CLEAPSS Design and Technology

Future minds

Tomorrow's world explored today

Autumn 2022

CLEAPSS D&T e-newsletter

Welcome to the Autumn 2022 edition of *Futureminds*.

It's been a busy few months at CLEAPSS. We have been organising our new premises, restarting face to face training, undertaken some safety audits, and visited a few interesting sites.

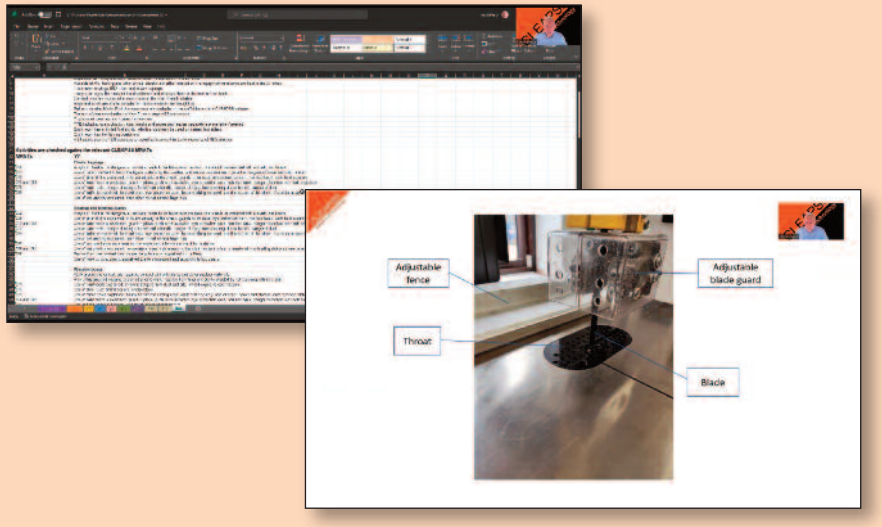
We are very excited to announce that Trudi Barrow is now working with us. Trudi presently teaches part-time in Hertfordshire, and is able to combine this with working with CLEAPSS, to support Dave on the various projects we undertake each year including this edition of Futureminds. We are all looking forward to the increased capacity, as well as new ideas and energy that she will bring to the team.

Trudi is already testing out of different formats for this online magazine. The PDF has always been well received, but we have also been looking at how to bring more interactivity into the resource. Over the coming year we will be trying out different online presentation packages, alongside the PDF. If you have any comments that you think would help us to develop a more engaging format, please get in touch: dt@cleapss.org.uk

When we have some ideas to test, we will tweet the link and email it to our 1000+ members on the 'Mailing List'. If you have not signed up for our weekly email, please visit the website and sign up for our email alert: https://dt.cleapss.org.uk/Resource/CLEAPSS-Email-Alerts.aspx

Our online courses have received very positive responses from users. We presently offer two online, programmes:

- D&T H&S Online Training. This consists of a self-study element (free to CLEAPSS members) which you can access at any time to suit you, and a mediated follow-on course (£95 to members). In this you take part in discussions and questions/answers on the use of CLEAPSS materials to support your practical activity.
- D&T auditing course, which is primarily aimed at heads of department, and safety officers who may be carrying out an audit of D&T, food and art facilities. The charge is £95 per person, for which you join the course and have access to a set of videos and tasks that you can work through before doing an audit, and refer back to if you have any issues when carrying it out.



We are currently working on a range of short guidance videos on individual pieces of equipment and their safe use. These will enhance the MRATs by providing explanations and details about the equipment, illustrating the control measures needed to work safely, as well as offering guidance on use. Each video will be around 5 minutes long, so could be accessed by staff as required or used as part of an in-house training session.

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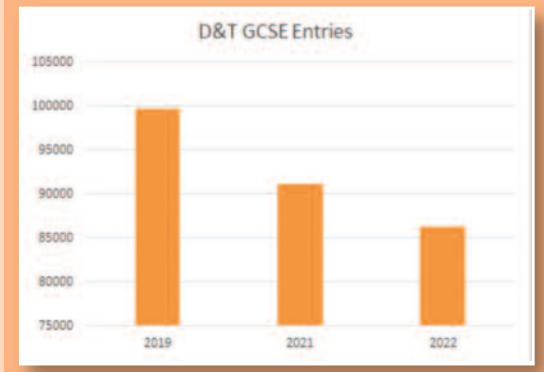
CLEAPSS D&T e-newsletter

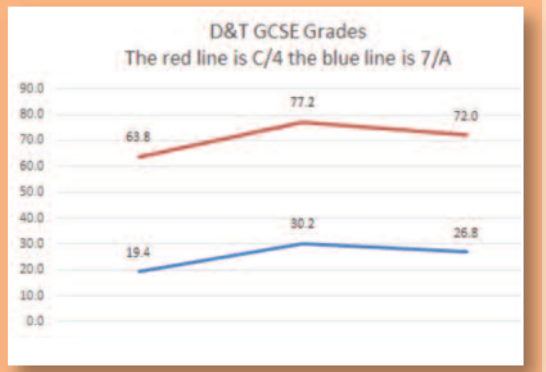
In the last edition of *Futurminds* we ran an article from PrintCity, an additive manufacturing base in Manchester. In July we visited their (very impressive) facilities.

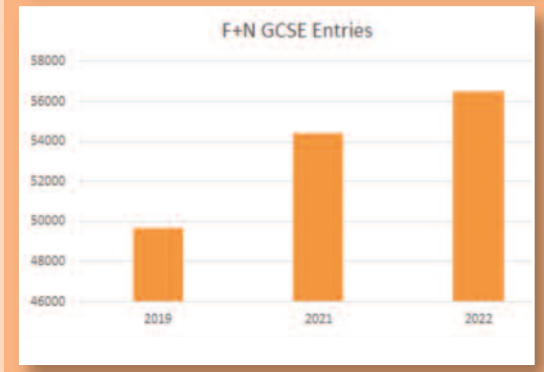
We accompanied the Health and Safety Executive researcher who led on the HSE 3D printing project, and who is starting to plan further research on real world data on fumes and emissions from 3D printers. If you would like to find out more about PrintCity, take a look at the summer 22 edition of Futureminds.

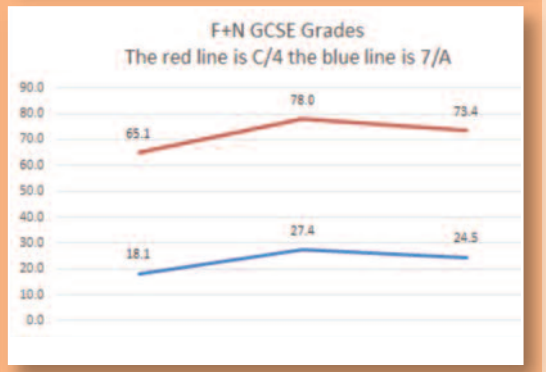
The results from this new round of HSE research will inform an update of our guidance on the use of 3D printers in schools, which was originally written in conjunction with HSE: [3D Printing in Schools and Colleges Managing the Risks]

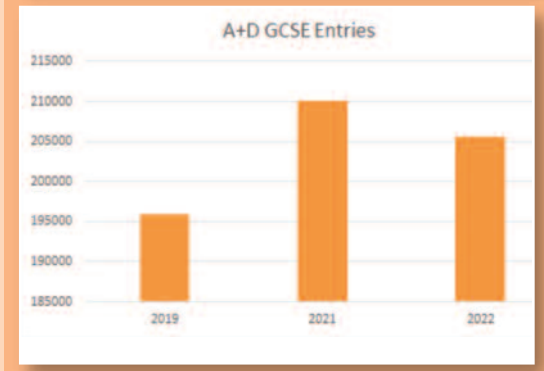
We have also worked with a number of schools and the awarding bodies to investigate new approaches to the subject of D&T. GCSE entries for D&T fell again this summer. Entry numbers increased slightly in food and nutrition, and art, and it was pleasing to see an increase in A Level numbers for D&T. We congratulate all the teachers, technicians, parents and, of course, pupils for their hard work to not only cope with the pressures and difficulties that all schools have faced, but to have achieved such good results in the

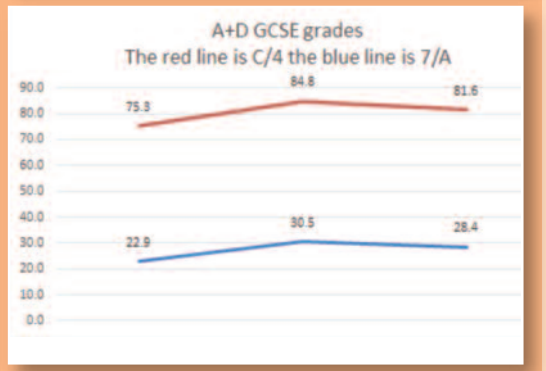












The value of work experience placements within D&T; a student's view

By Abigail Frankl A-level Product Design Student; Sandringham School, St. Albans.

I recently completed a week's work experience at Ocado Technology in February 2022 during my year 12. It was an amazing, fun, engaging, informative and a lovely experience that I will take with me into my future.

As a student we have lots of opportunities to stretch ourselves in school, however, by going beyond the classroom I was able to experience what design & technology was in the world of work.

During my work experience I had one major task and brief for the week which was to design components for use in the robots Ocado uses within their warehouses. With my knowledge of CAD software, I was able to quickly and efficiently design a variety of different components. I then exported these designs and sent them to three separate, high-quality, 3D printers: SLS (Selective Laser Sintering), MJF (Multi-jet Fusing) and FDM (Fused Deposition Modelling). The robots are large scale and in high demand. I was really impressed that my components were able to be printed and ready for testing in just a few hours. I completed many tests which ncluded: vibration tests, pull tests and rotational force tests. I received detailed results and at the end of my work experience I was able to present my findings and design work to the Ocado team. They were all very impressed and pleased with my work, some of them even said they would replace some of their existing engineers with me if they could!

Industry experience is so beneficial within today's society, and I know that having my industry experience will definitely help me improve practically and theoretically in D&T at school as I complete my A-level in Product Design.

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The value of work experience placements within D&T; a student's view

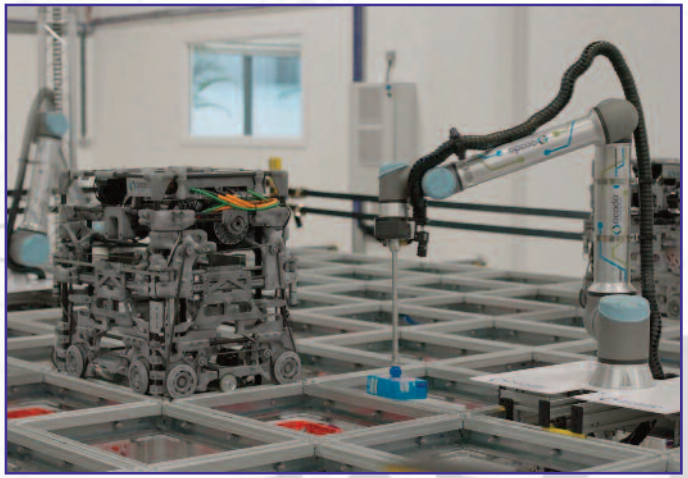
By Abigail Frankl A-level Product Design Student; Sandringham School, St. Albans.

I valued this work experience so much as it gave me an insight into the working world of design and engineering. It helped me confirm my choices for my future career pathway. I also met a wide range of people who taught me new and interesting facts and skills.

I believe everyone should try and partake in some kind of work experience while they are at school. It can really improve students' knowledge and help them get industry links that could possibly benefit them in the future. It also helps them decide if they really want to go down a particular career path.

The whole experience was a fantastic opportunity that benefited me in so many ways. I am so grateful for it and have a huge sense of achievement as Ocado is now using the components I designed for them within their robot design. This is exactly what design and technology work experience should be about: having a student's work realised and taken seriously.

This work experience has given me a huge insight into a possible future career. I hope I can complete another successful work experience soon.



With the CAD, workshop, and problem-solving skills I learnt during my work experience, I now have new skills and knowledge to take with me into school to create better outcomes in my A-Level. It was particularly helpful in putting the theory and practical side of the subject together in practice, which made for a really great learning opportunity.

The Design and Technology Book Club for Teachers

By Claire Vickery Head of Design & Technology; Buckler's Mead Academy, Yeovil. Doctorate in Education candidate; NTU.

Arguably, one of the most valuable forms of continued professional development is the exchange of professional dialogue with others. However, during my recent research into design and technology (D&T) education, many teachers expressed the idea that their busy timetables confined them to their classrooms. Or that they were a in small department, a lone specialist teacher or, indeed their classroom was some way from colleagues. This meant they had limited opportunities to hold professional dialogue with other teachers of their subject.

I have always valued talking to others to strengthen my professional practice, so my research prompted me to consider what I could do to make a difference to teachers of our subject who found themselves in this position. I wanted to enable them to have the opportunity to connect with other like-minded teachers to encourage professional dialogue. Not only would this promote the professional and personal development of teachers, but also, I hoped would strengthen the D&T community.

Some weeks later, as I was flicking through my copy of *Debates in Design and Technology Education (Owen-Jackson, 2013)* I yearned to have others there with me to listen to their views and discuss some of the topics raised in the book. It was from this moment The Design and Technology Book Club for Teachers was born.

As a full-time teacher myself and head of design and technology, it was important that the book club did not become a burden but provided an opportunity for personal and professional development. I was keen that teachers of D&T education were welcomed, wherever they were in the world and at whatever stage of their pupils' education. They could sign up for as many or as few meetings as they chose, using an online booking system. To promote a safe environment where everyone felt able to contribute, tickets were limited ensuring that the meetings did not become too overwhelming or chaotic. Each month a book would be voted for by members to read independently, which we would discuss during our subsequent meeting. Due to the high number of bookings, many meetings focussed on the same book, yet the conversations within each meeting and the variety of teachers that attended offered very different insights.

Since our first meetings last December, there have been several highlights, especially the meetings which discussed *Redesigning D&T…Talking…Thinking* (Hardy and Norman, 2021) and *Design Thinking in the Classroom* (Lee, 2022). During both of these months, we were kindly supported by the authors of the books. This included visits from Alison Hardy who discussed the future of D&T with members and David Lee who kindly answered some of our questions, to provide further insight into his experiences.

In this new academic year, we will be broadening our discussions with the addition of journal articles and podcasts. The addition of shorter reads and podcasts will reduce the time spent reading and thus allow the club to become more accessible to all. If you would like to become involved, you can use the contact details below to hear of upcoming events and book your tickets.

Email : claire@sonderandmeraki.com

Website:
https://www.eventbrite.co.uk/e/the-design-and-technology-book-club-for-teachers-tickets-200464955077

References

Hardy, A. and Norman, E. (2021) *Redesigning D&T…Talking…Thinking.* Loughborough, Loughborough Design Press.

Lee, D. (2022) *Design Thinking in the Classroom*. Berkeley, Ulysses Press.

The D&T Book Club

Joining teachers of design and technology together, as we embark upon a journey to make our subject stronger.

Everything teachers need to know about apprenticeships

By Dexter Hutchings
Co-founder and director of The Apprentice Voice

Teachers, you're busy and the world of apprenticeships changes frequently. Apprenticeships offer an exciting and innovative entry into work for some of your students. Here's everything you need to know about apprenticeships to give your students a head start!

What is an apprenticeship?

An apprenticeship is a paid job where your students have the opportunity to learn and gain valuable experiences. Alongside on-the-job training, apprentices spend at least six-hours per week completing classroom-based learning with a college, university or training provider, and which leads to a nationally recognised qualification.

Is there an apprenticeship for every job role?

There are apprenticeships available for thousands of different jobs in a range of industries. From something hands-on like engineering, nursing or construction, to a career in marketing, law or project management.

Recent news that a new medical doctor degree apprenticeship has just been approved to start from September 2023 shows just how far apprenticeships have come in the past few years.

Name	Level	Equivalent
Intermediate	2	5 GCSE grade A*-C or 4-9
Advanced	3	2 A Level passes / Level 3 Diploma / International Baccalaureate
Higher	4,5,6 and 7	Foundation Degree and above
Degree	6 and 7	Batchelors or Master's Degree

What do the different apprenticeship levels mean?

Apprenticeship levels work slightly differently to typical academic levels, which is why people often want to know what an apprenticeship level is equivalent to. Apprenticeship levels are ranked in terms of 'intermediate', 'advanced', 'higher' and 'degree' levels, each with a corresponding level number or numbers:

It's important to note that we often talk about degree apprenticeships as an alternative to university, but other apprenticeships are just as useful. I myself took an advanced apprenticeship before undertaking a degree apprenticeship.

Molly, an A level student I know, also opted to take an advanced apprenticeship, working for Google. Interestingly, most of Google's apprenticeships are only available at levels below a degree which is why it is important your students are open to taking an apprenticeship at numerous levels. Molly has since gone on to join the graduate scheme at TikTok, without a degree, showing just how much employers value apprenticeships.

How can you best support your students?

Students need their teachers to be as impartial and supportive as possible. Teachers need to give students an overview of all their options, and support students once they have decided on the path that is best for them.

Teachers should tell students about university, apprenticeships, gap years, work and any other options, then support them as they navigate the options and choose what suits them.

I have worked with some incredible apprentices to create Apprentice Talks, a podcast all about apprenticeships and Your Future Forward, a digital careers platform to give students an overview of their options.

My friends over at Your Game Plan provide students with free access to employability courses, tools and opportunities designed by employers including a CV builder.
How to find an apprenticeship

The majority of apprenticeships are advertised on 'Find an apprenticeship', and students can search by keyword, location and level. Some other great websites to check are Not Going To Uni, Multiverse and Rate My Apprenticeship.

For students who know where they want to work, it is often a good idea to check the career page on the company website. Wherever students are looking, make sure they're signing up to receive alerts where possible.

If a student wants to work for a company but can't find an apprenticeship, getting in touch by email or LinkedIn is a great way to ask if they offer apprenticeships. Who knows, maybe your students' message will motivate the company to start an apprenticeship programme and your student could be their very first apprentice!

Using design critiquing in A-level design and technology

Liam Anderson, Head of D&T, Trinity School Head of Design and Technology; Trinity School, Newbury.

"Weaving critiquing into your pedagogy may seem challenging, but the rewards will be worth it" (Kierl, 2021).

Critique, analysis and evaluation are an integral part of design and technology. They help develop students' design capability, and also feature centrally in A-level design and technology specifications. Over the past year, we have been working on developing our use of critique in our curriculum and pedagogy with A-level D&T students, and have embedded design critiquing (for ease, we have taken to calling them design crits) into the classroom.

Why did we want to use design crits with students at A-level?

Kierl (2021), discusses when critique is well structured and conducted, it can lead to multiple questions, present new challenges and create opportunities for further design and development. We recognised the importance of developing these opportunities for our A-level students if we wanted them to become confident and competent in their design capability.

We wanted our A-level students to have richer reflections on their own work, richer discussions with each other about design concepts and processes, and, ultimately, develop more independence to analyse, evaluate, reflect and critique.

Hardy (2021), highlights that emerging features of students' design capability over time might include developing design knowledge and skills in a creative and purposeful way, thus allowing students to make informed judgements about design decisions and their design process and allow them to make modifications to their design work in light of personal reflection. Similarly, we wanted students to be working in the classroom in a way that reflects professional practice of design and did some wider research around the use of design crits as part of critique in the design process of practicing designers. This, and ideas from the following articles, enabled us to develop specific structure and dialogue format for our design crits, which is illustrated below.

Two online articles we found particularly useful with gaining an insight into what design crits are how critique is used by design professionals: https://digitalblog.coop.co.uk/2018/03/28/how-to-run-a-design-crit-and-why-theyre-important/ and https://medium.com/farewill/design-crits-how-we-make-better-products-by-sharing-openly-6d03d35bf32

How did we embed use of design crits into the curriculum and our pedagogy?

We wanted to ensure students were clear on the purpose of the design crits and how it allows them to develop as designers, and also help inform their design thinking and own process. We found from research that emphasis on critique being about the design not the designer was particularly important, as well as showing students how to offer constructive criticism.

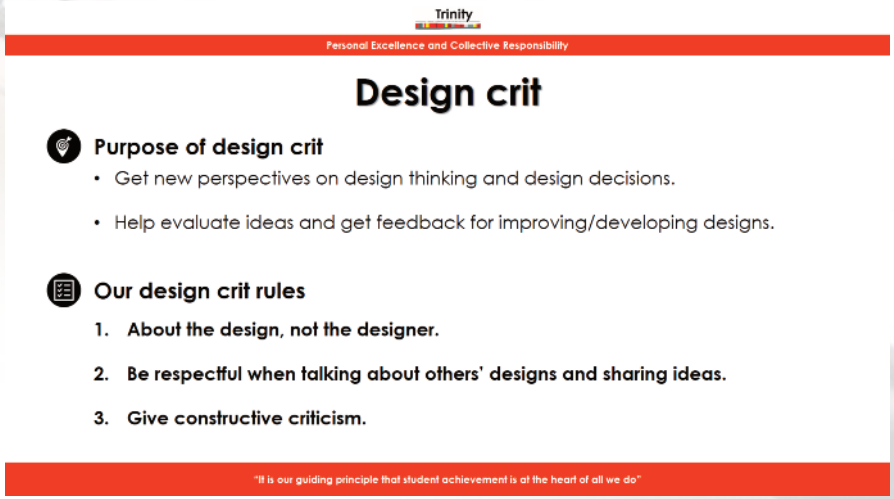
We trialled two formats of design crits:

- a whole group critique, where a student presents their ideas to all of their peers and teacher and invites feedback; and
- smaller group/paired feedback, where students are giving each other feedback 1:1, allowing for more discussion/question-based reflection and critique.

In order to scaffold and support students' thinking, we developed a set of prompts for students. These are drawn from a bank of useful questions provided by Kierl (2021) which cover a range of areas for critique. One that we particularly liked was considering the ethical implications and wider value-base of the design, considering what good comes from concepts students have developed and how it makes the world a better place.

Our questions also include the general considerations of particular design features, what informed those developments, including the use of stakeholders in the design process and anticipating potential future pitfalls . However, the overall aim remained to develop deeper critique skills.

Keirl (2021) suggests that ***"As pupils learn to critique, they learn to manage their thinking in particular and fruitful ways that enhance their learning, the understanding of technologies and develop their creativity for designing".***



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Using design critiquing in A-level design and technology

Liam Anderson, Head of D&T, Trinity School Head of Design and Technology; rinity School, Newbury.

We encouraged critiquing at various stages of a design, including sketching, modelling and prototyping. The images below show some of the design work and full-scale modelling used. We found it particularly interesting that, where students were able to create full-scale mock ups of design concepts, there is the opportunity for richer discussion. This arose from other students being able to physically see, touch and test design concepts.

What emerging benefit and impact have we see from design crits in our curriculum?

Ultimately, we hoped that students would be able to work in a more designerly way, further develop their design thinking, and be more capable and independent with critiquing their own and others' work. We also wanted them to take more responsibility for the form and direction of their design work.

We have seen that from initially using this with students and making adaptions to the format along the way, it is certainly achieving these aims.

We have seen more thoughtful design responses from students. They are also able to articulate and reflect on their design journey and thinking in a much clearer, purposeful, proactive and comprehensive way.

One of the most pleasing outcomes has been seeing students use their developing skills more independently in their designing across the A-level curriculum, to inform their NEA work. It has encouraged more expansive/divergent thinking with design developments and iterations, with many more perspectives and points for reflection that students can draw upon.

We have clearly seen from our students and their work that *"critiquing holds particular value in its relation to design thinking, designerly behaviours and critical attitudes towards technologies"*, Keirl (2021).

We continue to develop this as part of our curriculum and pedagogy and we would be interested to connect with other schools who are doing similar work, to share best practice. You can connect with us on Twitter: @LiamTAnderson or @TrinitySchDT.

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Keirl, S. (2021). Critiquing in design and technology. In A. Hardy (Ed.), Learning to Teach Design and Technology in the Secondary School (4th Edition). Abingdon, UK: Routledge. ISBN: 9780367336813.

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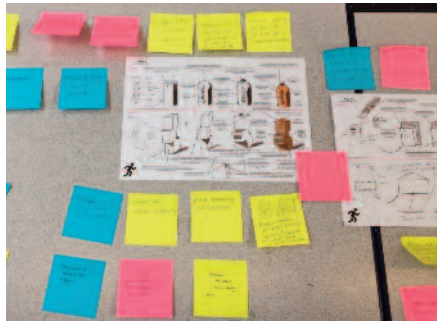

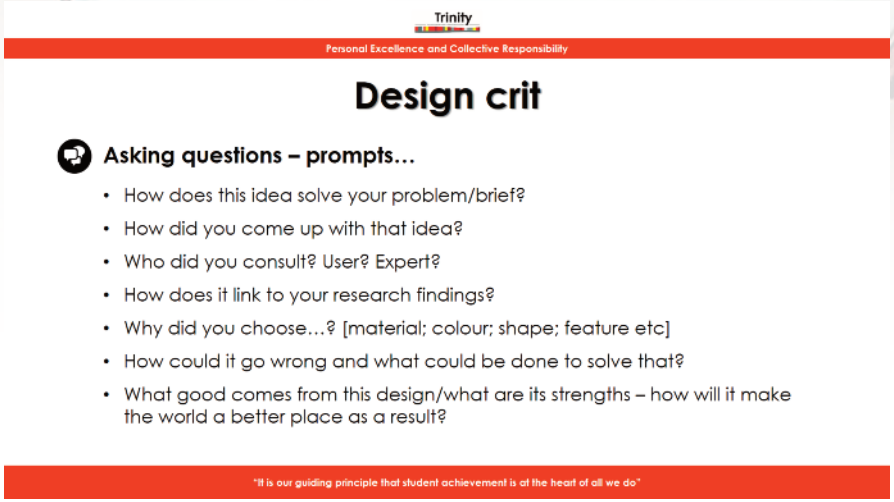

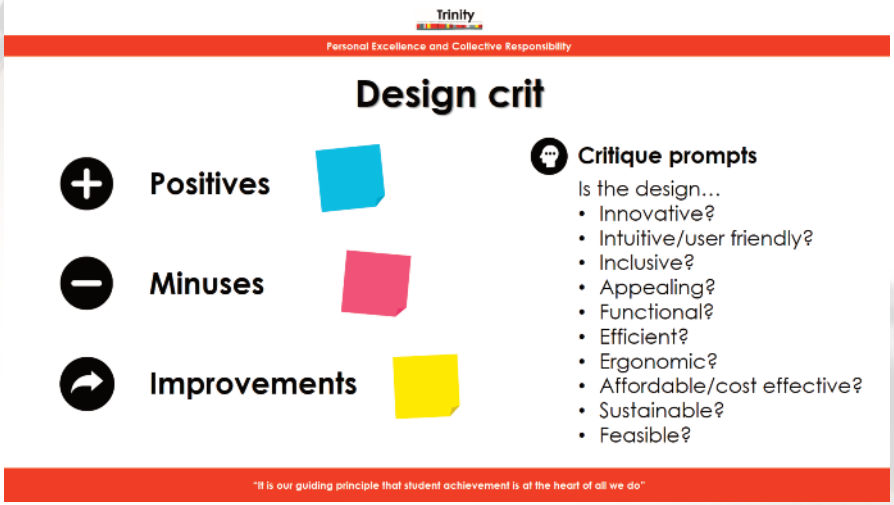

PLEASE, NO MORE PAPER.

By Russell Hill Head of Design and Technology; Houlton School, Rugby.

During my teacher training, all pupils studying Design & Technology worked with paper booklets, precariously held together with treasury tags. Pupils were completing work below standard and their ability to extend learning outside the classroom was limited, not least when working from home during the pandemic.

Furthermore, pupils lacked the ability to recall and consolidate prior learning with ease, inhibiting progression and making lessons feel disjointed and lacking in purpose.

In line with the current schemes of learning, it became evident that a move towards a digital learning landscape was going to be of benefit, not only so I could model good design and graphic layout, but also to demonstrate the breadth of resources available for pupils to extend their learning and become more independent. Supporting the notion that "Digitalisation processes have become the modern designer's key modes of execution" (Poon, 2015, p.8), thus aiding pupils to develop skills for industry.

GOING DIGITAL

Each 'digital workbook' or 'E-portfolio' contains interactive content to promote extended learning, such as YouTube videos, Twitter debates, and TEDtalks, meaning all pupils could access additional learning material using computers, smartphones, and tablets. Pupils were able contribute, enquire, and evaluate current social and academic issues relating to topics covered in the classroom. As outlined by Lipman (1991, p. 83), enquiry is "generally social or communal in nature", and therefore a combined learning environment of both in person and in digital form would not dilute a student's enquiry. Being able to leave the classroom and contribute to a live Twitter discussion, a YouTube video or a TEDTalk on the same topic is something that should not only be encouraged, but act as a fundamental method for students to obtain and retain information. Anecdotally, pupils were commenting on videos on my YouTube channel of an evening, continuing debate and reinforcing their critical faculties.

Pupils, often referred to as digital natives (Prensky, 2001), have long used smartphones, tablets, game consoles, digital music players. The move into digital workbooks was not without concern, however, it was important to recognise the value in a blended learning approach, described by Garrison & Vaughan (2008) as "the organic integration of thoughtfully selected and complementary face-to-face and online approaches" (in Kaur and Manjot, 2013, p. 148). Howard, S. K & Mozejko, found in their study that using multimedia approaches provided a wider range of resources for children, "…while learning was not significantly different from existing approaches, the use of film, radio and television did provide a wider range of resources that could be used and reused in learning", thus aiding recall. (Howard, S. K. & Mozejko, 2015, p. 2). I realise that this is nothing new to the field in education research, however, the aim was to simply equip pupils with the skills to extend their learning. In doing so they were becoming researchers, rather than relying upon the teacher as their only source of information, facilitating their metacognitive growth.

To extend the digital offering, I found myself creating short and informative YouTube videos to improve the content featured within Key Stage 3 digital booklets. It was about extending dialogue and improving accessibility, so all pupils could access and digest learning materials. When teaching GCSE Design & Technology revision lessons, digital content like videos became a critical resource. For example, a video on the topic; selecting and working with materials, (https://youtu.be/7mpSd9U4g5Y) was helpful. When used in conjunction with active questioning it improved recall amongst the entire pupil cohort. Pupils paused the video, reflected, and responded to the content, whilst others kept the video to watch after the lesson. This resulted in pupils self-regulating their learning.

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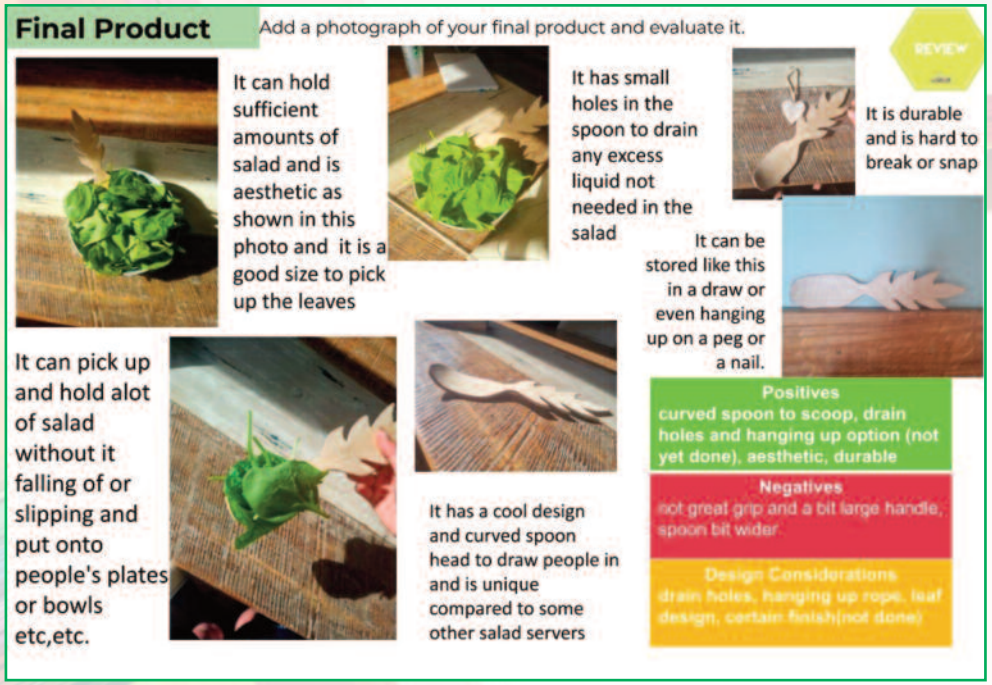
PLEASE, NO MORE PAPER.

By Russell Hill Head of Design and Technology; Houlton School, Rugby.

DIGITAL FEEDBACK

Embedding teacher-created YouTube videos within the digital booklets meant that I was able to provide additional live feedback from recorded voice notes and handwritten notes. I marked alongside pupils, promoting a sense of collaboration and introducing an open dialogue of assessment between pupil and teacher.

Prior to pupils working in digital booklets feedback was given once pupil work was completed. Dylan Wiliam (2006, p.1) succinctly identifies that, ***"For many years, the word ''assessment'' was used primarily to describe processes of evaluating…activities when the sequence was completed."***
In Design and Technology, it is imperative that idea generation sits at the heart of teacher-pupil interaction. Assessment and feedback must support this, with effective learning demanding the interaction, "started by the teacher to evoke pupil's ideas, leading to feedback…" (Atkinson, Black, 2007, p. 200) and this dynamic interaction can only serve to progress understanding and cement core knowledge. All pupils should be aware that each creative effort is valued on its merits and given appropriate credit in mark schemes (Balchin, 2008).



Pupils who actively engaged with this process through the entire unit of work recognised shortfalls in learning and areas of weakness became explicit, confirming that ***"When used effectively, assessment helps pupils to embed knowledge and use it fluently, and assists teachers in producing clear next steps for pupils"***
(School Inspection Handbook, 2005 p. 183). This informs not only what the pupils needed to do to progress, but more importantly, how they would get there.

The desired outcome is that over time, pupils begin to assess, plan, monitor and evaluate their progress (Ambrose, Bridges, Lovet et al., 2010) throughout each unit of work.

Have a go at turning your resources into digital masterpieces and join me in the digi-revolution in Design & Technology.

Curriculum Design

By Sarah Belgrove Head of Design and Technology; Coundon Court School, Coventry

Calming fidget light – A GCSE project to tackle the brief designing for the disabled.

Educational toy - A GCSE project to tackle the brief designing for the disabled.

GCSE Food – examples of our outcomes at GCSE Food

In 2020, our school decided to review the GCSE teaching programmes to ensure that students were being offered a broad and balanced curriculum. We saw this as an opportunity to look at our curriculum sequencing and ensure that we are teaching the content and skills within in a progressive structure.

At the heart of our curriculum are the KS3 programme of study and the GCSE exam specification. In the past we would always work our way backwards from year 11 to plan our curriculum, but this time, we asked ourselves the question "What are the foundation skills and knowledge needed for our subject?" This became the basis for our year 7 curriculum and our starting point. We then looked at how we can build on this from year 7 to year 11, with each year introducing new skills and knowledge.

Traditionally, we had taught the subject as designing and making projects, but when we reviewed this model we realised that students struggle to design innovatively if they have no concept of materials and manufacturing methods. From our own experiences, we realised that a lot of innovative ideas come from experience, and if the students have had limited exposure to materials and manufacturing methods, they will struggle to come up with creative ideas.

We made the decision to introduce materials and manufacturing methods as our first topic in each year group. This includes material properties, material categories, basic tools and equipment, and accurate working. It doesn't involve any manufacturing projects with a final take away practical outcome, but instead, we look at quick, short activities which expose the students to a range of techniques, whilst providing them with the opportunity to experiment. Throughout, we encourage them to work accurately, independently and creatively.

Harry Potter Tour – extracurricular activities to support our curriculum

Innovate V&A photo –
We were national winners in 2019

continued...

Curriculum Design

By Sarah Belgrove Head of Design and Technology; Coundon Court School, Coventry

Jewellery - A GCSE project to tackle the brief designing for the disabled.

Pan holder - A GCSE project to tackle the brief designing for the disabled.

Students continue to produce small items that they can take away, but we want to instil in them that not everything has to be perfect and that we value the process just as much as the end project. As engineers, our failures can often be more of a learning opportunity than our successes. Students seem to enjoy this approach and it helps to keep the curriculum engaging.

In our second term we focus on designing for a context. This includes drawing, communication and CAD skills. When students come to present an idea, based on solving a problem, they are encouraged to apply all of the knowledge and skills they have picked up across the year to present and annotate their idea. This includes justification of materials and manufacturing methods, and allows us the opportunity to use information from previous activities and exercises to help embed knowledge of materials and manufacturing.

Since the new GCSE was introduced, we made the decision to cover all material areas, and it's refreshing to see that students do not feel constrained by material choices when they come to solve a contextual challenge. People in industry we have spoken to say they prefer this approach is. A lot of real life, innovative ideas have come from designers using materials outside of a context. For example, the use of fabrics and fibres in car manufacturing, the use of recycled plastics to make clothing, etc. We want students to see that the possibilities are endless.

In the true style of engineering, we will keep on with our iterative cycle of designing, modelling and evaluating our curriculum to ensure that we are providing the best experience to help our students succeed. Most importantly though, we are seeing more and more students enjoying and opting for the subject at both GCSE and A level with many wanting to pursue a career in Design and Engineering.

Sewing machines – Multifunctional workshops to support working with a range of materials

Weekly organizer - A GCSE project to tackle the brief designing for the disabled.

Interview by CLEAPSS with Head Chef Olivia Carbonari

Olivia Carbonari is Head Chef at Little Oink in Exeter. Olivia attended The Ashburton Chefs' Academy which is one of the UK's leading culinary schools.

Olivia is passionate about food and food education and has shared some of her thoughts with us here at CLEAPSS.

How did you get into cooking and become the successful chef you are today?

I went to a private girls' school in Devon, and amongst many subjects I enjoyed art and design, music and food tech probably the most.

The arts weren't considered as important as the academic subjects which was always a massive shame growing up.

I absolutely loved cooking from a young age and was fascinated about the science behind it and how you could transform a collection of ingredients into something completely different and magical.

There was an awful lot of pressure from the school to be a high achiever both whilst studying and in your future career. There was always a push for the girls to go after a career that was in medicine or finance and so on.

I was a wild free type that loved to paint, play the piano, sing and whip up a fabulous tasting menu for friends at the same time.
I went to university in Bristol and studied Fine Arts, focussing on sculpture and installation art. I absolutely loved my time there but was always more interested in creating wild and elaborate dinner parties for friends than the course ahead of me.

I went on to be an events director and set design artist in London after my degree, which was successful and exciting, but there was an itch needing to be scratched and I had to change course. After being offered the role of director at the company I had been working at for some time, I made a huge life changing decision at the ripe age of 25 to have a change in career.

I realised that my passion for fine dining and cooking would never go away and it was something I was desperate to explore.
Whilst on holiday with my mum and sister I had followed through with my decision and had made the necessary changes. I handed in my notice to my job and flat in central London, applied for a position at Ashburton Chefs academy and started the quick process of a new adventure.

Whilst studying at Ashburton I was offered a job at Lympstone Manor which I accepted and started as soon as possible. I went on to become Sous Chef at The Galley in Topsham, and now Head Chef at Little Oink in Exeter.

I can wholeheartedly say this was the best decision of my life and I wish I had the confidence to follow my dream at an earlier age. I wouldn't change anything I have done so far in life as it has all been a part of the process that has brought me to my current role, but it would have been fun to start younger.

continued...

Interview by CLEAPSS with Head Chef Olivia Carbonari

What would you say to students and teachers of food education at school level?

I would love to be a part of helping young people understand the importance of their dream in the culinary industry and that it's OK to want something completely different than everyone else around you.

I wish I had had someone that was a role model back when I was at school that supported this potential life choice.

Being a chef is certainly not a job, it is a life choice. A role that you have to be so passionate for, it will consume most of your time and energy.

I am always happy to help anyone who is interested in getting into cheffing or the culinary industry and am always happy to chat.

What was your experience of food education at school level?

It was just the general food tech classes that were factored into our schedule. Nothing extra special, just basic food hygiene and so on. I didn't take any extra courses at that point.

What do you think food education should be like at school level?

Students should probably have a person from all sorts of professional backgrounds to speak to them about a range of career opportunities. A musician, a chef, a farmer, a vet, a teacher and so on.
I think young people should be shown that any career choice can be successful, it's not all about monetary achievement.

Giving people the opportunity to decide their own path, rather than ramming the highest paid roles down their throats at a young age.
I think access to information from key professions that will keep this country alive is absolutely essential. When was the last time you heard a child say, "I would like to be a fisherman, butcher or farmer"? This is something that I think is rather tragic and should instead be celebrated and suggested whilst going through school.

It's also rather scary how little the world seems to know about food, where it comes from, how long something takes to grow or be made. Food has become such an immediate thing that people have lost value in what things are.

Bread, an everyday staple, something I make frequently on my days off for the sheer love and want for quality. Something probably 80% of the nation has no idea how to make. Education of simple basic meals needs to be taught at a much younger age to influence the importance of healthy living and nutrition.

Find Olivia on LinkedIn or twitter: **@chefoliviacarbonari** or @littleoinkexeter

Akira™

by Rebecca Bradbury, Content Manager- STEM, WF Education Group

WF Education Group is a family of companies that has been serving the education and library sectors for over 100 years. A global solution provider for specialist education, since our beginnings in 1986, TSL (formerly Technology Supplies) has endeavoured to be a leading supplier of design technology spaces, machinery products, and resources to schools in the UK and internationally.

Our experience of designing specialist educational spaces across the globe, and working with experts across the sector, highlights the true value of flexibility to school leaders, teachers, and students. We are committed to supporting teachers and technicians to inspire children to develop practical skills and confidence in decision-making that will prepare them for the workplace. This knowledge and passion are the foundation for designing and manufacturing our very own product range specifically for D&T and STEAM education.

Static classrooms and fixed inflexible furniture do not future-proof D&T spaces. The ability to reconfigure your spaces to suit dynamic timetables gives autonomy to teachers and technicians to create an environment that will enable students to focus on the lesson (from resistant materials and textiles to robotics/electronics and CAD/CAM suites). We recognise that it is the ability to move your machinery around that best supports a dynamic STEM-style environment, which supports learners to embrace D&T as a creative and innovative subject.

Following intensive internal product development, the Akira™ system was born. Built to last using castors allows it to provide flexibility, quality, and longevity to our customers. Akira™ products are designed to withstand frequent use and all the wear and tear in a busy D&T department. The entire range is designed and manufactured in the UK by WF Education Group.

Akira™ offers a sustainable furniture solution. The steel frame has a considerable lifespan, and all of the modular components, including panels, worktops, storage, and power units, are replaceable. The Akira™ system is intended to stand the test of time under heavy educational usage.

Our guide, *7 reasons to make your space flexible*, explains how and why switching between activities enhances the teaching environment. It includes:

- Why space utilisation should be a priority in D&T and STEAM education.
- Why flexibility helps deliver a modern, multi-discipline D&T/STEAM programme.
- Why flexible classrooms are the key to future-proofing and are fit for future cohorts.
- Why flexible spaces are a driving force for ustainability.
- Why flexible environments will save you time and money.
- Why flexibility will help reflect the ethos of your team, your students, and your school.

Scan the QR code to download your copy of the guide:

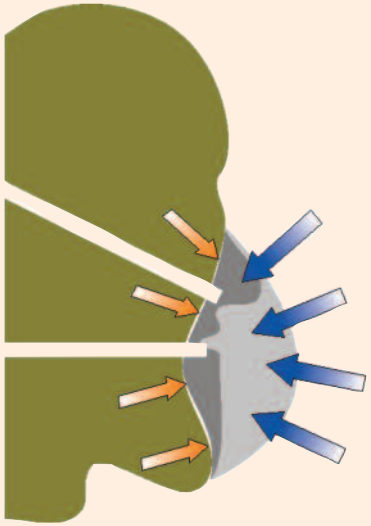
Find out more about our growing Akira™ product range and how schools are developing flexible D&T and STEAM spaces worldwide, visit www.wf-education.com/introducing-akira/ or Scan the QR code to visit the website and find out more:

Handling wood dust

We have had a few helpline queries over the past few months regarding the clearing away of wood dust in workshops. We have also noticed this topic appear on a number of online forums.

It seems that some schools have been told they must use vacuum cleaners to collect dust generated on benches.

The guidance has not changed, where dust is created, and considered a risk to the operator or those nearby, it should be controlled. The Work Exposure Limits (WELs) for wood dusts have been updated recently, which means that the level of dust in a room may now require greater controls. This is, however, unlikely to be a significant issue, or require a change in how wood dust is handled in most schools.



The increased awareness of respirable dust is probably what is driving the helpline queries and discussions. It is now more likely that in an industrial setting, or on a building site, dust control using a HEPA M level of on-tool extraction would be expected.

We have recommended for some years that cleaning should be carried out using a dustless method, i.e. using an industrial vacuum cleaner, fitted with HEPA M filters, rather than using brushes or sweeping the benches and floors.

Dave getting face fitted for RPE

Where large amounts of dust are generated, this must be controlled, using LEV, local extraction, or through vacuuming.

We do not recommend the use of dust masks, as it is unlikely that they will afford effective protection, without the wearer being trained in face fitting. For guidance on face masks read GL310 our guide to Respiratory Protective Equipment: https://dt.cleapss.org.uk/Resource/GL310-Guide-to-Respiratory-Protective-Equipment-RPE-in-D-T-and-science.aspx

For further information on handling dust, take a look at the Model Risk Assessment 071 Dust from Woodworking: https://dt.cleapss.org.uk/Resource-File/MRAT-071-Dust-from-Wood-Working.pdf

Gas cylinders

We have also received a number of queries to the helpline about the disposal of used gas cylinders from welding kits. This is possibly due to the increased use of MIG/TIG welding kits, or small gas systems in schools.

In a domestic setting, it may be acceptable to place these cylinders in your general waste, but in school, the waste collector may refuse to accept them.

If you have any concerns regarding what your waste carrier will remove, it may be worth speaking to your site staff to identify what will be accepted. If your normal waste carrier won't take these cylinders, you may need to have them removed by a registered waste carrier, which can be arranged by your science department.

Alternatively, you could try taking them to your local waste amenities centre, which might be willing to accept them.

Designing safe spaces

Over the summer we also had a number of queries regarding the design and installation of new facilities, across all material areas, including food.

We have lots of guidance on the website to help with designing spaces:

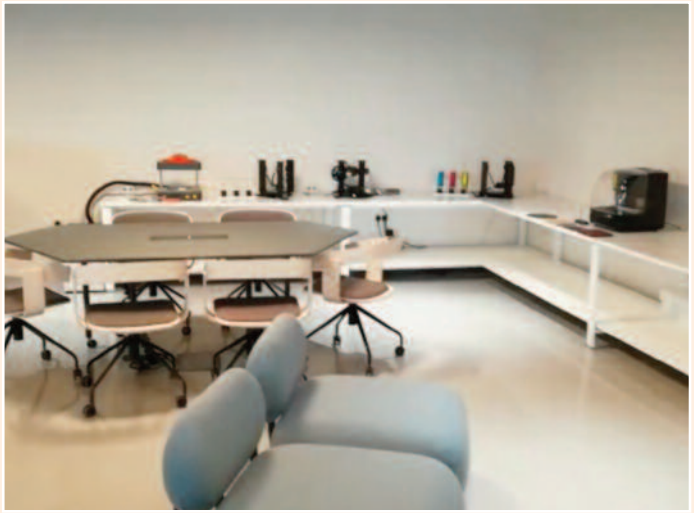
G79 has a set of requirements for each type of room:
https://dt.cleapss.org.uk/Resource/G79-Auditing-H-S-in-a-Secondary-School-D-T-Department.aspx

G79A is a checklist for each room:
https://dt.cleapss.org.uk/Resource/G79A.aspx

G79B sets out the spaces required for larger equipment and furniture:
https://dt.cleapss.org.uk/Resource/G79B.aspx

We also had a special edition of *Futureminds* in Autumn 2020, our 'vision edition'. This had lots of information about what sort of facilities may be required for the future delivery of Design and Technology, Food and other associated areas.
https://dt.cleapss.org.uk/Resource/Futureminds-16-Vision-Edition-autumn-2020.aspx

If you are having new facilities developed, we would be interested in finding out what you are considering, both in terms of environment and equipment. Please get in touch dt@cleapss.org.uk



Next time...

In the Spring edition, we will be reporting back on our developments with different formats for Futureminds, if you want to join the conversation about this, sign up to our mailing list: https://dt.cleapss.org.uk/Resource/CLEAPSS-Email-Alerts.aspx

We will also have articles from teachers and technicians about their work in D&T, food and Art, as well as content provided by suppliers and those working to support these subjects across the UK and overseas.

If you are interested in contributing to Futureminds, please get in touch: dt@cleapss.org.uk

You can follow us on Twitter @cleapss_dt