

# Year 9 W.M.P Welcome!

For the next 5 weeks you will be completing an online version of a Wood, Metal & Plastic project that we create in class. Practical (making of the product) will continue in class but online work has been adapted into a theory only project. You may wish to do some of the practical tasks at home if you have the tools and equipment but you may need a parent or carer to help you to do it. All lessons are in this document so you will need to select the lesson that you are up to in your normal class.

So here is the project...

**Project Context: (This is what your project is about)**

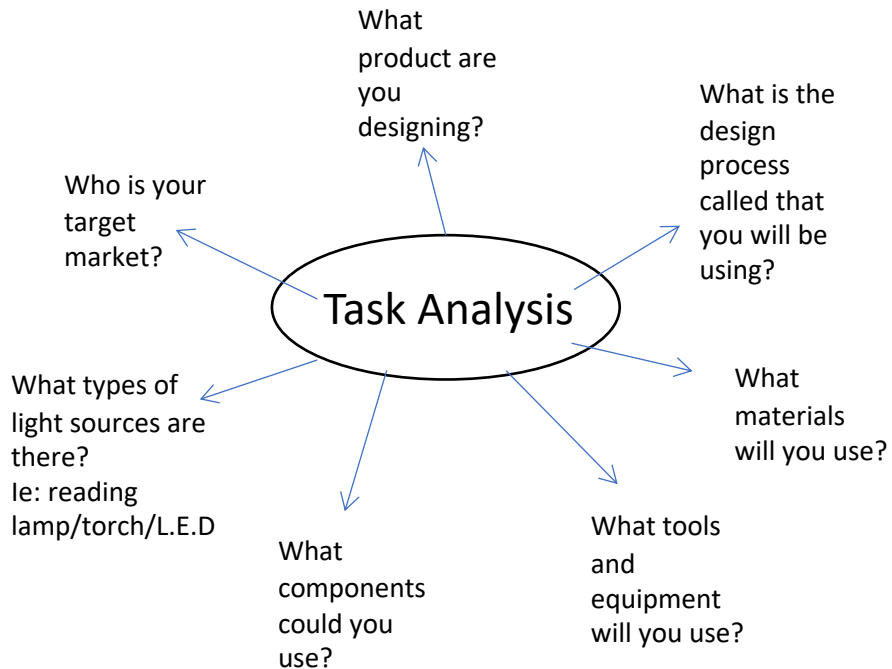
New products are designed everyday using the iterative design process.

**Design Brief: (This is what you are being asked to do)**

Design and model an innovative light source for a specific purpose using the iterative design process.

## Lesson one: Task Analysis

**Task 1:** Create a mind map and answer the following questions using the brief on the previous slide. Use the below mind map to help you.



## Task 2: What is Iterative design?

Iterative design is a process that uses failure as a form of progression within the stages of perfecting a design. Testing and evaluating becomes a formal part of the design process.

Watch the following video all about 'Morph wheels'. The successful design was created using the Iterative design process to make it successful. (continued...)

<https://www.youtube.com/watch?v=mlwtEoXE-oo>

Now watch this second video on the design process using different materials. Notice how the materials change throughout- **why do you think that is?**

<https://www.youtube.com/watch?v=kaY3InCOfns>

The video shows only eight stages here but in reality, there would have been hundred's of different prototypes until they reached the final outcome. These show the key stages of the Iterative design process.

## Designing for a purpose

Designing a product for a purpose and knowing who your target market is will help inform your design. Watch this video on the SM100 solar light.

<https://www.youtube.com/watch?v=bFPtOiwamOk>

## Task 3:

**Show a final understanding of your brief by answering the following questions:**

Q1: What is the light issue you would like to solve?

Q2: Who would you like to solve this issue for?

Q3: What is the outcome you want to achieve?

Q4: How do you think you might achieve this?

## Lesson 2: User centred design – The S’up Spoon.

In the previous lesson we learnt about designing for a specific user. In this next video, we see another product that was created using the Iterative design process for a specific purpose. Note in the video the different materials that were used as the design developed, the different sketches and all of the different focus points of existing products on the market that helped influence the design of this product including the variety of materials that were considered, possible mechanisms and shapes to suite the purpose of the design.

<https://www.youtube.com/watch?v=C8nNIWw6KbA>

### Task: What’s your brief?

Using the questions from the end of your last lesson- set yourself a design brief to explain the type of light source you are going to create.

ie:

I am going to design and make a reading light for a student reading in bed

Or

I am going to Design and make a mood light for child’s bedroom

Or

I am going to Design and make a light to keep pedestrians safe on the roads at night time.

### Additional materials/ideas/options to consider:

Depending on the purpose of the light- there are other things that can be considered such as Light direction:

Use a cone of paper to determine the direction of light.

Use tracing paper to disperse light equally.

Punch holes or cut letters in tracing paper to create shapes that project onto walls or a table surface.

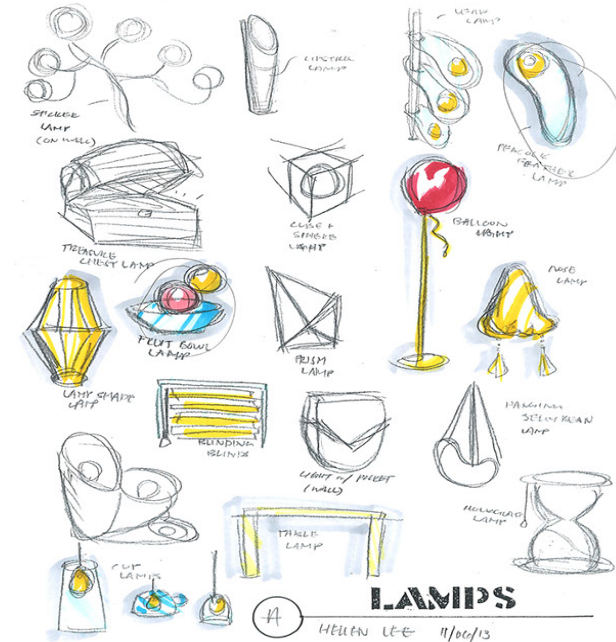
Use frosted or coloured transparent materials to create mood/ambient lighting.

Use mirrors to reflect and change the lighting direction.

### Start designing

Create a range of sketches to form ideas based around your design brief.

These ideas should be experimental and fun. Drawings should be in 3D where possible or show a front and side view of your design with labels to explain your thinking.



## Lesson 3: Idea development and modelling of ideas

**Starter:** Here is a video that shows another successful product that is user centred/built for purpose that helps people.

Whilst watching the video consider and answer the following questions;

**Q1:** Did you like the design? Why?

**Q2:** How is the product designed to help people?

**Q3:** How has the designer considered the user?

**Q4:** How could the product be improved?

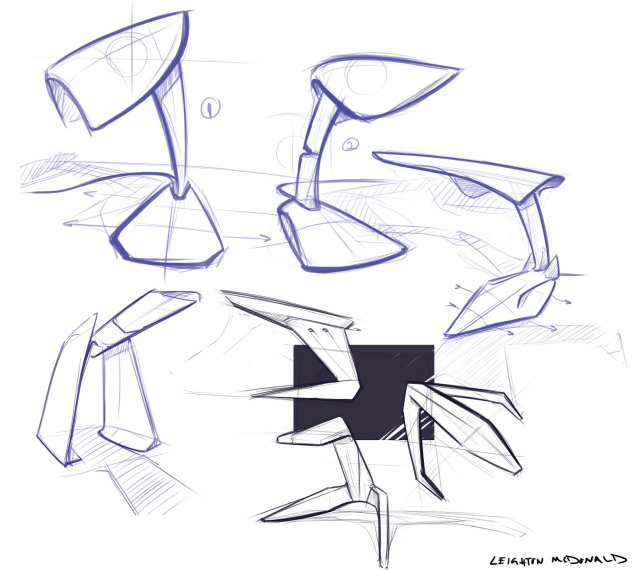
<https://www.youtube.com/watch?v=v1E668G43Vk&t=145s>

### Task 1: Developing your designs. How can I develop my design?

You are now entering **the iterative process** of your design- **How can I make my design better?**

Consider changing any of the following; size/shape/colour/features/power source (solar/battery/electric socket)/materials/height/width/length/direction of light/adding or taking away things/mixing of materials (refer to previous lesson for this).

You could start to model your idea using card, scissors and Sellotape. If this is not an option then refining your sketches is Ok as well. Consider adding colour to your designs.



## Lesson 4: Ergonomics and Anthropometrics

### What is Ergonomics?

Ergonomics is an applied science concerned with designing and arranging things people use so that the people and things interact most efficiently and safely.

### What is Anthropometrics

Anthropometric measurements are a series of quantitative measurements of the muscle, bone, and adipose tissue used to assess the composition of the body.

Task 1: Watch the following video on how Ergonomics and Anthropometrics work together in design

[https://www.youtube.com/watch?v=dU\\_zyDYZiew](https://www.youtube.com/watch?v=dU_zyDYZiew)

Task 2: Write a brief summary of what Ergonomics and Anthropometrics is and how it effects design that is related to the body.

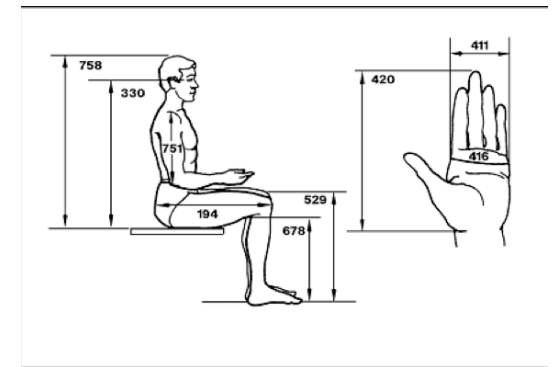
Hint\*\*Think back to the 'One laptop per child' video. How did they know how big to make the laptop's carry handle?

Task 3: Consider the use of Ergonomics and Anthropometrics in your own design.

If you are designing a light source that is to be used/carried/worn by your target market then reconsider the sizing of your design.

For example-if you are designing a torch, consider measuring your own hand to decide on the final size of your product to make it more accurate.

Task 4: Continue with your personal design adding in any changes that you are making. Make sure that you are recording any changes that you are making in to your book. It would be beneficial to create a separate list of all the changes you have made and why you have made them.



## Lesson 6: Does it work?

Throughout these lessons you have been using the iterative design process to improve and implement new ideas into your designs and rejecting ideas that do not work whilst using cheap materials to carry out how your design would work on a practical level.

It's not important that you haven't created a highly polished design made from the real materials, what's important is that you have learnt from making mistakes and building on existing ideas to create a successful product.

**Task 1: Looking at your different prototypes/design ideas, decide which one is most successful and evaluate it.**

**Use the questions below.**

**Q1:** What is your favourite prototype and why?

**Q2:** What's the most successful element of your design and explain why you think that?

**Q3:** What would you change about your design?

**Q4:** If you could add in any additional materials to enhance your design-what would they be and why?

**Q5:** If you could start this process again, what would you do differently?

### **Final Task:**

If possible, photograph your work and stick in your book for marking by your teacher.

