A-LEVEL DESIGN AND TECHNOLOGY

Sixth Form Open Evening – 3rd November 2021

KING EDWARD VI
ASTON SCHOOL
Educational excellence for our City

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What is A-level Design and Technology?

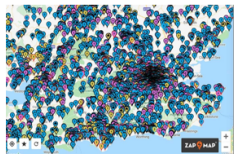
- A creative and thought-provoking qualification that embeds the practical skills, theoretical knowledge and confidence to succeed in a wide range of careers but especially within the creative industries.
- Topics include historical, social, cultural, environmental and economic influences on Design and Technology
- Our students learn what it is to be a designer as well as acquiring the skills and knowledge sought by higher education and employers

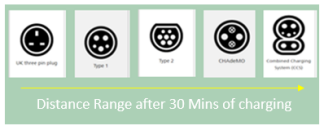
A-level DT at Aston

Provision and Contextual Analysis

The UK is among Europe's largest consumers for electric vehicle demand and sales with Hybrid and plug-in vehicles accounting for over 10 percent of car registrations in the UK in 2020. With the recent news of diesel and petrol powered vehicles being prohibited to be sold in the UK from 2030, only means the demand for electric cars will increase at an exponential rate. This entails the need for more EV charging port locations around the UK to account for this increase.

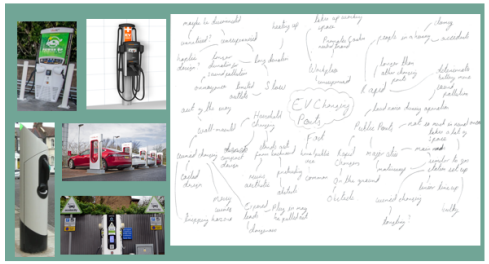
Slow	Typically rated up to 3kW. Often used to charge overnight or at a workplace.	8-10 hours
Fast	Typically rated at either 7kW or 22kW. Tend to be installed in car parks, supermarkets, leisure centres and houses with off-street parking.	3-4 hours
Rapid	Typically rated from 43kW. Only compatible with EVs with rapid-charging capability.	30-60 mins

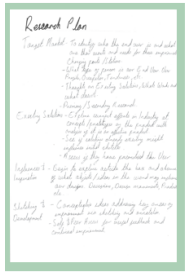




The image above shows EV charging stations in major locations in the UK such as London, Birmingham, Bristol and etc. There are now more than 30,000 charge points across the UK with 10,000 charging station added in 2019 alone.

Right now, the most common type of charges for EV and hybrids are slow and fast chargers and are the most ideal for home use due to the extended period of time it is parked there. Many UK households have a single phase (AC) electricity supply and can support the 7kW load required for fast charging. Some houses can support the 22kW energy requirements but they are not as common in the UK.
Workplace charging points are popular amongst employees and are a great alternative to public charging in a safe environment. Workplaces that offer such facilities increase the interest, understanding and adoption of EV within companies and help businesses meet c02 emission targets.





After analysis of the context and findings for initial research, I managed to distinguish reoccurring themes and identified areas for improvement: **Shape**, **positioning**, **sound pollution**, **unsupervised accidents**, **wires** and **outlet capacity**. These issues were persistent among case studies observed in both rural and urban space. All these factors hindered the overall functionality for both consumers and nearby pedestrians throughout the product use.

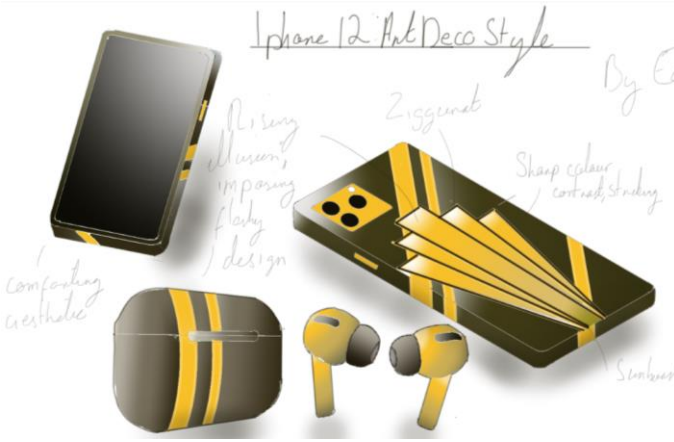
After some further review, it seems its currently implausible to alter charging periods and sockets due to current technologies, therefore improvements have to be made via product experience and ease of use which will be just as effective to consumers and pedestrians alike.

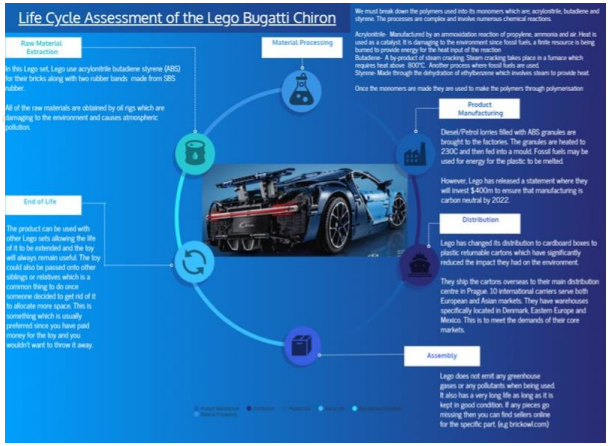
The next stage is it establish who are end users will be and what are their requirements for charging ports and development, in detail, what is expected from the final product.

Prototype Development

The course is a mixture of theory content, focussed practical tasks and project work to develop skills.

Our projects change regularly to ensure they are relevant to the society we live in; this year our students have designed everything from computer mice to electric vehicle charging points.





Students are encouraged to take part in extra-curricular opportunities, including competitions, to help develop their knowledge and skills.

Assessment – what to expect

Paper 1

What's assessed

Technical principles

How it's assessed

- Written exam: 2 hours and 30 minutes
- 120 marks
- 30% of A-level

Paper 2

What's assessed

Designing and making principles

How it's assessed

- Written exam: 1 hour and 30 minutes
- 80 marks
- 20% of A-level

Questions

Mixture of short answer and extended response questions.

Section A:
- Product Analysis: 30 marks
- Up to 6 short answer questions based on visual stimulus of product(s).

Section B:
- Commercial manufacture: 50 marks
- Mixture of short and extended response questions

Non-exam assessment (NEA)

What's assessed

Practical application of technical principles, designing and making principles.

How it's assessed

- Substantial design and make project
- 100 marks
- 50% of A-level

Evidence

Written or digital design portfolio and photographic evidence of final prototype.

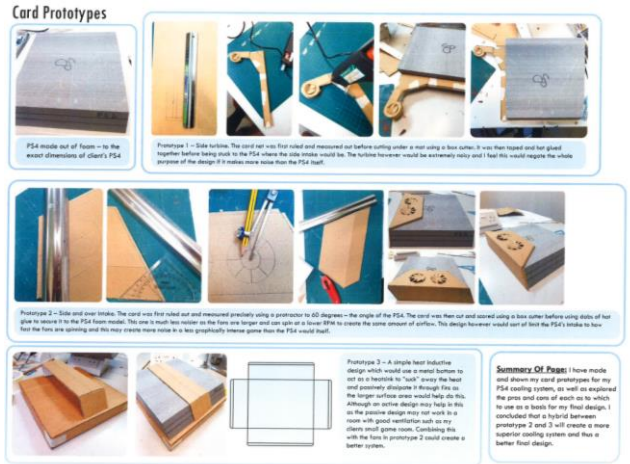
At Aston we teach the AQA7552 course.
Students will sit two examinations in Year 13, combined these are worth 50% of the A-level.
A non-examined assessment (NEA) project begins in Year 12 and is submitted in Year 13, this is worth 50% of the A-level.

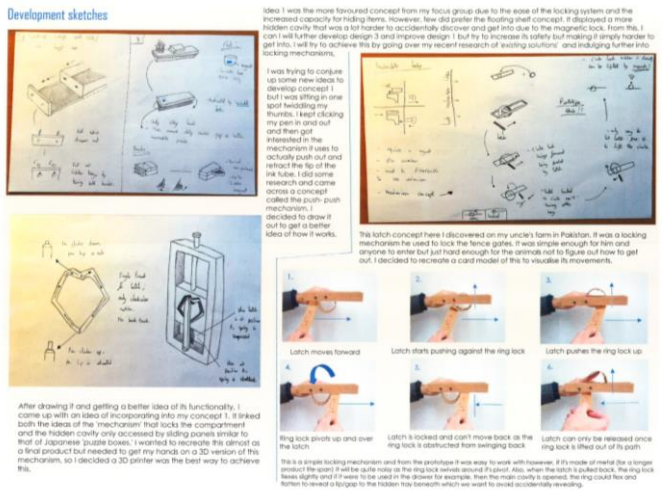
Non-Examined Assessment (NEA)

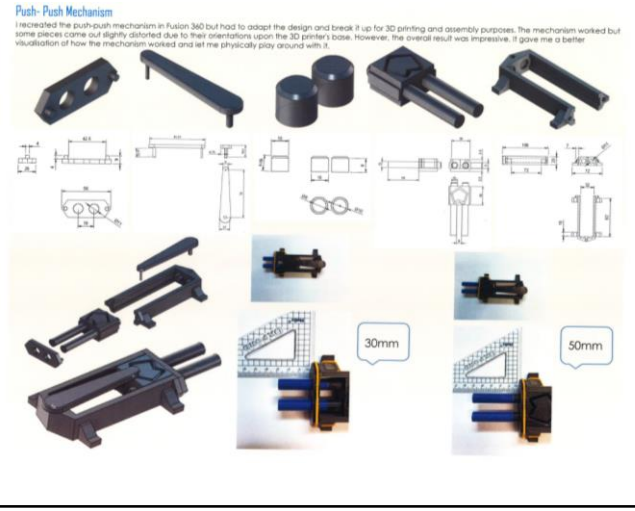
The NEA project is completely guided by the students.

It offers the creative freedom to undertake a project that is of real interest.

Although a significant work commitment, the outcomes and portfolios produced are consistently excellent.







Where can this subject take you?

Design and Technology gives pupils an enviable set of skills as well as an excellent understanding of the world we live in.

As well as intelligent, our students are problem solvers, critical thinkers and team players.

Our students go on to study design and engineering courses at University in pursuit of careers within the STEM sector.

If you have any questions or would like some more information about A-level Design and Technology at KEVI Aston please feel free to email Mr Hodgkinson (Subject Leader)directly:
m.hodgkinson@keaston.bham.sch.uk