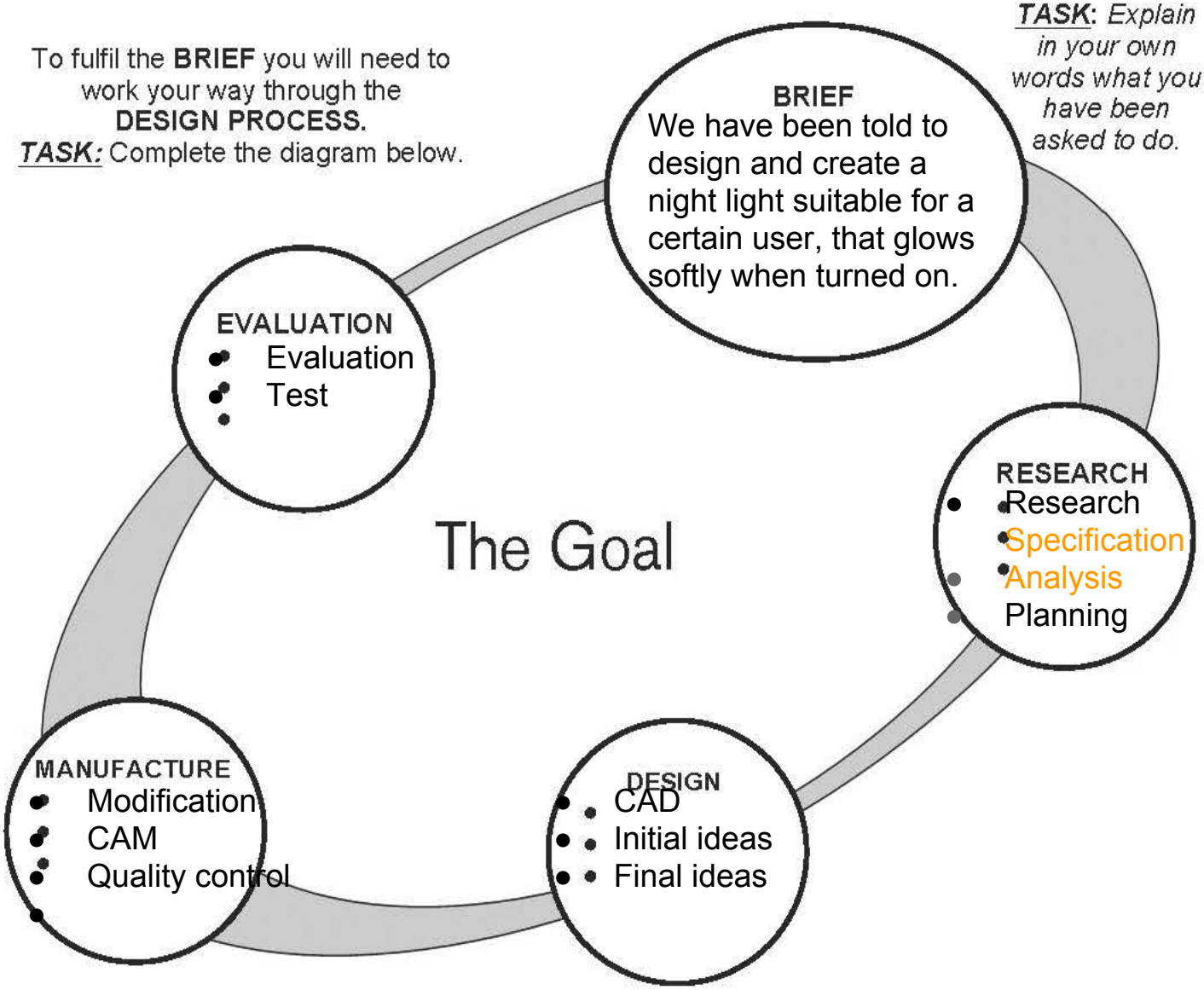
- Bed side table
- Bedroom wall
- Kitchen counter
- Bathroom shelf
- Kitchen shelf

AESTHETICS?

- Cartoon
- Traditional
- Characters
- Landscapes
- Brands
- Land marks

To fulfil the **BRIEF** you will need to work your way through the **DESIGN PROCESS.**
TASK: Complete the diagram below.

TASK: *Explain in your own words what you have been asked to do.*



Specifications, Development, Analysis, Test, Research, Modifications, Planning, Evaluation, Initial ideas, Final Idea, CAD, CAM, Quality control.

Lighting

Research is the process of gathering and processing information. Designers conduct research in order to gain a greater understanding of the problem/brief they are designing for.
Designers need to be able to analyse existing products, and be aware of new technologies and consumer demand for new products.

TASK: Set yourself two targets to complete as you work through the research section of your project.

1) I am going to research different designs of night lights that are already on the market and how they are created. This will help me understand what people like to have as a night light. Also, I will research what materials night lights are often made of, to make sure I don't block the light of glowing but so it also isn't too bright. This will help me get a better overall effect.

2) I am also going to research my design topic, landmarks. This will help me get a better understanding of it and help me design it effectively. By getting a better understanding of my design, I could modify it so it projects the light in a more effective way and to a good brightness level.

Did you meet your targets?

Product Analysis

A **Product Analysis** is an example of **primary research,** it involves looking closely at existing products in order to understand how they work and how they can be improved. To successfully design your light you need to ask the right questions about the **function, purpose, shape, form, colour , material** and **texture,** of the existing product**.**

TASK: Using full sentences put into your own words what a product analysis is?

Resistant Materials **Research**

TASK: Read the detailed description of the light below carefully.

Doulex Human Shaped Automatic Light Control Night Light
Material: lamp holder - PPT, ABS; lamp head – ivory white glass
Size: 8cm * 5cm * 12cm
Weight: 100g

The human-shaped night light can produce weak lighting during night time, when the room turns to dark the small night light will emit soft light automatically. When the environmental light becomes brighter, the night light will shut down automatically too. This funky night light is convenient and at the same time will not affect normal rest.

Functions:
1. Barrier free lighting;
2. Intelligent control (no switch): When the light dims, the night light will light up automatically; When the light gets brighter, the night light will turn off automatically.
3. Long useful life: can work more than 50,000 hours.
4. Broader applications: used widely in bedrooms, living rooms, bathrooms, hotels, bars and offices.

Price - £2.50

TASK: Using your own observations and the information found above, analyse the light in the photograph below. Use the headings to help you annotate the image.

FUNCTION To turn the product on, plug it into a main socket and turn it on by the switch on the socket. It is on a light sensor so when it begins to get dark it will glow softly and turn off when it gets light again.

PURPOSE This product will provide a soft glow for a small area at night without interrupting your usual sleep pattern. It could be used anywhere in the house. It is perfect for reading before bed and if you are afraid of the dark.

FORM This product is in the shape of a person that is hanging onto the plug. It is perfect for all ages, boys and girls.

COLOUR The night light is an off white colour so it will match perfectly with any colour wall or carpet. It provides a slight yellow light so it isn't too bright when it gets dark.

TEXTURE The texture of the product shown would be smooth as it is made of a plasticity material. It is smooth because otherwise it would be rough to touch and therefore could hurt the user.

MATERIAL The product's holder is made of PPT and ABS which are types of plastic and the lamp head is made of ivory white glass.

CONSTRUCTION This product was put together by melting plastic into the correct shape using an injection mould. It was then warmed up and bent into shape.

Resistant Materials **Research**

TASK;

Put yourself in the position of a retailer who will be selling the ***Doulex Human Shaped Automatic Light Control Night Light.*** It is your job to write a catalogue entry that promotes the key feature of the light. Use the space below to write a 1st draft. Do not forget to use VCOP.

1ST Draft

This small but effective night light is perfect for all ages. Whether it is for your bathroom, bedroom or on the landing it is great. Even if you take it on holiday. You can take it almost anywhere, just simply plug it in, switch it on and there you go! You can use it as a light to read with, to provide light so you don't fall or just to comfort you sleeping. It has been known to conquer fears of the dark. This brilliant, new product is very cheap and still a very high quality, perfect for you. It comes in a range of colours, sizes and styles so it will suite anyone, boys, girls, adults and children. So, go now to your nearest supermarket and purchase your very own deluxe night ligh now!

Swap your booklet with a partner, proof read and suggest changes.

TASK:

Now that your 1st draft has been checked and suggestions have been made by your partner, redraft it below with changes. **HW-** Type up final draft using ICT.

2nd DRAFT

This small but effective delux night light is perfect for all ages. Whether it is for your bathroom, bedroom or on the landing it is great. Even if you take it to a hotel. You can take it almost anywhere, just simply plug it in, switch it on and there you go! You can use it as a light to read with, to provide light so you don't fall or just to comfort you sleeping. It has been known to stop people's fears of the dark. This brilliant, new product is very cheap and still a very high quality, perfect for you. It comes in a range of colours, sizes and styles so it will suite anyone, boys, girls, adults and children. So, go now to your nearest Tesco and purchase your very own deluxe night ligh now!

Resistant Materials

Research

Extension task - Design a poster to advertise the ***Doulex Human Shaped Automatic Light Control Night Light***. Use images/drawings/logos/slogans and rewrite your catalogue entry making sure you check spelling and grammar.

Sale Now On!

This small but effective night light is perfect for all ages. Whether it is for your bathroom, bedroom or on the landing it is great. Even if you take it on holiday. You can take it almost anywhere, just simply plug it in, switch it on and there you go! You can use it as a light to read with, to provide light so you don't fall or just to comfort you sleeping. It has been known to conquer fears of the dark. This brilliant, new product is very cheap and still a very high quality, perfect for you. It comes in a range of colours, sizes and styles so it will suite anyone, boys, girls, adults and children. So, go now to your nearest supermarket and purchase your very own deluxe night light now! Only £2.50!

Resistant Materials

Research

Mood Board

As a designer you will create a mood board which will help to define the look of your lighting. A **mood board** is a type of poster design that may consist of images, text, shapes, colours, atmospheres, materials and textures. Example: summer, bright daylight, green and yellow, youth and sports.

Task: Collect images which may be of use to you when you are designing your light; arrange your images/pictures in an attractive way on an A4 piece of paper.

My mood board...

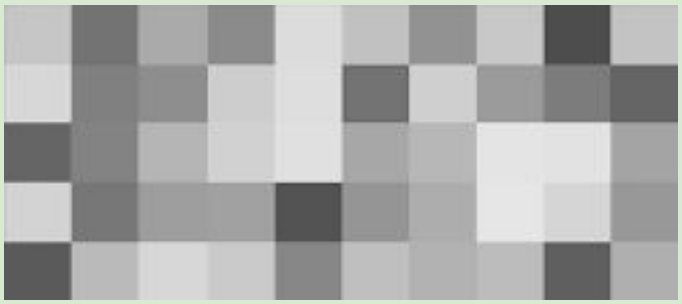
The Eiffel Tower

Each hole will actually be cut out for a realistic effect.

Colour shade options

Empire State Building

Colour shade options



Resistant Materials

Specifications

Research

A specification is a list of **detailed statements** that tell you the designer exactly what the product has to do**.** You must create your own specification.

TASK: Below are some headings to help you write your specification. In your own words describe what each of the following words means.

Function: How something works.

User: What type of person would use your product. E.g. Age, boy, girl

Control: How you would control the product. E.g. To turn it on and off you use a switch

Cost: How much the product would be on sale for.

Materials: What the product is made out of. Colour, texture.

Construction: How the product was put together and using what.

Aesthetics: How the end product looks. Shiny, colourful.

Finishes: What was used to make the end product look nice. E.g. Gloss

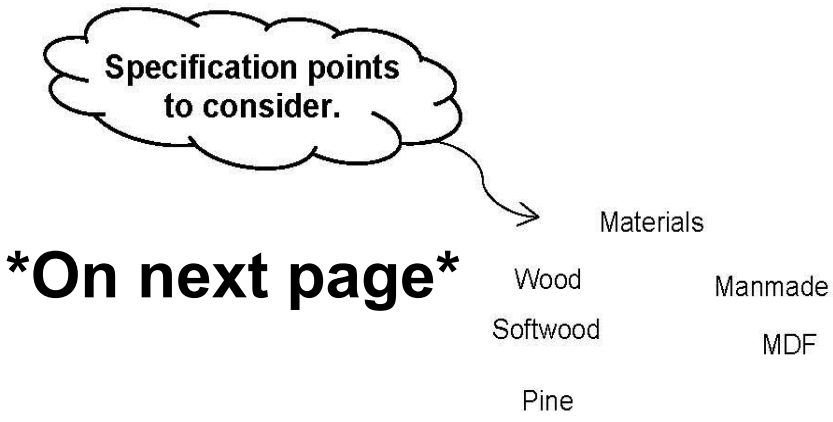
Size: How big or small the product is

Quality control: Checking all the features of the product to make sure they are accurate.

Safety: To ensure the user will not be hurt by using the product

Ergonomics: Making sure the product is user friendly. E.g. Easy to change the battery, easy to turn on and off.

TASK: Create a bubble chart. Use the above headings to help you consider what specification points are important to your design.



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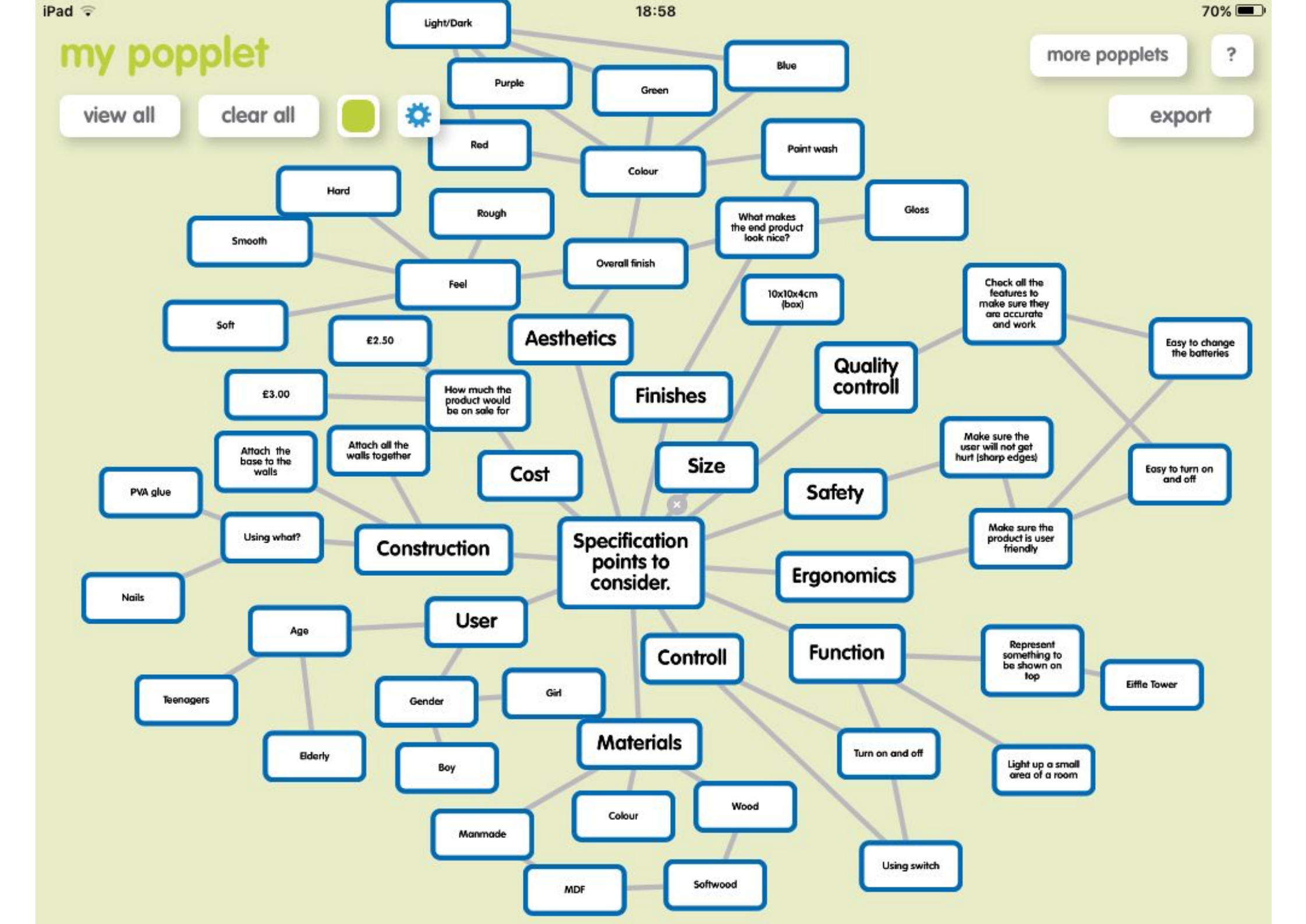

iPad
18:58
70%
my popplet
more popplets
?
view all
clear all
export
Specification points to consider.
Aesthetics
Colour
Light/Dark
Purple
Green
Blue
Red
Paint wash
Overall finish
What makes the end product look nice?
Gloss
Feel
Hard
Rough
Smooth
Soft
Finishes
10x10x4cm (box)
Size
Cost
How much the product would be on sale for
£2.50
£3.00
Construction
Attach the base to the walls
Attach all the walls together
PVA glue
Using what?
Nails
Quality controll
Check all the features to make sure they are accurate and work
Easy to change the batteries
Safety
Make sure the user will not get hurt (sharp edges)
Easy to turn on and off
Ergonomics
Make sure the product is user friendly
User
Age
Teenagers
Elderly
Gender
Girl
Boy
Controll
Function
Represent something to be shown on top
Eiffle Tower
Turn on and off
Light up a small area of a room
Using switch
Materials
Colour
Wood
Manmade
MDF
Softwood

TASK: You should be able to write a specification point for each of the previous headings in relation to your night light. Pick at least **6** headings that you would consider to be the most important. Explain in **detailed** sentences that fully describe your design intentions, and put them in **order of importance.** Make sure you use your **brief** & **research** to help you.

1st Draft

1. My night light must have a landmarks theme.
2. My night light must be able to provide a soft glow.
3. My night light must light up a small area of a room.
4. My night light must be controlled by a rocker switch.
5. My night light must contain a PCB board for the electrics.
6. My night light must have smooth edges that are not sharp or spikey.
7. My night light must have a professional and smart finish to it.
8. My night light must be created appropriately for a target user.

Swap your booklet with a partner and suggest changes

2nd Draft

1. My night light must have a landmark theme including the Eiffel Tower with the classic colours of the French landmark.
2. My night light must provide a soft glow that isn't too bright but not too dim either.
3. My night light must be able to light up a small area of my bedroom and be suitable to put on my shelf.
4. My night light must be able to be controlled by a rocker switch on the side of the box as they are easy to use and in an accessible place.
5. My night light must contain a PCB board as this is where the wires go to allow the switch to work and the light to turn on.
6. My night light must be made of pine wood with smooth sides as they could hurt the user if they were not sanded down.
7. My night light must have a professional and smart finish to it because if it didn't, nobody would want it as it look scruffy.
8. My night light must be created appropriately for my target user, with a theme that they like and enjoy.

Gwaith Dosbarth/Cartref

Extension Task: Use your ICT skills to type up your developed specifications

Resistant Materials

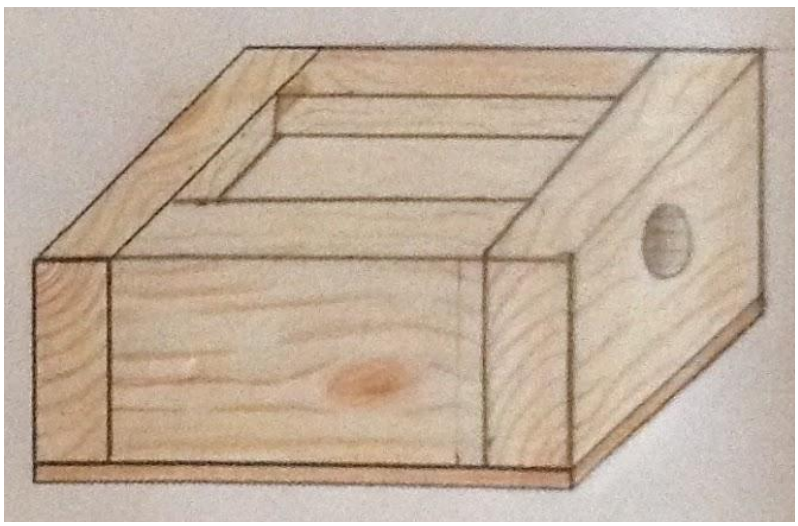
Design

Drawing Practice-Graphical Techniques

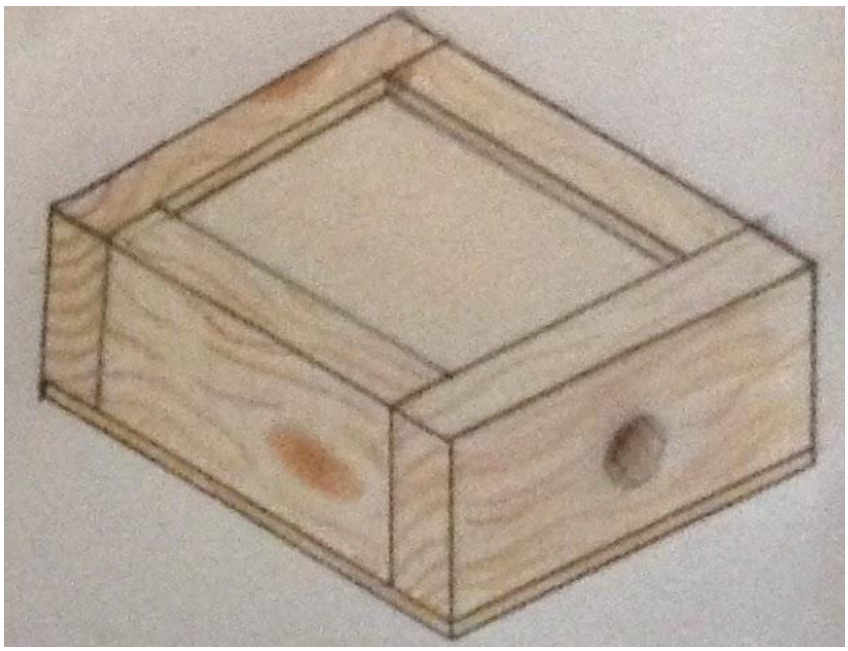
TASK: Label each picture with the correct name and complete the drawing in the space provided. Don't forget to add shading.

1) Orthographic

2) Oblique



3) Isometric

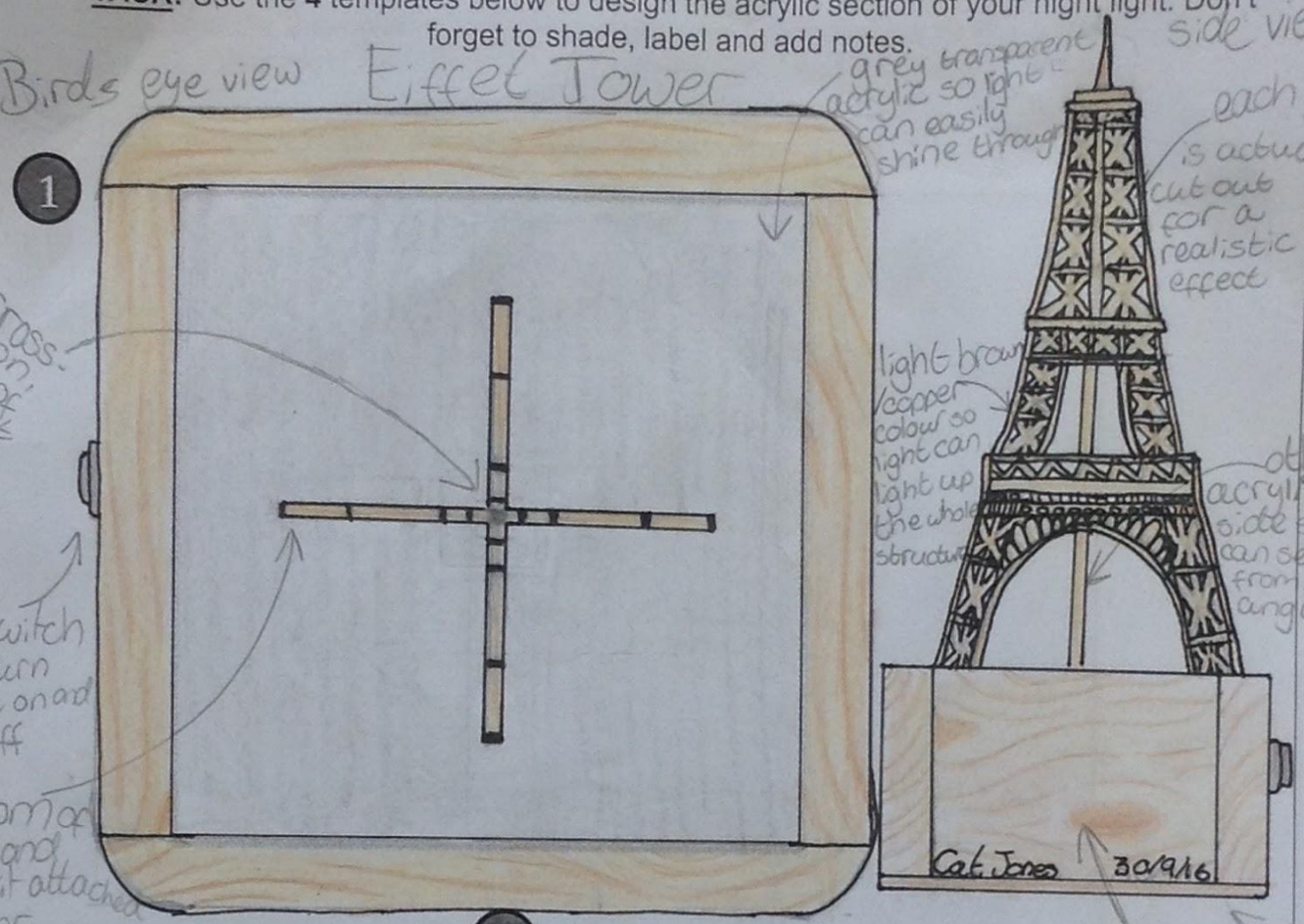


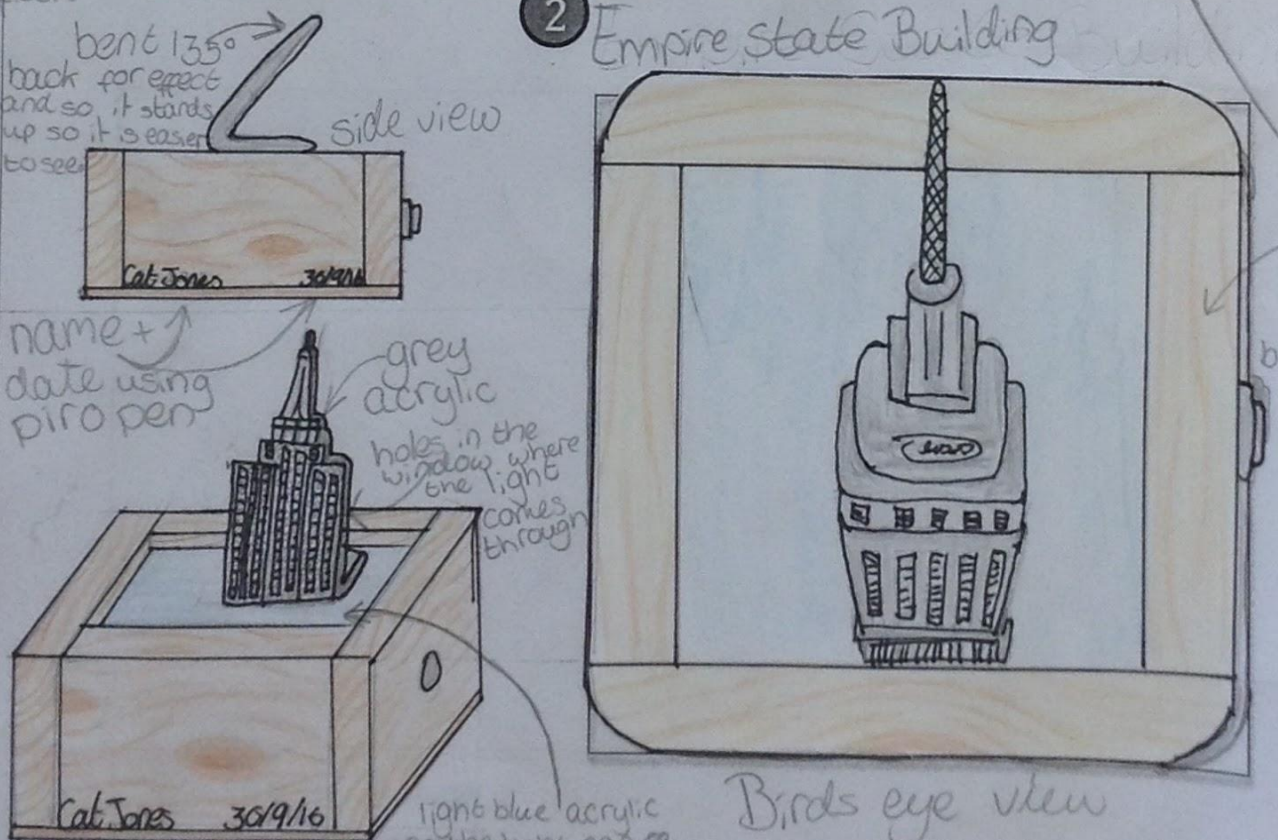
Resistant Materials

Design

Initial Design Ideas

TASK: Use the **4** templates below to design the acrylic section of your night light. Don't forget to shade, label and add notes.





Arc de triomphe

Resistant Materials

Design

Initial Design Ideas

light yellow so light can project through easily.

Arc de triomphe

acrylic

light brown/ copper colour

Birds eye view

each wall connected together with a jigsaw like slot sticking out and a place to slot it into.

oblique view

top of structure

detail stained on to acrylic with the lazer

3

switch to turn light on and off

bottom of structure

3D so you can see it from all angles.

pine with dark varnish to bring out the grains

4

Front view

Christ the Redeemer

light blue so the light can easily project right to the top of the structure.

MDF base

switch to turn light on and off

head bent 45° forward for a realistic effect.

hands and arms

hands

both pieces glued together with PVA glue.

two pieces of acrylic stuck together so can have the detail of front and back stained on using the lazer.

head

arms

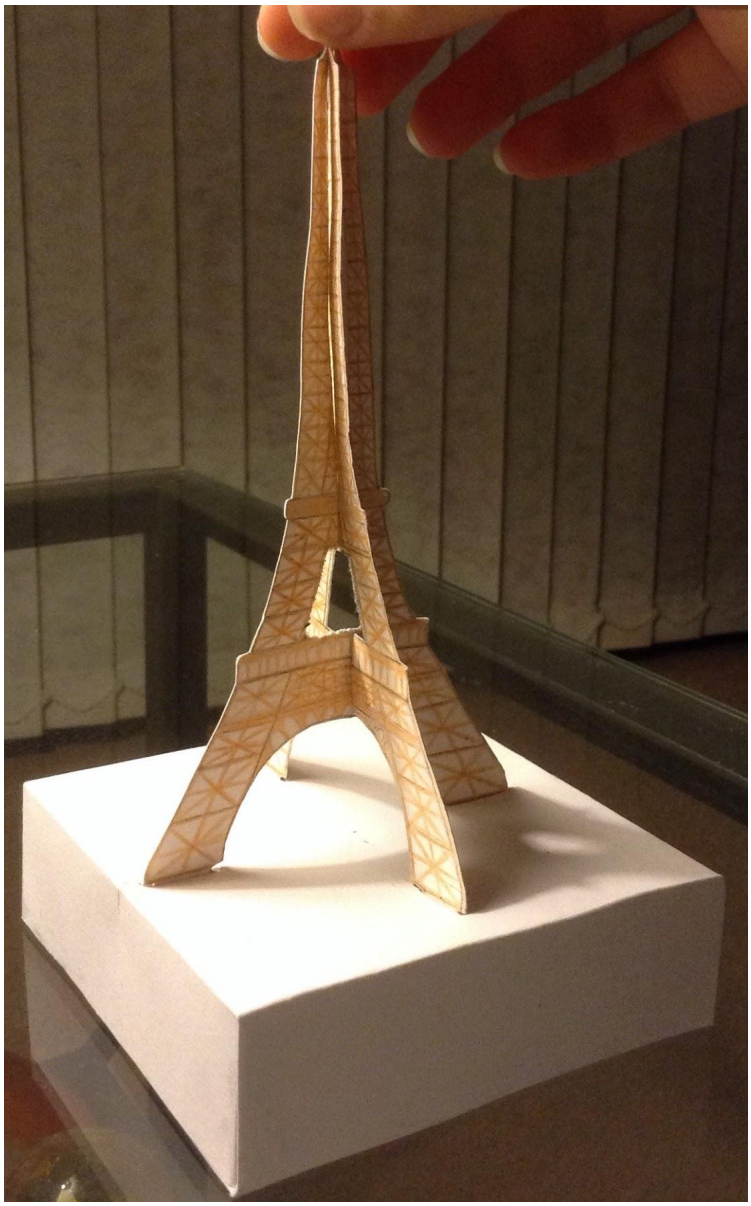
Side view

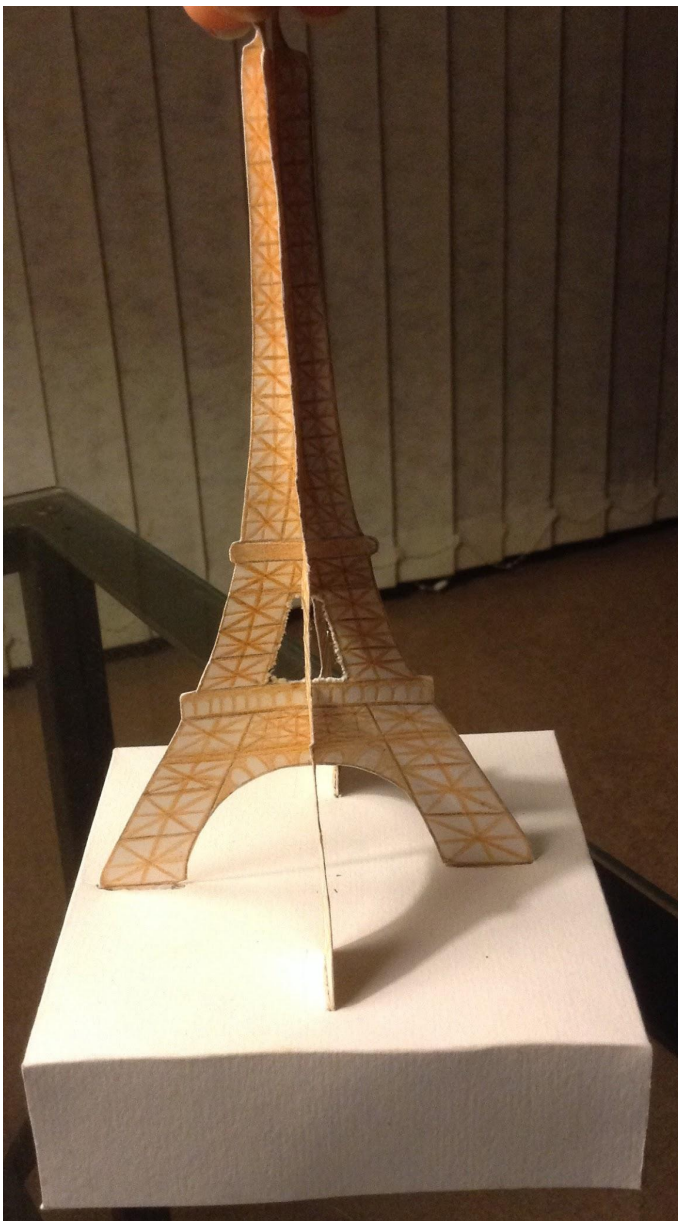
Birds eye view

Gwaith Dosbarth/Cartref

Lighting

I have chosen my strongest and best idea to make my night light based upon. I have chosen the Eiffel Tower. As part of the product design area of this task, I created a cardboard model of what my aim is for it to look like when I have finished making it. I made a 10x10x3cm box for the base of the cardboard version, measuring it as accurately as I could. I then drew 2 Eiffel Towers, added the colour to them and also added the pattern that I want the acrylic to be cut out like. I did this to both sides of both cutouts. At the base of the legs of the Eiffel Towers, I included a small piece of cardboard just a little bit bigger than the base of the legs. These then slotted into the slits that I pierced using a compass on the base.



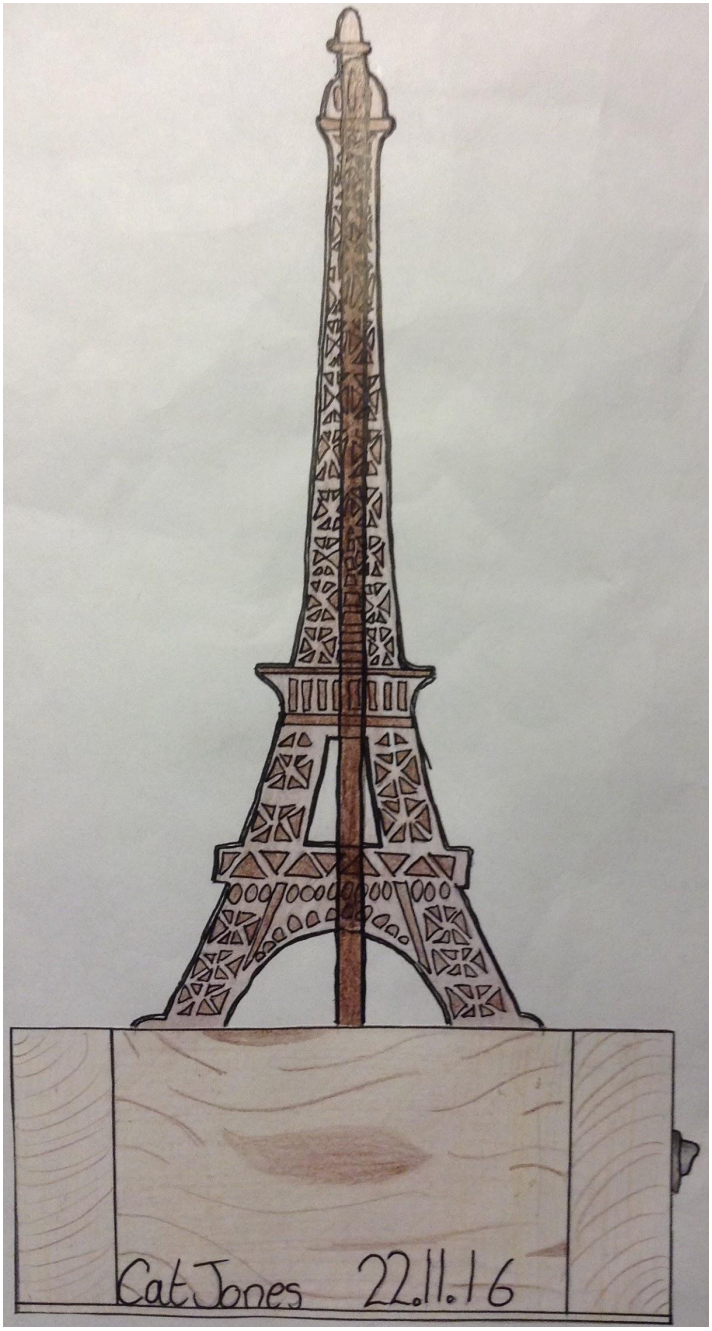


To add to the realistic effect that I was aiming for, I cut the bottom half of one vertically down the middle and on the other one, I cut vertically down the middle of the top half. By doing this, it allowed me to slot each Eiffel Tower into each other and into the base as well. This allowed me to create the realistic effect that I was after. I did this cardboard model before I created and cut out the acrylic version so that I know ways to improve and make sure that it will slot together accurately and be strong enough to stand up by itself. I came up with the idea of the Eiffel Tower for the top of my nightlight as my mum has a passion for France and loves the Eiffel Tower. When I have finished, I will be giving it to her.

I wanted to create a realistic version of the Eiffel Tower to top my nightlight. When designing it on the 2D designing program we used, I wasn't sure if I wanted the lazer to cut out all the details or if I wanted them to be engraved in. To help me decide the best option, I designed both the cutout and engraved Eiffel Tower to be lazered. These are them in the pictures.

Although they both look like the iconic French landmark, I have decided to use the engraved one (on the left) as it has the colour more like the real Eiffel Tower and is also more stable when picking up and moving around. On the other hand, the one on the right is very fragile as it has all the holes cut and could break very easily when putting it together. Also, it could potentially be problematic by breaking once I glue it to the base of my night light and I would then have to take it off the base without damaging that as well.

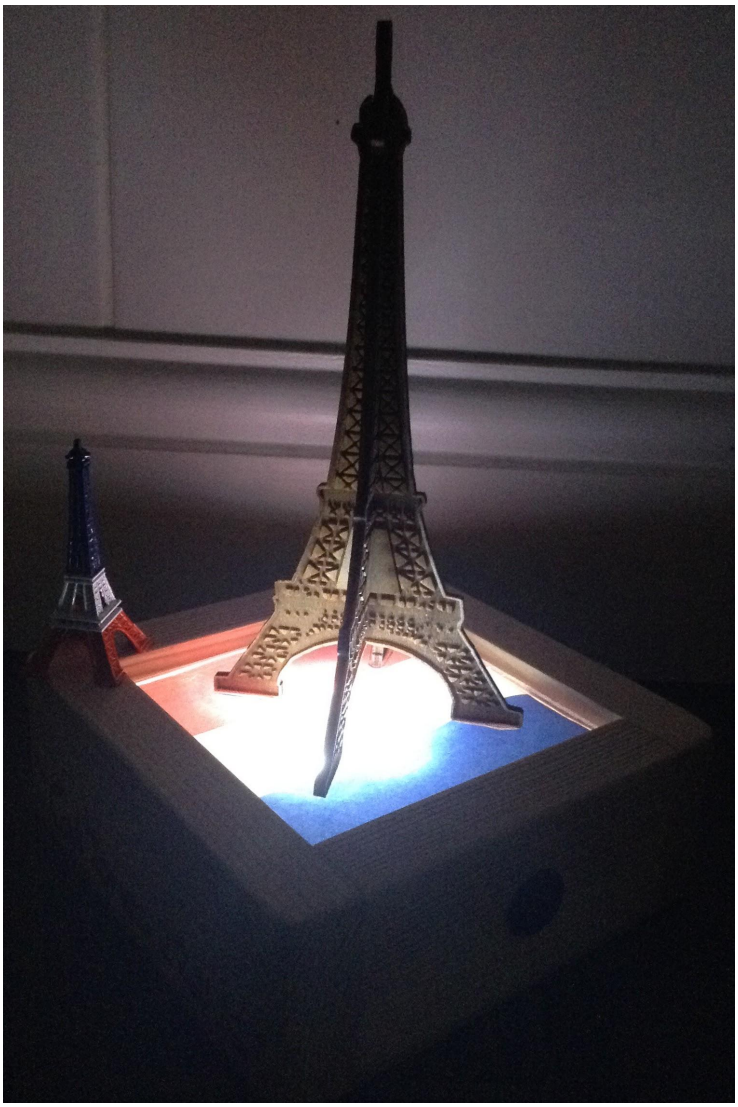
My Final Design



I chose to design and make the Eiffel Tower for the top of my night light. I did it because if done well, it could be both smart and useable. The Eiffel Tower is an iconic and well known structure and it could create a silhouette known to all. My product accurately resembles the real Eiffel Tower creating an effective finish that gives off a warm glow for the user.

It is made of pine wood for the box and laser ply for the main feature. On 2 out of the 4 sides on the box, I wrote my name and the date using a pyro pen to add a personal touch and I glued the Eiffel Tower to the lid of the box. Finally, after sanding the box, I waxed it to create a product which is to a higher standard. I feel that these additions not only make my design special to me but they make my product one that it is both pleasing to the eye but also hand crafted.

My Final Design



Resistant Materials

Literacy

Spellings

The following words are used often in design & technology and it is important that you know how to spell them and understand what they mean, or the context in which they are used. These words build upon the terms you learnt last year.

You should read through the following and learn the spellings, if you do not understand what they mean or are, you should either look them up in a dictionary, review your design folio or ask your teacher (before the test is due).

Try square

Marking gauge

Evaluation

Symmetry

Dust extraction

Laser cutter

Isometric

Aesthetics

Bradawl

Specification

Manufacture

Accurately

Numerical

Oblique

QC (Quality control)

Contrasting

Hazardous

Liquid cement

Development

Ergonomic

Evaluation

CAD

CAM

Dimensions

Year 9 Spelling test

Spellings

1) try square ✓
2) marking gauge ✓
3) evaluation ✓
4) symmetry ✓
5) dust extraction ✓
6) laser cutter ✓
7) isometric ✓
8) aesthetics ✓
9) bradawl ✓
10) specification ✓
11) manufacture ✓
12) accurately ✓
13) ~~nn~~ numerical ✓
14) oblique ✓
15) ~~quat~~ quality (control) controll ✗
16) contrasting ✓
17) hazaradous ✗ Hazardous
18) liquid cement ✓
19) development ✓
20) ergonomic ✓
21) CAD computer aided design ✓
22) CAM computer aided manufactor ✗ manufacture
23) dimentions ✗ dimensions

19/23 :-)

19/23

Planning

When making (manufacturing) your design it is important to plan the order in which you will make each part. We often do this in our heads, but this can lead to mistakes. In order to avoid this it is important to follow a plan.
TASK: Complete the materials list table below with ALL the component you will need.

Materials (Cutting list)

Part	No.	L(MM)	W(MM)	T(MM)	Material	Source
1. Long pine.	2	145mm	52mm.	20mm.	Pine.	School
2. Short wood	2.	101mm.	52mm.	20mm.	Pine.	School
3. Acrylic.	1	100mm.	100mm	3mm.	Acrylic.	School
4. Eiffel Tower.	2.			3mm	Laser ply	Paris
5. Base.	1	138mm.	139mm.	3mm.	MDF.	School
6.						

Making Plan

TASK:Here you are to write out your plan using words and drawings. The headings in the boxes show the information you should have in each box – fill as many boxes as your plan requires. For each process add a QC (Quality check) to ensure that your work will be of good quality.

Example: *Collect material*
Equipment: *Try square, Zero end rule, pencil, saw.*

To do: *Select material and cut to sizes on the cutting list.*

QC: *Check marking out before cutting.*

Time needed: *15 min*

Step 1): Mark out where the nails will go
Equipment: Pencil, 0 end ruler and try square

To do: Mark out where the panel pins are going to go on the end of each piece of wood.
QC: Check all measurements are accurate.

Time needed: 7 minutes

Step 2): Drill the pilot holes
Equipment: Pillar drill,

To do: Using pillar drill, drill a pilot hole in the marked out spots.

QC: Make sure the pilot holes are deep enough.

Time needed: 7 minutes

Step 3): Assemble box with nails.
Equipment: Panel pins, hammer and vice

To do: Secure the wooden pieces in the correct formation in the vice. Gently hammer the panel pins into the pilot holes all the way in and put 1 small piece of MDF on opposite sides of the inside box..

QC: Make sure the box is secure and will not fall apart when pressure is applied.

Time needed: 15 minutes

Step 4): Mark out and attach the base
Equipment: Pencil, 0 end ruler, hammer, 4 panel pins, try square and MDF base.

To do: Measure and mark out the places in which you will attach your base to your box. For this measure using a 0 end ruler and a pencil and attach using the panel pins.

QC: Apply a small bit of pressure from the inside of the box and gently push out to make sure it will not fall off and is secure.

Time needed: 15 minutes

Step 5): Sand your box all over
Equipment: Your box, both belt sanders, sand paper, hammer and a centre punch

To do: Use the wide belt sander to smooth all the edges of your box. If pins are in the way, use the centre punch and a hammer to push them further. Use the other belt sander to round the corners and sand paper to sand all over.

QC: Smooth you box to make sure all the edges and corners are smooth and more sharp or rough.

Time needed: 10 minutes

Step 6): Drill hole in the box for switch
Equipment: Hand drill, vise, your box, pencil and 0 end ruler

To do: Measure the centre of one side of your box (horizontal and vertical) and drill straight through with the hand drill.

QC: Make sure you have drilled all the way through the one wall of your box and it is in the right place and the right size.
Time needed: 5 minutes

Step 7): Pyro pen and out side details
Equipment: Pencil, Pyro pen, a plug socket and your box

To do: Using the pencil, draw or write your chosen details on the outside/top of your box. Go over it with the pyro pen trying to keep it as neat as possible.

QC: Make sure you have gone over all the pencil marks and if you can see some pencil still or make a mistake, either go over it with the pyro pen, rub it out or sand it off
Time needed: 5-10 minutes.

Step 8): Wax and paint (if required)
Equipment: Your chosen colour of paint, paint sponge, wood wax, cloth wire wool and your box.
To do: Get a small amount of paint on your sponge and wipe it all over your box being sure to evenly distribute it and so you can still see the natural grain through. Once dry, get a small amount of wax on the cloth and rub in over your box. Do about 3 coats.

QC: Rub down with wire wool to get the excess wax off and so it is extra smooth.

Time needed: 20-25 minutes

Step 9): Put the circuit and switch in your box
Equipment: Circuit, switch, solder pen, solder wire, glue gun and your box

To do: Attach the switch to your circuit through the switch hole using the solder pen and solder wire. Push switch into place. Use glue gun to glue the circuit board to the inside bottom of your box. Be generous with the glue.

QC: Make sure the lights work and the switch doesn't fall out.

Time needed: 10 minutes

Step 10): design the top of your box and any extra pieces

Equipment: Computer with 2D designing program

To do: Open up the 2D designing program on the computer and draw a 100x100mm square and label what colour you want it. This will be the base. Draw your design for the top of your box or get a picture from google if you can't draw it. Also label what couloir you want it. Whatever you want the laser to cut put that in red and anything to in grave, put it in black

QC: Make sure your design and the base are in the correct size and colour. When it has been cut out make sure it isn't too fragile and will not break easily.

Time needed: 20-30 minutes

Step 11): Attach you top design to the square base lid

Equipment: Adhesive glue, paint brush and a clamp

To do: Using the clamp, hold your top in place where you want to stick it to the square. Once in place, get the paint brush with some strong glue on and go around your acrylic piece with it. Leave for 2-3 minutes then unclamp it.

QC: Make sure the glue is dry before you unclamp it and slightly move it to make sure it is fully stuck.

Time needed: 5-7 minutes

Step 12): Turn it on

Equipment: Finished night light, battery pack and batteries

To do: Turn on your finished night light

QC: Make sure it works android are happy with you finished design

Time needed: Less than 1 minute

Resistant Materials

Manufacture

CAD/CAM

CAD:_____ **Example :**_____

CAM:_____ **Example :**_____

In your own words explain what CAD/CAM is:

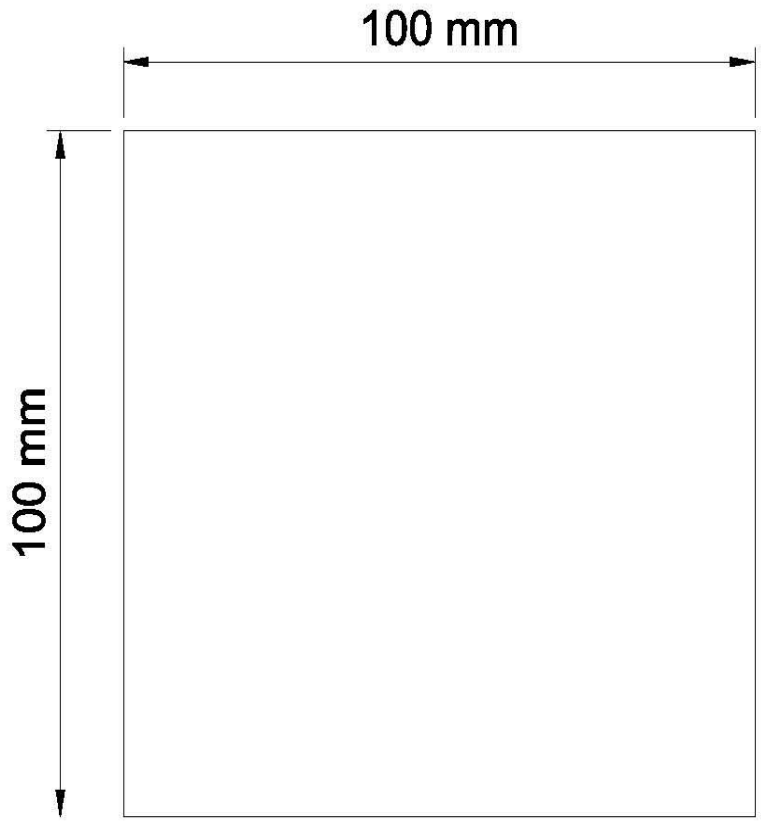
_____

_____

_____

_____

***TASK*:** Using 2D – Design, draw your acrylic components complete with final design. All the dimensions you need to complete this drawing are given below. You may wish to do some calculations and write down some added dimensions to help you complete your CAD drawing.



Extension – Using 2D – Design, draw your final design in the following views:

• Front view • Side view • Plan view • Oblique • Isometric

1) Evaluation

2)

Try to give **full details** and write your evaluation in paragraphs so that it reads like a story, not as answers to these points.

1) Your opinions

Read your brief and specifications again, then write about the main specifications in turn explaining how well it does what you said it should.

- In my first specification I said that the design should be with a theme of landmarks. I achieved this well by having the Eiffel Tower placed as the main feature for my nightlight. It was the most viewed point and therefore, gave those who viewed it, a clue as to what my theme was.
- In my next specification, I stated that it should provide a soft glow for a small corner of the room. This could be a bedroom, a lounge or a kitchen. I managed to achieve this specification by checking the LED lights worked and were able to glow through the acrylic square.
- Another specification was to have have smooth corners and sides. I achieved this by using the belt sander to round the corners and smooth the sides so they were no longer rough and sharp. If I didn't do this to a high standard, the user could have been hurt.
- I think that my night light met the theme specification as the finished product included a laser ply Eiffel Tower. This showed those who viewed it what my theme was and how I incorporated it my final product.
- I also think that my night light had a smart and modern finish. I achieved this by sanding the edges and corners until smooth; also by waxing the box, as this creates a shiney, suitable texture for the finished product.
- Finally, I think my night light was make appropriately for the target user - my mum - as she loves France and the Eiffel Tower. Furthermore, she likes rustic looking items as opposed to plastic, so I think using the laser ply instead of the acrylic really helped me get the finished look I was aiming for.

2) Testing

What tests have you made to see if your project was successful? What are the results?

Throughout the project, I did many test to make sure I was happy with what I would be producing and if it would work as I wanted it to. One of the tests that I did was making sure all the LED lights inside the box turned on as they were supposed to when the rocker switch was pressed. Once we had soldered the wires and LED lights to the PCB board, we attached a battery pack, with batteries in, to the required wire. If we had done the soldering correctly, the LED light should have turned on immediately, with all of them lit up; however if they didn't light up, then we had gone wrong in the process of soldering. When I tested my lights, they lit up first time, however, Chloe's - who I was helping - didn't. At first we were not sure why but on later inspection, we saw that she had accident attached the '+' wire with the '-' wire. This meant that the electricity flowing through it got interrupted by the opposite charge and therefore wouldn't work as it was supposed to. To fix the problem, she had to heat the solder wire that was attaching the two together, and move them away from each other so they were no longer interrupting each other. This fixed the problem.

Another test I completed was making sure the Eiffel Tower wasn't too fragile. This could have caused many problems as if it broke when I had already glued it to the box, it would have been very awkward to glue the parts together again, without further breaking it and also without making it look too messy. When both Eiffel Towers had been cut out, I knew I should use the ones that was more stable as it was a very delicate piece of material anyway. Out of the Eiffel Tower that had the details engraved onto it and the one which had them all cut out, I used the one which was engraved. I did this because when I picked this one up and tapped it a little, it was fine, however, as soon as I picked up the fully cut out piece, it broke in half. I instantly knew that this one was far too fragile; hence me using the Eiffel Tower with engraved details.

3) What other people think

What do other people think of your project? (the ones who would use it or friends, parents etc) . What do they think are the good points and the poor ones? Could they suggest ways that might make it better?

When I took home my finished night light project and showed it to my parents, they said that it portrays the Eiffel Tower in a realistic way and it also fits in the design of a room well. To further improve, they said that instead of putting a piece of paper with French flag in between two clear pieces of acrylic, I could make the French flag out of the acrylic instead. I could do this by using the 2D designing programme we used and design three rectangular pieces in red, white and blue instead. I would then use these to create a French flag that is also a suitable and stable base the Eiffel Tower.

4) How well did you work?

Were you organised, did you plan ahead and finish on time? If not, how could you have saved time? Did you do your best possible work? Were you neat and tidy? Did you need much help? Did you help others? Was you design folio work complete and neatly presented?

I think I worked well as I stayed as neat and tidy as I could which helped me stay organised. I also tried to plan ahead by telling myself that I have a certain amount of time to do a certain thing which is how I managed to finish on time. Throughout the planning, designing and making, I always did as best as I could and helped others if they needed, it whether it be holding something or deciding on a colour. I needed more help in some stages than other stages. For example, when drawing and designing four possible products to make, I didn't require much help, but we were soldering, I got a bit confused with which wire went where and did ask for help a few times. I always tried to keep my folio work neatly presented and organised and if I didn't complete the task in school then I did it at home if possible.

5) Conclusion

Which parts did you enjoy the most and which parts did you find difficult? What did you learn from doing this project?

I found this project very enjoyable. Even the parts that I found difficult, I enjoyed them still. The part of the task that I found the most enjoyable was the practical work and especially using the pyro pen. I enjoyed this the most because it was fun to go over the pencil and engrave it by hand yourself. I think it added a nice personal touch and I really like things like that. For me, the hardest element of this project was assembling the electronics on the PCB board. I found this the hardest because I was unsure of what lengths to use of wire and I kept getting confused about which colour wire to put in which hole. From this topic I learnt many things; one of which is that when you use a hand drill, you have to apply a lot of pressure to the top of the drill otherwise it will not go all the way through the material that you are drilling.

2) Evaluation Guide

Use the prompts below to help you write an evaluation. Only use those that apply to your project, adding others of your own if necessary. **Write your evaluation in paragraphs**, not as yes / no answers to these prompts.

The most important part of an evaluation is to judge how successful your project is by comparing it against what you set out to do in your brief and specifications.

1) Opinions and Testing

How well do you think it meets the brief and each specification? Explain about any that it does not fully meet.
Explain how you tested your work, the purpose of the tests and the results.
How does it compare with similar work of your class, or with products you could buy?
What do other people such as those that will use it (friends, parents etc) think of your project? Do they think it would work well, and what do they think are the good and poor points?
Does it help people by making their life easier, safer, or giving them pleasure?
Could it have any unwanted effects on people or the environment?

2) Improvements

What parts would you change to make it work better? Use sketches and notes to explain.
Are you happy with its appearance, materials used and the cost? Which parts of the work did you find difficult? How would you make it if you were to do it again?
Could your project be developed further and made commercially?

3) Designing and making

How did your research help you to design?
How well did you think ahead, plan and organise your work? Did you finish on time? If not, explain why.
Did you work to the best of your ability? Were you neat and tidy?
Which parts did you enjoy doing and which parts did you find most difficult?
Was your folio work complete and well presented? Did you need much help and guidance? Did you help others?

4) Conclusion

How pleased are you with the overall result?
Explain in detail what you learned from doing this project

Overall, I think my night light meets the brief and most of the specifications; however, to get a more sophisticated finish, I could have varnished the box with wood varnish as this would have brought out the natural grain better. Throughout the project, I did many test to make sure I was happy with what I would be producing and if it would work as I wanted it to. One of the tests that I did was making sure all the LED lights inside the box turned on as they were supposed to when the rocker switch was pressed. Once we had soldered the wires and LED lights to the PCB board, we attached a battery pack, with batteries in, to the required wire. If we had done the soldering correctly, the LED light should have turned on immediately, with all of them lit up; however if they didn't light up, then we had gone wrong in the process of soldering. When I tested my lights, they lit up first time, however, Chloe's - who I was helping - didn't. At first we were not sure why but on later inspection, we saw that she had accident attached the '+' wire with the '-' wire. This meant that the electricity flowing through it got interrupted by the opposite charge and therefore wouldn't work as it was supposed to. To fix the problem, she had to heat the solder wire that was attaching the two together, and move them away from each other so they were no longer interrupting each other. This fixed the problem. Another test I completed was making sure the Eiffel Tower wasn't too fragile. This could have caused many problems as if it broke when I had already glued it to the box, it would have been very awkward to glue the parts together again, without further breaking it and also without making it look too messy. When both Eiffel Towers had been cut out, I knew I should use the ones that was more stable as it was a very delicate piece of material anyway. Out of the Eiffel Tower that had the details engraved onto it and the one which had them all cut out, I used the one which was engraved. I did this because when I picked this one up and tapped it a little, it was fine, however, as soon as I picked up the fully cut out piece, it broke in half. I instantly knew that this one was far too fragile; hence me using the Eiffel Tower with engraved details. Compared to my classmate's work, I think my finished product looks just as good as theirs, however, some people's pyro pen work was amazing, and I wish I did mine a bit neater as you could see each mark I made. When I took home my finished night light project and showed it to my parents, they said that it portrays the Eiffel Tower in a realistic way and it also fits in the design of a room well. To further improve, they said that instead of putting a piece of paper with French flag in between two clear pieces of acrylic, I could make the French flag out of the acrylic instead. I could do this by using the 2D designing programme we used and design three rectangular pieces in red, white and blue instead. I would then use these to create a French flag that is also a suitable and stable base the Eiffel Tower. My night light could help people in their daily life as if someone wants to turn a light on, but doesn't want to have a bright one that would wake everyone up, they could use this instead. It has only a small glow but would be suitable for this occasion.

If I could change something about my night light, I would use three acrylic rectangles in red white and blue as the flag in the box, instead of a picture sandwiched between two clear acrylic pieces. This could improve my work because when you change the batteries, you could just pull up one rectangle instead of messing around with the two squares and the picture. Overall, I am very happy with my finished product, the appearance, the materials used and the cost.

Before designing the main feature for the nightlight, I looked up pictures of the Eiffel Tower as I knew this is what I wanted it to be based on. This helped me greatly because the Eiffel Tower is quite a complex structure and, in my opinion, requires research to help me draw it as accurately as I could. I think I worked well as I stayed as neat and tidy as I could which helped me stay organised. I also tried to plan ahead by telling myself that I have a certain amount of time to do a certain thing which is how I managed to finish on time. Throughout the planning, designing and making, I always did as best as I could and helped others if they needed, it whether it be holding something or deciding on a colour. I needed more help in some stages than other stages. For example, when drawing and designing four possible products to make, I didn't require much help, but we were soldering, I got a bit confused with which wire went where and did ask for help a few times. I always tried to keep my folio work neatly presented and organised and if I didn't complete the task in school then I did it at home if possible.

I am extremely happy with my finished product. I didn't think it would actually look as good as I was imagining. I found this project very enjoyable. Even the parts that I found difficult, I enjoyed them still. The part of the task that I found the most enjoyable was the practical work and especially using the pyro pen. I enjoyed this the most because it was fun to go over the pencil and engrave it by hand yourself. I think it added a nice personal touch and I really like things like that. For me, the hardest element of this project was assembling the electronics on the PCB board. I found this the hardest because I was unsure of what lengths to use of wire and I kept getting confused about which colour wire to put in which hole. From this topic I learnt many things; one of which is that when you use a hand drill, you have to apply a lot of pressure to the top of the drill otherwise it will not go all the way through the material that you are drilling.

FOLIO	PRACTICAL	PROGRESS	EFFORT	HOMEWORK	CONDUCT
1	1	1	1	1	1

Your strengths are:

You have worked very hard throughout this project Catrin. Your design ideas are very creative and your written work is highly detailed. The evaluation produced for this project was exceptional, and would have gained you top marks at GCSE level! Well done Catrin. During practical lessons, you have produced a well-made night-light with your Eifel Tower design on the top.

To improve:

Keep working at this level Catrin, you are now performing above the level expected of you which is commendable.

Level working towards:

Due to your hard work and commitment you are now working at a level 8 Catrin, well done keep up the good work.