

A Level Design Technology :



A Level Design Technology:

Departmental Staff

Head of Design Technology

Mr G Wykes

Teacher of Design Technology,

Mrs T Dudley

Teacher of Design Technology

Mr J Pugh

All the members of staff have had industry experience before teaching bringing a real world view to the subject



A Level Design Technology:

Departmental Resources

- DT1 **Technology workshop**
- DT2 **Main workshop**
- DT3 **Product Design Computer Room 2**
- DT4 **Product Design Computer Room 1**



A Level Design Technology :

Courses Offered at A Level

A Level Product Design

Product Design covers a multi skill set within the course

Engineering

Electronics

wood skills

Graphics

CAD

Design

The course leans towards independent and forward thinking through the NEA



A Level Design Technology :

Course Suitability

- **Ideal** for those who have studied GCSE Design Technology and have gained at least a grade 4 APS.
- **Potentially** suitable for someone who has not studied Design Technology at GCSE but has demonstrated equivalent attainment in another creative subject e.g. Art / Food Preparation.
- **Suitable** for students who thrive on coursework based subjects but also have academic qualities.

- Technical
- Creative
- Resilient
- Patient
- Independent
- Inquisitive
- Committed
- Competitive



A Level Design Technology:

Exam Board:

- OCR
-

Course Title:

- Design and Technology: Product Design (H406)
-

Assessed Content:

- NEA Non Examined Assessment 50%
- Exam 1 Principles exam (Knowledge and Understanding) 26.7%
- Exam 2 Problem Solving in Product Design 23.3%



NEA – Coursework (50%)

- Learners will identify a design opportunity from a context of their own choice.
 - Create a portfolio of evidence in real time throughout the project.
 - Equates to 50% of final A-Level grade.
-

Principals of Product Design examination. (26.5%)

- 4 sets of questions within the exam.
 - Existing product analysis.
 - Applied mathematical skills.
 - Technical knowledge (materials, product functionality & manufacturing processes).
 - Understanding of wider social, moral & environmental issues.
-

Problem solving in Product Design examination. (23.5%)

- Longer answer questions.
- Apply knowledge, understanding and skills of designing and manufacturing prototypes and products.
- Demonstrate higher level thinking skills to solve problems and evaluate situations.



Course Content

There are 9 different sections to the specification that **underpin** all aspects of the course. You will gain knowledge through **6 lessons per week covering both theory and small practical lessons aimed at stretching the students skill set before the NEA**. Much of the content will also be taught within the 'iterative project' which is completed from Easter of Y12 to Easter Y13.

1. Identifying Requirements
2. Learning through existing products and practice.
3. Implications of wider issues
4. Design thinking and communication
5. Material and component considerations
6. Technical understanding
7. Manufacturing processes and techniques
8. Viability of design solutions
9. Health and safety.

At GCSE you will have studied these to a large extent, but at A-Level you will go into them with more detail. This was the advantage of doing OCR at GCSE.



Iterative design Challenge

OTHER STAKEHOLDERS IN MY NEA

Real Time Evidence:
June 2020

Other Stakeholders include other families that are working at home. I spoke to some of these stakeholders on a zoom chat. I also chose these people and families as my stakeholders because they live in different parts of England so I will be able to get an idea of what it is like to work or learn at home all over England not just Staffordshire or the West Midlands. I think this is very important because I can use a range of data from my stakeholders not just area specific. I spoke to Karen Crowhurst, Marina and Emily Harris, Lorraine Gibbons, Teresa Lefort and Alison and Amelia Hall.

Karen Crowhurst from Hastings is working from home during Covid-19. She says that she finds working at home hard because she has a very small house and doesn't have a decent place to work. She would like a product that makes use of the space not being used, instead of taking up more space.

Marina Harris from West Drayton has 2 children who are working and learning at home during COVID-19. Emily Harris aged 7 and Cameron Harris aged 18. Cameron Harris is doing an apprenticeship for IT so it at the moment working on his apprenticeship at home. Marina is a teacher so I think it would be really useful to include her in my product as a stakeholder because she will need to work at home and help other children work at home by contacting them over the internet.



Lorraine Gibbons from Uttroft is currently working at home. She has a lot of space to work but would like something that would keep her on track and remind her to take breaks.

I chose Teresa Lefort from Northwood too because I think it would be helpful to ask people who aren't necessarily working from home but living at home due to COVID-19. I thought this would be a great opportunity to interview.

Alison and Amelia Hall from Aylesbury. Alison is mum to Amelia Hall. Amelia is 9 and is currently learning at home due to COVID-19. I thought this would be a great opportunity to interview.

Explore

Create

Evaluate

and stakeholders questions to make sure that the product I make is best for the user and is intended to solve real-life, genuine problems for my primary user.

By using a user-centred design in my NEA, I can focus on the user interface (UI) of my product so that it will be user friendly and easy to use. My NEA will result in products that will receive higher grades because by including the user I will make sure the user and consumers will be able to use my product easily. I would do this by making a questioning and conducting focus groups to see how the user and possible stakeholders would interact and use other existing products and consider the user interface of the product and consider how I can make my product as user-friendly or more user-friendly if needs be.

My primary user will look at the prototypes I make to see if they are going in the right direction, they will test them and analyse them. I will use anthropometric data, ergonomics, averages and percentiles with my primary user to continue my user-centred design through out my project.



On this page, I will be completing a primary user interview and designing my product.

Next steps, I will be completing a survey for companies.

Explore

Create

Evaluate



Feedback can be collected from interviews, collaboration observations and questionnaires.



Explore

Create

Evaluate

PRIMARY USER INTERVIEW

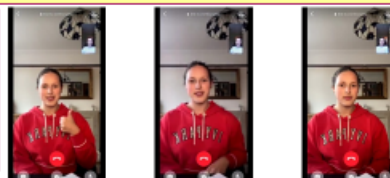
Real Time Evidence:
June 2020

far in my NEA, I have picked a design context and brief and my primary user and I have acknowledged stakeholders. Now strand 1.31 am completing and doing interviews with my primary user and stakeholders.

How is an interview with my Primary User, Jessica. Video called Jessica, my Primary User because at the moment I am not able to meet her because of COVID-19 restrictions, it as soon as I am able to, I will.

First we completed the interview by using a video call, but when we finished we realised by recording it, the sound doesn't record too. Therefore we have completed the interview written down too and attached it below.

The right shows a video call that I completed with Jess as my primary user to gain an insight into what she understands about the project so far. I think video calling her was more helpful because it was easier to talk to her rather than write. In the video interview, Jessica had many ideas of a product that she imagined and what she thinks is important that I should include in the NEA.



Jess

Thank you for agreeing to be my primary user in my NEA.

One reason I am going to design a product is in the context of home learning.

My design brief is:

98.5% of the world's student population are unable to go to school/university primarily at this time due to COVID-19. They must design and create a product to help all people learn/work easily or stay distracted when they are learning at home.

As my primary user in my product, you will influence my product design as well as what my product needs to have and what you want it to have.

Therefore I am having this interview with you so I can gain an insight into what you would focus on in this product and what you think on for.

Are you going to start the interview now?

1. From my design brief, what type of product do you imagine?

I imagine a product that has a timer for 45 minutes and then a break of 15 minutes to study, a bright light to keep a person awake when studying and also able to produce quiet background noise to aid concentration of the student to listen.

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Are you going to start the interview now?

2. What would you like to see in a product like that?

I would like it to be sustainable and as environmentally friendly as possible so well as pretty so I want to use it and have a wide range of designs for a range of people.

Thank you for agreeing to be my primary user in my NEA.

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Are you going to start the interview now?

4. How often would you use this product?

Every day as I am a sixth-form student and get lots of home work and studying to complete even when not in school.

Thank you for agreeing to be my primary user in my NEA.

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Are you going to start the interview now?

6. Does this product need to be able to be used by a wide range of people?

Yes, it should be suitable for a range of genders and ages and cultures.

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Explore

Create

Evaluate

Iterative design Challenge

CIRCUIT BOARDS INVESTIGATION



VIDEO

I started by soldering the LED's and resistors to the PCB. Soldering was used as it forms a permanent connection between electronic components.

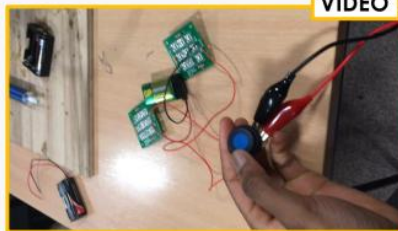
Commercial benefits of soldering

- This is to ensure that they are firmly secured to the board and increase their reliability.
- Soldering was a relatively inexpensive process as it was using the metal solder which is also readily accessible

Environmental benefits

- Soldering is a reversible process and so if there are any faults, components that require replacement or repair it can be easily done by applying the soldering iron to the soldered component and using a de-soldering tool.

ARTIFICIAL OUTDOOR LIGHTING



VIDEO

First circuit
I started by making a simple circuit that turned on and off at the push of a button. This was achieved using three wires, a 9volt battery and the two LED boards.

Positives
I was able to see the efficiency of the LED's, they are very bright.

Negatives
The switch did not switch on and so I am going to increase the voltage by introducing another power source.

Development →

Second circuit
The LED on the switch turns on this time when I increase the voltage source.

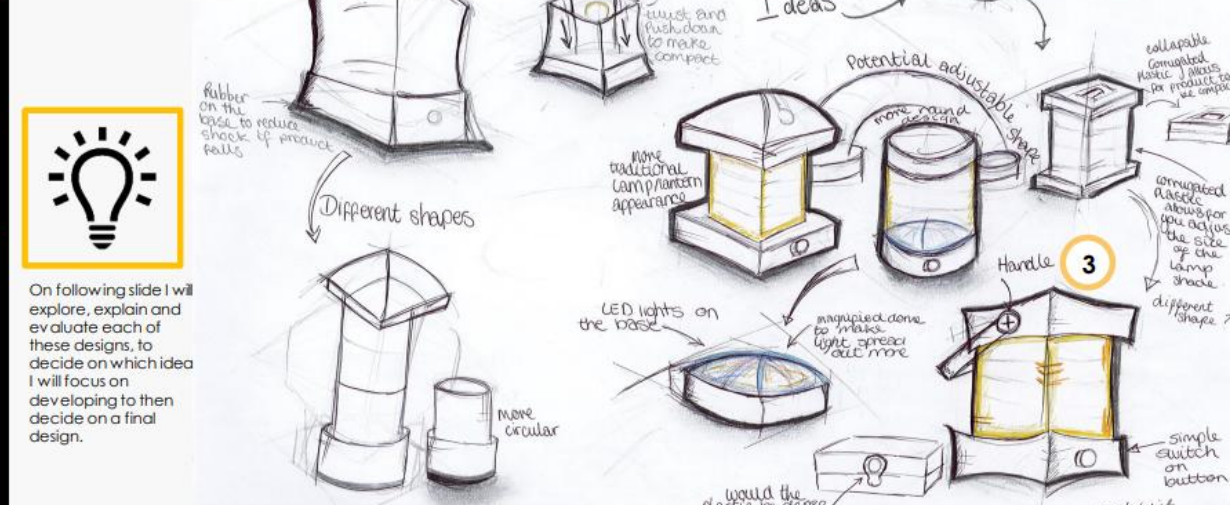
Negatives
This may mean I will require a greater voltage source than a 9 volt battery.

A power pack was used to provide a greater current flow

Next steps: Use live wire to design a PCB

24 / 10 / 18

25mins



Initial Ideas

Potential adjustable shade

Handle

LED lights on the base

different shapes

more circular

more traditional lamp/lantern appearance

collapsible

corrugated plastic

simple switch on button

would the plastic be dense

rubber on the base to reduce shock if product falls

push and push down to make compact

open the cap part that holds the bulb

collapsible plastic pieces for product to be compact

corrugated plastic allows for you adjust the size of the lamp shade

different shape?

magnified dome to make light spread out more



Wider Curriculum Opportunities

Mechanical Engineering

Electrical Engineering

The list is endless !!!!

