

Yr12 Bridging Task [pt1]

Product Analysis

For your Yr12 course you will be looking at different products and identifying weak points where the product could be developed and improved upon.

- Look at 3 completely different products:
1 Metal, 1 wooden, 1 plastic.
Then choose 1 to analyse in depth.
- Research how they were made.
- What they are made from (just saying plastic is not enough).
- How they have been developed through time: ie a timeline.
- How they are used
- How environmentally friendly they are.
- What the strong and weak points of them are.
- AHT: Annotate improvements & justify.

Investigations – a typical bicycle

Different mounting methods – Where is possible and what sizes am I dealing with?

Seat stays:
Seat stays are much like chain stays (see below). The ones I tested were no more than 3 cm in diameter and 50 cm in length.

Top tube:
Some bikes don't even have these and women's bikes tend to have different shapes to men's. It may be difficult to make a product that works in all instances that mounts on the top tube but if I made my light work here it would be on the far end by the handlebars to **stop the users body coming into contact with it whilst riding.**

Chain stays:
Chain stays are either cylindrical or square shaped. All bikes that I tested had chain stay lengths between 35 and 55cm, (the test was including a wide range of disciplines of cycling) the diameter of these tubes were all around 3 cm so the chain does not interfere with the frame.

Stem:
Stems come in different shapes and sizes, but the majority are cylindrical but there are others that are integrated with the handlebars and are therefore a different shape. Lengths vary, some mountain bikes are very short whilst most road and urban bikes have lengths over 10 cms.

Forks:
Mounting on forks can be difficult because there are lots of different designs of forks so it could be hard to please all of the defined market with different shaped bikes. Road bike forks look like blades and mountain bike forks have a really wide diameter to hold the front suspension together.
Also, when mounting on forks you want to be careful to make sure **the light cannot get trapped in disk brakes, which would be a safety hazard.**

Down tube:
Most bikes have a diameter of about 5 cm. This is thinner on older bikes (at about 3cm) and wider on newer racing bikes at around 7 cm.

Wheels:
They come in sizes 26 inches up to 29 inches, if I were to attach a light to the wheel the spokes will be roughly 10 inches so the light isn't limited by size. A drawback to light on the wheels is that by adding rotating weight the bike is more difficult to use than if the same light was put somewhere else on the bike.

Reflection and next steps
I have now gained a lot of useful data which has enabled me to establish some key requirements. It was important to look closely at bicycles and get a clear idea of some of the constraints and opportunities in terms of where lighting accessories might be mounted. After wide research I've summarised a 'typical bicycle' here. Bikes, and their various component parts, come in many different shapes and sizes, with some obstacles that will need to be overcome in the designing process to make sure my product can be mounted to as many bikes as possible to keep the market wide. I need to consider the areas that are 'no go' because of the rider and their safety, so it makes sense for me to look more closely at anthropometrics next.

Mountain bikes have thicker tubes

Women's bikes have sloped top tubes as well as down tubes

Fixies and older bikes have much thinner tubes

Even so, if I made a front light the forks are the most visible place on the bike to have it so it will be important **to design a system that fits all bikes.**

This is an example of a yr13 product analysis.

Yr12 Bridging Task [pt1]

Product Analysis

- What I would like you to do is choose a product that is made solely from one material and then create an in-depth analysis of it.
- For example if you took the bicycle in the example, it has many different materials and so might get quite complicated.
- If you took a wooden chair, the option for looking at it in depth would be more accessible to you.
- I understand it's the summer holidays and would rather you had some fun, also I would rather you do a really thorough job and learn something than create something superficial that's no use to you later on.

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Yr12 Bridging Task [pt2]

Career Research

Research an engineer, a product designer and an architect.

Say which is your favorite and why.

You will be doing a 5 minute presentation on these so we can get to know you, so make them good!

Suggestions:

Tom Dixon
Zaha Hadid
Phillipe Starck
Neri Oxman
Ron Arad
Paula Scher
Sir Norman Foster
Ilse Crawford
James Dyson
Bjarke Ingels

For research please watch the following:



[\[Click here for access\]](#)

Please include:

- Brief history
- Type of products
- Style of products
- Your own opinion and why.

Ms Dowden will be invited to your presentations and for form tutor so please make a good impression.

Please don't copy/paste as we can all recognise this.