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Spring 2020







## Teaching the new D&T GCSE at Abingdon

**School** Dan Hughes, Head of Design and Technology (Abingdon school is an independent school for boys in Oxfordshire)

All boys at Abingdon follow Design and Technology at Key stage 3 and it is a popular option at GCSE with between 45 & 60 boys choosing the subject. We follow the AQA Design & Technology (9-1) specification.

The introduction of the new specification in 2017 was an opportunity for us as a department to look at our teaching of the subject across all year groups, and develop our schemes of work to best prepare our pupils for the increase in the demand and rigour of the new course.

On our initial review of the specification, we were struck with the volume, or more the breadth, of the theory content. We looked across other departments at Abingdon to see where some of the core content was already being taught, and enlisted the assistance of our maths department to support our coverage of the maths skills. We decided to move some of the more straightforward material and elements of the core knowledge into our key stage 3 schemes of work, leaving the specialist technical principles to be covered in year 10.

The changes to the NEA were significant. The awarding bodies' context release date, level of support and feedback that we could offer pupils,



were areas we felt we must address proactively if we were to be successful.

We have always tried to encourage boys to identify genuine clients and designs that require them to demonstrate an element of empathy in their designing. The investigation and analysis of the three exam board contexts was not too







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dissimilar to this approach and although our pupils still find this section demanding, it enables them to identify a wide range of individual opportunities to investigate. We offered all three contexts and had a fairly equal uptake of each.

The need for the investigation to be specific and relevant seems to be more logically linked to the new course than the previous 'research' section. The unfamiliarity of the pupils' chosen direction meant that they actively needed to investigate and research thoroughly before they felt confident in generating some initial concepts or ideas.

We encouraged pupils at this stage to generate design ideas, manufacture initial models and begin to test concepts simultaneously. They found throughout this section that they identified gaps in their initial research and investigation which they then had to undertake and incorporate in their next iteration. The more successful pupils also involved their client throughout this stage, some face to face interviews, others emailing virtual models or design ideas for feedback.

As a department, we had to address our level of expectation in the practical outcomes that our pupils produce. The change in focus from a finished commercial product to a prototype is one that some of our pupils and staff have found challenging. We found that encouraging pupils to reduce the physical size of the practical outcome has helped them focus more on the function and features of their prototype.

The evaluation and testing section has historically been left to the end of the project and often suffered from pupils' time management issues. We have found the need and opportunity for ongoing testing and evaluation has embedded this activity in all stages of the



NEA, and pupils are no longer seeing this as the final stage, but more an integral part of the design processes. Once again, we have found that pupil success in this activity is closely linked to the validity of their chosen client.





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A summary of the strategies that we adopted and have found useful:



- Redesigning the teaching of the subject in the years preceding the GCSE course. Identifying opportunities that enabled us to cover a significant volume of the theory content along with introducing more consideration of design contexts in early projects.
- Ensuring that we have taught the skills necessary to successfully tackle Sections A and B, particularly of the NEA through a series of smaller projects. We have used these as an opportunity to provide guidance to students who can then reflect upon the skills learnt and staff feedback when tackling their NEA unit.
- Following the release of th<mark>e brief on the 1<sup>st</sup> of June each year and pupils'</mark>

early investigation of their chosen context, encourage them to contact a genuine client as soon as possible.

- Encourage pupils to start generating design ideas and early 3D models as soon as they feel they have identified and investigated the design possibilities sufficiently. We have found that this early practical development helps them identify areas for further research and allows them tangible concepts to discuss with their client or target user.
- Make use of CAD software to help communicate efficiently, develop design ideas quickly, and allow pupils to export their models and 3d print refined components. This has involved us actively teaching CAD modelling skills from the first year of entry, to ensure that their CAD ability doesn't hinder their creativity.

Remember the restructuring of the assessment criteria and allocation of marks differs from the legacy specification and try to get the pupils to remember that the process is in many ways more important than the final physical prototype.

 Place greater emphasis on the evaluation and testing element of the NEA in line with the increase in marks available. Where possible test the prototype in situ with client interaction and plenty of relevant thirdparty feedback.

The new course has been successful for us. Our uptake at GCSE and A-Level is at a record high and our pupils have relished the opportunities to develop exciting prototypes and design solutions. Yes, some have missed the design and make style of the legacy specifications, some have found the breadth of the theory content a challenge, but those pupils who have really explored their context and the needs of the user have excelled. The diversity and creativity of some of the NEA work has been impressive and the journey of the pupils thoroughly valuable.



You can follow the work of the pupils and the department on social media @abingdondesign on twitter or abingdon\_design on Instagram

