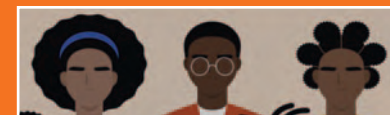
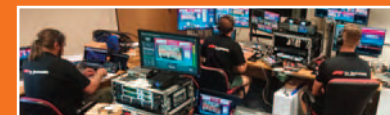


CLEAPSS
Design and
Technology

Futureminds

Tomorrow's world explored today



Autumn 2021

CLEAPSS D&T e-newsletter

Introduction

You will have seen that we updated our guidance on practical working in schools during the pandemic. Many of the restrictions on schools were lifted over the summer, which is reflected in the guidance. The first part, which is relevant to all schools, is very brief. The second part describes the controls that a school may need to re-instate if there were to be an outbreak, or other reason to be cautious.

We have continued to work with schools, carrying out audits and running some face-to-face training, and are expecting this to increase as the year progresses. We have also further developed our online D&T training.



In March 2021 we launched the Health and Safety in D&T online course, which is self-study and free to members. It comprises a set of 5 short videos with a number of exercises that a teacher, technician or a whole department can work through. It covers general health and safety roles and responsibilities, and explains how CLEAPSS materials can be used to support the work of staff in school. There is a mediated follow-on session that can be booked, which delves further into this. The session takes up to three hours, and is run via Zoom. The D&T adviser supports delegates working through several exercises and taking part in discussions and question and answer activities.



Our latest on-line training offers a more detailed programme on how to carry out a safety D&T audit in school. It includes a three-part video and exercises, and costs £95 per person. The videos and exercises cover three areas:

1. **Introduction. How best to use CLEAPSS safety audit documentation, and the basic requirements of rooms and machine installation.**
2. **Part two. Safety details of the machines, starting with those in the prep room.**
3. **Part three. The safety elements of the machines in pupil spaces, including the provision of safe spaces around equipment.**

The course covers D&T, food and art, so will be relevant for all members of these departments.



For further details of either of these online courses, or for other training needs, please search the website for training, or contact us via the [Helpline](#).

[CLEAPSS CPD Courses for Technicians and Teachers](#)

In the Smallprint section, you can find out more about the updated British Standard, which will be published this term. We have also worked with the science advisers to develop an air quality monitor, the plans for which are on the website.

We can now start to attend conferences and other events, where we can meet with teachers, technicians and others, it's been a long time.



NATASHA'S LAW

Natasha's Law is an important addition to legislation which comes into force in England this term. It requires food businesses to include full ingredients labelling on pre-packed foods for direct sale (PPDS). Although this will have little impact on food teaching, it may affect the sales of food items in school.



All food items which are put up for sale, including cookies/cakes/buns, which are wrapped and then sold to pupils or staff will be considered as PPDS. They will need labelling with ingredients, and potential allergens highlighted.

Where a school provides ingredients for pupils to use in food lessons, this addition to the legislation will have no effect, as the ingredients are not combined, then wrapped, and sold to the pupils. Similarly, where a pupil provides their own ingredients for lessons, the law does not apply.

In effect, the ruling covers food where the customer has no control over the ingredients and it is pre-packed. Where the customer can alter the ingredients, the food is not considered pre-packed. For example, a traditional take-away fish and chips will not need the new labelling as the customer chooses what will be in the wrapper and can ask the person supplying the food to alter the composition of the meal. However, a prepacked breakfast bag from a coffee shop will need to be labelled as the customer has no input to the content of the bag.

Although at present, this is only a legal requirement in England, it is expected that the other home nations will follow.



The infographic gives a clear decision tree to help producers of food items work out whether the changes to the law will affect the products they are providing. This is available free from the High Speed Training Hub: [What is Prepacked Food? | Free PPDS Infographic \(highspeedtraining.co.uk\)](https://highspeedtraining.co.uk/What-is-Prepacked-Food-PPDS-Infographic)



CE Marking

In FM18 (summer 2021) we wrote about the way that quality markings were changing following Brexit.

At the time of publishing, the details were correct, but, over the summer, the Government updated the guidance to extend the period of overlap between the introduction of the UKCA and UKNI markings and the CE mark.

The deadline for moving to UKCA/UKNI is now January 2023, rather than 2022 as in the article.



2021 GCSEs

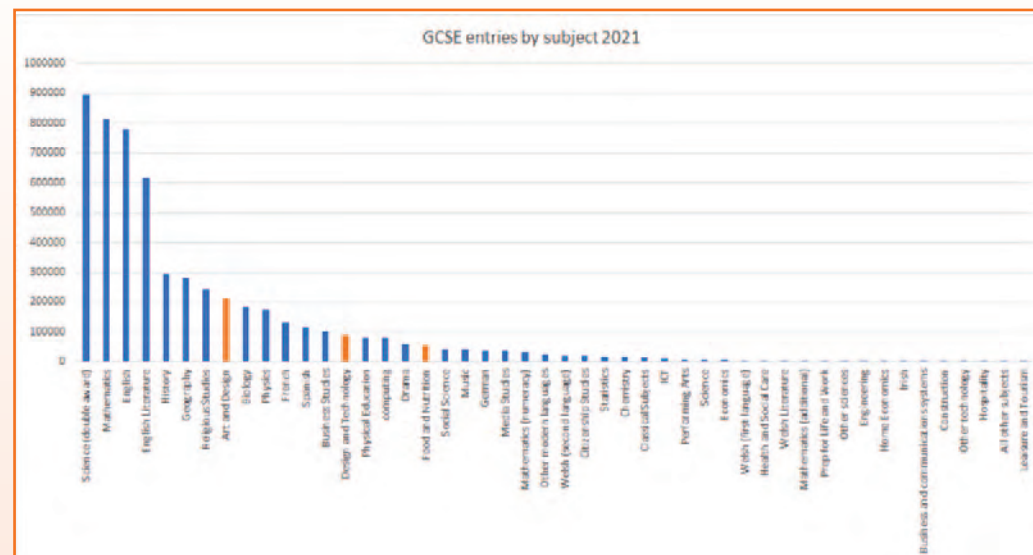
Two years ago, we wrote about some of the data from the 2019 GCSE results. Due to the pandemic disruption and changes to the assessment regime, we decided not to repeat that in 2020

We have, despite continuing pandemic disruption, looked at the 2021 results and some of the generic issues that they present.

One of the concerns from the 2019 analysis was the dramatic drop in entries. In 2008 there were approximately 313,000 pupils entered for a GCSE in D&T (which included RM, food, textiles and graphics), but by 2019 the entries had dropped to less than 90,000.

Unfortunately, this trend has continued into 2021 for D&T, whilst both food and art are holding up well:

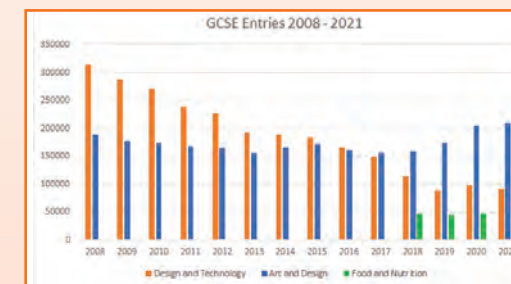
Year	D&T entries	Food + Nutrition entries	Art and Design entries
2020	98,468	51,896	204,855
2021	91,185	54,442	210,091



Design and Technology was once the third largest entry group at GCSE. This is because it was a compulsory KS4 programme under the national curriculum at the time. Over the past decade the subject has slipped to 14th in the total entries (food is now considered as a separate subject. If food was included in D&T, its position would be 11th).

The second chart shows how the numbers have tumbled, but there is still a place for D&T subjects. Art and Design has shown some growth, the relatively new GCSE in Food and Nutrition has also improved its numbers, and as you will see in the rest of this edition of Futureminds, that the future of the subject can be bright.

Over the past two years we have seen, and heard, lots of positive reports about the subject. Staff and pupils, have developed a range of innovative solutions to real world problems, both in the subject itself, and in the way it is taught and learned.



In the Vision Edition of Futureminds (Autumn 2020) we explored a wide range of potential directions for the subject to develop. We continue to work with the DfE, Awarding Organisations, suppliers, and of course, schools, to help better secure the future of this innovative, creative and exciting subject.

To contribute to this discussion, please use the helpline or email us dt@cleapss.org.uk

CLEAPSS visits the Hydrogen Home



The house is now open to the public, including to schools, which are welcome to arrange visits to see the development, and how it works. Use the following link for more information:

<https://cadentgas.com/news-media/news/july-2021/first-hydrogen-homes-open-to-the-public>

In many ways the house is very normal and it felt just like any other new house. There was a bit more steam (or water vapour) coming out of the exhaust from the boiler but this was the only noticeable difference.

Whilst on site we conducted a number of tests of the developmental hydrogen-powered gas cookers and hobs. These generally appear, and operate in an identical way to the standard natural and LPG gas devices we use now.

However, the hob is a little different, as you can see from the above image. The flame is a bright orange colour, and is often referred to as a sunflower flame. When igniting the gas there is a louder pop compared to the whoosh you get with natural or LPG gas. Many will remember a similar pop noise from their science

lessons, where the 'squeaky pop' is a well-known test for hydrogen gas. Once running, the heat outputs are similar, and there was no noticeable difference in air quality around the burner flame. The team at the Hydrogen House have found that extended use will likely lead to rather damp / high humidity conditions in the kitchen. Increased ventilation will, therefore, need to be considered in food teaching rooms. This isn't surprising when you consider the only fumes produced by the flames is water vapour.

The move to change our gas supply is still in the testing phase, but as we progress towards 2030 and various government targets on carbon emissions, more areas of the UK are likely to see the roll out of hydrogen-based fuels.

CLEAPSS will continue to monitor the development and roll-out of pure hydrogen (often referred to as H₂) and HyDeploy (which is a mix of 80% natural gas & 20% hydrogen), and continue with testing and evaluating new appliances as they come on to the market.



At the beginning of August, we were one of the first to visit the brand new, Hydrogen Home just outside Newcastle upon Tyne. The house is like any other house except that all the gas appliances run on pure hydrogen. This is part of the UK's drive to reduce its carbon emissions. The only product from burning hydrogen is water.

The changing role of Hydrogen

Stella Matthews, Hydrogen Development Manager at Northern Gas Networks



When I was at school, I wanted to be an archaeologist.

I'm sure I'd have rolled my eyes in disbelief, if someone had told me my destiny was to become a Hydrogen Development Manager for a gas distribution network. 20 years ago, for me hydrogen was just an element in the periodic table and one half (or two thirds) of H₂O. Now, it's understood that hydrogen can play a key role in the battle to reverse the devastating impact of climate change, and for me personally, it's opened up a STEM career opportunity I couldn't have dreamed of at school.

Heating homes and powering industry with gas is currently responsible for more than 30 per cent of the country's carbon emissions, so the way we use energy needs to change. Hydrogen can play a key role as it doesn't

produce any carbon when burned. The only products are heat and water

My job is giving me the opportunity to have a real impact on the energy transition and I'm passionate about letting future generations know about the exciting career opportunities Net Zero will create.

My hydrogen journey started in 2017 as a project assistant for the H21 suite of projects, led by Northern Gas Networks. The project focuses on whether the current gas network can be converted to transport hydrogen. This work is ongoing, but the great news is that, after proving a conversion is possible, we're close to proving hydrogen can be transported as safely as natural gas is today.

There's still lots of research to complete, with testing taking place on disconnected distribution

gas networks using hydrogen. This enables us to see what we need to change in the way a gas network operates day-to-day, and will create a lot of opportunities for innovation such as developing new tools or ways of working.

If that sounds a bit technical, I've also been involved in social science research which was led by Leeds Beckett University to understand how the public would perceive a hydrogen conversion and how and when they'd like to be involved in the transition. Although a hydrogen conversion may sound futuristic, there is a project which is already bringing hydrogen to the public, right now for the very first time.

We're a partner in HyDeploy, a project aimed at demonstrating that blending up to 20% hydrogen into the natural



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gas supply can heat homes without any change experienced by the customer. We are making history by supplying the community of Winlaton, near Gateshead, with this hydrogen blend. It's the first time hydrogen has been blended with natural gas and supplied on a public gas network.

The 668 homes, local school, church and a few small businesses are receiving the blend for ten months, and the beauty is that, as current appliances are designed to work with a blend of up to 23 percent hydrogen, there is no impact on customers in terms of appliances, or how they use gas. Whilst 20 percent blends won't take us to Net Zero, demonstrations such as these are an important stepping-stone to kick-start mass hydrogen production.



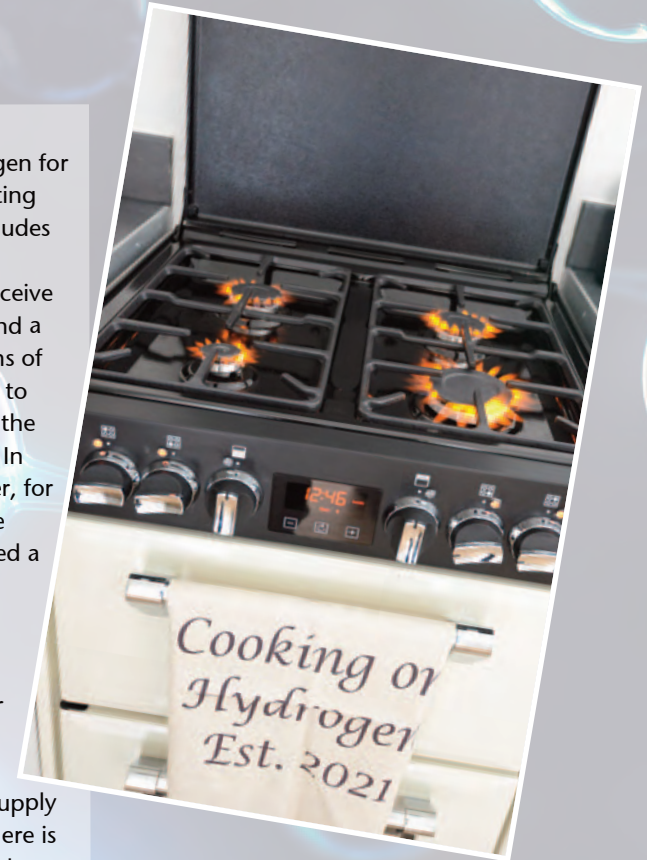
Most excitingly, this year, in partnership with our fellow gas distributor, Cadent, and the Government's Department for Business, Energy and Industrial Strategy (BEIS), I've been involved in a project to build the first homes showcasing the use of 100 percent hydrogen for domestic heating and cooking. For the first time, the Hydrogen Homes are giving members of the public a glimpse into a hydrogen-fuelled future, enabling them to interact with a range of hydrogen-fed appliances including boilers, hobs, cookers and fires.

I'm proud to have been involved in work which has really been able to influence the Government's agenda. Last autumn the Government published its ten-point plan for a Green Industrial Revolution.

It commits to the production of hydrogen for transport, home heating and industry and includes pledges for a neighbourhood to receive hydrogen by 2023 and a whole town, with tens of thousands of homes, to receive hydrogen by the close of the decade. In addition, this summer, for the very first time the Government produced a Hydrogen Strategy.

Over the next few months, I'm concentrating on our bid to host the first demonstration using 100% hydrogen to supply a whole village, so there is never a dull moment but it's brilliant to be involved in such a complex and important challenge for our country.

www.northerngasnet.works.co.uk



Design Ventura at the Design Museum

Poppy Parry and Elysia Thorpe

Design Ventura is a free, annual, design challenge for students in years 9, 10 and 11, run by the Design Museum, and supported by Deutsche Bank's youth engagement programme Born to Be.

Taking a competition format, students are challenged to design a new product for the Design Museum Shop. Teachers deliver the project in their schools, giving students the chance to tackle a real-world design brief, and develop teamwork, creative thinking and enterprise skills.

The top ten shortlisted state schools are invited to pitch their product ideas to a panel of expert judges and the winning idea is made and sold in the Design Museum Shop, with the proceeds going to a charity of the students' choice. The project is entirely free and includes online resources, CPD sessions, student workshops, online webinars and more!



Bringing the business of design to life with Deutsche Bank



Each year a professional designer launches the Design Ventura brief. This year sound artist and designer Yuri Suzuki has been announced as the brief setter for Design Ventura 2021-22. Suzuki's practice explores the realms of sound through designed pieces that examine the relationship between people and their environments. In 2018, Suzuki was appointed a partner at Pentagram, the world's largest independently-owned design studio, where, in the London studio, he began working as an artist. Suzuki and his team work internationally, pushing the boundaries between art, design, technology, and sound, crossing the fields of both low and high technology.

Alongside this year's main competition, the Design Museum has launched an online mini challenge inspired by their upcoming Waste Age exhibition. Open to students in years 7 and 8, the mini challenge offers a taster of the Design Ventura programme for younger students. Supported by a series of online resources and videos, students

are challenged to think creatively and 'design with waste in mind'. They are invited to design a product that addresses a waste issue, is made from waste materials, or both. Winners will be selected by industry expert volunteers, and announced fortnightly on social media from September 2021 to February 2022. You can find out more at

ventura.designmuseum.org/design-ventura-mini-challenge/

If you are interested in participating in this year's main Design Ventura programme, it's not too late to register your school online at ventura.designmuseum.org





VIRTUAL SANITY?

HAVE VIRTUAL EVENTS ACTUALLY IMPROVED THINGS?

Mark Wemyss-Holden, UK National Project Manager, F1 in Schools



18 months ago, the only way I'd have imagined seeing a year go by without a single attended F1 in Schools event was if I'd left my job. Now, with 'it is what it is' firmly established as everyone's explanation for everything, events without people has become our reality, and in some ways the norm for us and a whole industry of STEM competition and events professionals. The weird thing is though, I think we've actually got better at our jobs because of 'it'.

The uncertainty around not being able to commit to venues, dates and attendee numbers around the changing landscape has meant we've been fairly handcuffed in the options available for our events since March 2020. Step forward the 'behind closed doors', 'virtual' event. In many ways, bringing things in-house has given us the chance to bypass a whole sequence of planning, logistics and head scratching, and concentrate on the bits that can make the most difference to our participants. Not having to organise catering for hundreds of people, or worry about exactly where signage needs



to be printed for to allow guests to move freely, has allowed us to focus on the primary function of our jobs – developing an educational STEM challenge for the benefit of the students and teachers taking part, along with the show that goes with it.

Virtual events mean a different approach, with a heavy focus on both the digital and production side of what we do. For us at F1 in Schools, that meant working out how we could bring a learning experience to the students who would otherwise be soaking up all the knowledge and experiences of being at a live event, surrounded by their competition in the form of other teams from different schools and areas. We have developed a voluntary work-sharing platform, where the more you share, the more you get access to. We've also managed to create more visual learning resources over the past 18 months than in the previous 18 years, which takes the pressure of us having to perform these explanations live,

Continued on next page..



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Mark Wemyss-Holden, UK National Project Manager, F1 in Schools



and provides an invaluable online catalogue for many seasons to come.

Not having teams and teachers does

leave quite a hole in your event, but that missing volume does mean you don't need half as much space to begin with, and you have complete control over how the space looks in terms of placing cameras where you want people to see things! A can-do attitude certainly helps, but telling yourselves you're making (and presenting) a TV show really does give a clear purpose and many, many frames of reference. Turns out it's a tonne of fun, too.

Our recent UK regional and World finals have been massive leaps forward in terms of how much engaging and useful content we've been able to generate for the viewers (now



available at the click of a button on YouTube) around the competition and the specifics about each team. We've never been able to analyse each and every car in fairly intricate detail for a regional final before or have 3 interchangeable expert pundits sharing exemplar work from the teams on a giant touchscreen. This is the kind of content we've had the time, space and resource to be able to create, with a shift in how the event fundamentally works.

Will everything go back to 'normal'? I hope not, it would feel like a backward step now. We've raised the bar in terms of the presentation and accessibility of what we do, which ultimately gives more value and a greater sense of achievement to the teams participating. If we can preserve the good that's come out of the past 18 months, while mixing the real stars of the show back in, we might just find 'it' isn't just what it is, but what we can turn it into.

Equality Diversity and Inclusion

Louise Attwood, AQA

The last 18 months have been a whirlwind of activity for many areas of society, and I am writing this with a real feeling of optimism for the progress that has been started in the field of equality, diversity and inclusion (EDI). We have seen great movements in appetite for change, and many organisations have started looking inwards and really scrutinising their practice and impact on the people they serve. At AQA, we've also been reflecting on how we can help to bring about greater equality, diversity and inclusion as an education charity, exam board and employer.

Design

**CAN: REPRESENT US ALL.
DISRUPT THE STATUS QUO.
CELEBRATE NEW VOICES.
CONFRONT ITS PREJUDICES.
BE INCLUSIVE.
CHANGE.**

As Head of Curriculum for Design & Technology, Food Preparation and Nutrition and Engineering, I feel the weight of this responsibility. It is with a passion for the topic, and a determination to get this right, that we approach the important task of reviewing our current GCSE and A Level specifications to ensure our qualifications properly reflect the students that study them.

In Design and Technology, we have a real opportunity to embed a greater understanding of EDI in the students we teach, and the designers of the future. Designers possess great ability to enact positive change; which is one of the reasons why design is so exciting. We have a responsibility to the students we teach, and the opportunity to improve the lives of all the communities these future designers will impact on.

An area of potential improvement is the list of designers in the GCSE Design and Technology specification. This list does not currently show a suitably diverse range of designers, and there is a great gender bias according to traditional representation in different areas of the subject. This is clearly something we want to change, and we are working with external stakeholders, such as the V&A and the Design Museum, to diversify the list. Students are required to study any two designers from the

specification, therefore, these additions will give teachers greater choice in planning their curriculum and offering opportunities to better represent the communities that they serve.

In the book "Invisible Women" by Caroline Criado Perez, the author presents a compelling argument for the need for a fresh look at design, and the data we use to inform design. She talks of great gaps in data, allowing designers only to design products that suit men and, often unintentionally, missing the opportunity to consider the way products and services are used by women.

"These silences, these gaps, have consequences. They impact on women's lives, every day. The impact can be relatively minor – struggling to reach a top shelf set at a male height norm, for example. Irritating, certainly. But not life-threatening. Not like crashing in a car whose safety tests don't account for women's measurements. Not like dying from a stab wound because your police body armour doesn't fit you properly. For these women, the consequences of living in a world built around male data can be deadly."

(Caroline Criado Perez 'Invisible Women' p.xi)

Equality Diversity and Inclusion

Louise Attwood, AQA

Statistics such as

- [when a woman is involved in a car crash, she is 47% more likely to be seriously injured,](#)

and

- [17% more likely to die](#)

should be a real wake up call for the design community. Criado Perez suggests that this is “all to do with how the car is designed – and for whom.” (Caroline Criado Perez ‘Invisible Women’ p.186)

There is no better reason to rethink what influences our decisions as designers, and we need a workforce equipped with a breadth of experience and an understanding of this inequality to shape change and push forward a more inclusive view of design.

As educators our role is to ensure that all groups of students have the opportunity to thrive. It’s, therefore, of great importance for us to ensure that students from different groups are not disadvantaged or disillusioned by a lack of representation, both for a students’ own benefit and as a catalyst for societal change.

“...many people in the design economy do not sufficiently represent the people they are designing for. This means that – at best – the design of particular places, policies, processes and products often overlook many people’s needs and aspirations, and – at worst – reflect and reinforce the privilege of those who design them, excluding others from shaping their worlds in the same way.”

(The Design Council “Black creatives” [Black Creatives | Design Council](#))

Good practitioners of inclusive design will always consider how a large number of social, cultural and economic factors affect the way we interact with the world. This empathy and understanding generates huge benefit in the design world and in the future workplace, whatever career path our students wish to take.

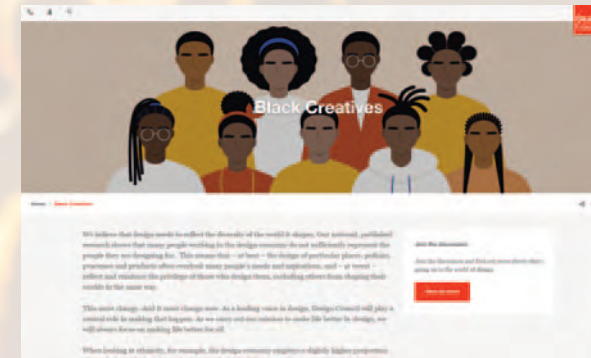
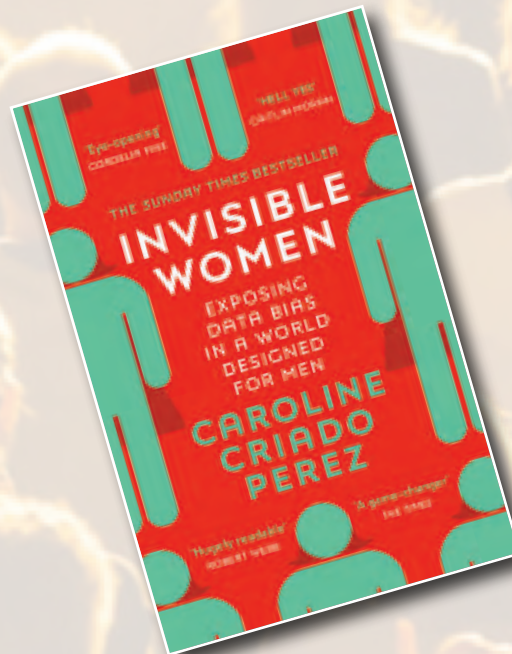
Inclusive representation in the design community is of great benefit to us as consumers, employers, parents and colleagues. Teachers are working hard to encourage all students to succeed by allowing them to see the relevance to them and their communities. AQA’s specifications must reflect and encourage this need for greater inclusivity and diversity.

It is a great privilege to be writing about this subject, a subject that we all have a huge amount of responsibility to act upon. As an education charity, it’s incredibly important AQA does all that it can to support and

promote equality, diversity and inclusion. This includes all aspects of our qualifications, making them accessible and equitable for all, and providing our students with the right inspiration for their future.

I will readily admit to this not being a subject area that I felt fully confident to address 18 months ago. However, we are working really hard to engage the relevant groups of people to ensure we have the training and expertise necessary to understand the issues concerned with this subject.

I am personally hugely excited to be involved in such a dynamic and important project, but I really want the input of others and to gather as many different views as possible in order to make this change beneficial for everyone.



We will be creating a group of teacher and industry volunteers with an interest in this subject, to meet informally online and discuss some of these issues. We know how busy you are, so there is no minimum commitment to your involvement, but it would be great to hear your views on EDI in all our Design & Technology, Food and Engineering qualifications.

If you would like to be involved in this project, we need you. Please contact dandt@aqa.org.uk

“An industry that fails to reflect the people it serves will quickly become irrelevant. How can we meet the needs of users with a blinkered perspective? How can we inspire the next generation of designers without role models to represent them? How can design continue to be a source of world-changing ideas?”

(Design Can) “Manefesto” [Design Can \(design-can.com\)](https://design-can.com)

“Have you seen the price of plywood?”

Things are going to have to change. *Andy Mitchell, D&T Consultant, Ex Deputy Chief Executive of D&T Association*



Improving the Quality of Life

Creating meaningful learning in D&T

Scanning through previous issues of this magazine, those not familiar with D&T could be forgiven for thinking the subject continues to thrive and its future looks exciting. Taking into consideration today's world, adoption of modern technologies and responding to the needs of society, young people within it and the future of our nation's prosperity and health, how could it not be? There is little doubt however, that within the D&T community itself, members feel less secure.

In the Autumn 2020 edition, in his excellent article 'It's a vision thing', Paul O'Sullivan, Associate Vice Principal, Stockwood Park, The Shared Learning Trust, writes:

“My vision for Design & Technology in the future, is about an increased emphasis on design and design communication.”

But what may be surprising, is that he goes on to state:

“This will be achieved through an increased emphasis on a variety of design skills including sketching, annotating, physical modelling as well as computer & parametric modelling.”

Worthy aims indeed. But considering that the subject has been in the curriculum for three decades, what does it reveal when a D&T expert and senior leader in school still feels the need to present this as aspirational or visionary? He is quite correct about the need to push these amongst other skills. Shouldn't these already be routine? Where have we gone wrong?



We need to agree

Perhaps this is just one indication of a residual lack of consensus within the community as to D&T's educational purpose, more recently well set out in the Vision Edition of Futureminds by Alison Hardy, Tony Ryan and others. Misunderstanding may have been further complicated by a change of interpretation being placed by some departments adopting an art and design GCSE or being subsumed by the area. In the same issue I also read:

“...there needs to be changes [made] to bring D&T back into the limelight and that, I think, needs to reflect the current make do and mend culture which is very much alive in society.”

Gemma Down Ex-Hornchurch High School, Head of Art and Photography, Maltings Academy

Is this the way to bring more attention to the subject? 'Make do and mend' was a key feature of the abortive proposals nicknamed the 'knitting, darning, and fixing your bike' Department of Education National

“Have you seen the price of plywood?”

Things are going to have to change. *Andy Mitchell, D&T Consultant, Ex Deputy Chief Executive of D&T Association*

Curriculum review (DfE 2015) proposals, during the brief period when Elizabeth Truss was Minister for Schools. Following a small rebellion at a Westminster Forum event and her subsequently meeting with representatives of the D&T Association, these were shelved and eventually, a much more appropriate National Curriculum Programme of Study resulted. For sure, developing the confidence to repair systems and artefacts may represent an additional benefit arising from studying D&T, but it should not be seen as driving teaching and learning.

Change is inevitable

That said, within these publications there is acceptance of the need for considerable changes. By its very nature, D&T has always and will always accept change as inevitable. But it seems to me, that the single biggest external change that has already happened and what it means for the subject's future, has yet to be fully acknowledged. This is the removal of direct control by the State and the commensurate passing over of resources, responsibility, and crucially, accountability, to individual institutions and the teachers they employ. The past 20 years or more has seen the gradual decline of virtually all centrally provided services, upon which the subject has depended. The DfE now has no experts or agencies representing the subject as it did before. Neither do local authorities. This is why the continued existence and support provided by the Design and Technology Association, CLEAPSS and the Awarding Organisations and subject leaders in schools are so important today.

Even though the fragmentation of the system makes it very difficult, any successful future D&T enjoys will depend almost entirely on schools and these bodies working together to adapt and develop. There are no signs that the current government will re-prioritise the subject's importance and it is widely agreed that financially the education budget will be challenged as we attempt recovery from the pandemic.



evaluating the impact of ideas and solutions



Resarching the needs of the user

“Have you seen the price of plywood?”

Things are going to have to change. *Andy Mitchell, D&T Consultant, Ex Deputy Chief Executive of D&T Association*



Big issues to address

There are several big issues to be addressed. Here are just five, each worthy of an article on its own.

1 Resources. Meeting the teaching cost may lead to increased group sizes. Consumable and capital resource supply, already a problem in many schools will only become more difficult. Therefore, we must plan for reduced access. This will impact what students manufacture and expect to take away. This must be addressed, together with:

2 Attitudes toward consumerism and use of the world's resources.

Increasingly ethical questions, associated with using up resources to make things, will be raised. Aside from financial considerations, we can no longer afford to consume materials in the ways we have. D&T must reflect this. We will need to change expectations and adjust practical activity accordingly.

3 Understanding of the subject's value beyond vocationalism. The subject continues to be viewed by many non-specialists (and some D&T

specialists) as being predominately about craft, training and preparation for working within industry. Whilst these represent a facet of the subject, preparation for industry is not its professed purpose. Addressing this common misconception, is fundamental to D&T being awarded the status it deserves. D&T contributes to a general education for all, not just those who may take it further into directly related careers.

4 Teacher supply and CPD. With the demise of established D&T ITT centres, schools and individual teachers are being expected to provide the bulk of initial teacher education and subsequent professional development. This means assuming responsibility for teaching trainees both D&T subject knowledge and pedagogy. Making this work so that the needs of teachers at all stages of their careers are met will be demanding.

5 Digitisation. D&T has often been at the forefront, in the use of digital resources; integrating, and developing teaching and learning dependent on them. But it has proved more difficult than originally anticipated to ensure

that CAD, CAM and sophisticated microprocessor control is central to D&T activity. It is all too easy to explain away, and there are indeed mitigating factors. But now 30 years since the National Curriculum first made it a requirement, it remains unfortunate that nationally, the relative piecemeal approach to provision is so distant from what is required.

I hope the excellent future gazing and inspirational illustrated content provided by those who contribute to this publication, will continue to inspire, provoke, and inform the debate. Their writing, and that of others, about the subject will be essential during a period ahead of relative uncertainty. I do believe that what is currently being referred to as D&T 2.0 will emerge and become established. As always, opportunities for ambitious schools and individuals to take advantage of the opportunities are sure to exist. But in a very changed environment, unlike ever before, it is they who will also need to create them.

Tips on making maintenance & health and safety checklists

Lucia M. Bovio, art and D&T technician

Technicians make up an invaluable workforce within the D&T staff team in many schools. Technicians are the cog that rotates, the cable that connects, the glue that binds and sticks departments together to ensure they run smoothly and effectively.

Health and safety is at the heart of every technicians job role. I strongly believe that providing a great health and safety service allows students to maximise their learning and, more importantly, allows teachers to teach with greater effectiveness, when equipment, material and resources are well maintained and in safe working order.

A successful way to maximise and monitor maintenance of your department is to have a reliable checklist.

Some tips on creating your own checklists:

- **Use the table tool in Microsoft Word/Excel**
 - Many instruction manuals provide information on how to troubleshoot, clean, repair and maintain the equipment, the tips and information provided can be applied to your checklists, such as wiping a disc sander face with a damp cloth to remove debris.
 - Machines within D&T come with user manuals or booklet that will provide valuable information including maintenance schedules, and will give tips on how to prolong the life of your equipment.
- **Look online at existing maintenance checklists for inspiration**
 - The internet can provide a range of inspiration to help you create your own checklists.

- dt.cleapss.org.uk CLEAPSS has an excellent range of health and safety resources. It has a detailed section on health and safety within D&T, and its resources also provide excellent advice and offer examples of checklists that may inspire you.
- www.hse.gov.uk is a good website. It provides a range of valuable information such as guidance on health and safety, news, and provides resources such as posters and a school/classroom health and safety checklist that covers a range from checks from floor conditions to lighting suitability.
- www.data.org.uk is another great website. It provides health and safety (SCHS) training which may be beneficial for staff, and will be useful to help spot unknown risks and be aware of current legal obligations.

Location: _____ Monthly Check List

October

Sewing machines Monthly	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Mains cable and foot control cable is in good condition															
Needle is in machine and in working state															
Light bulb is working															
Bobbin zone been lubricated															
Bobbin zone is debris free															
Can make a stitch without fault.															
Machine is in good working state and is safe to use															
Thread and debris has been removed from machine															
Date of service															

Notes: _____

Checklist carried out by: _____ Signature: _____

Food technology equipment, 40 week checklist start date: _____

machine/ equipment:	Cycle 1			Cycle 2			Cycle 3		
	sept	oct	Nov/dec	Jan/feb	March	April	may	June	July
Date:									
hand blender #1									
hand blender #2									
hand blender #3									
hand blender #4									
smoothie maker #1									
smoothie maker #2									
smoothie maker #3									
smoothie maker #4									
smoothie maker #5									
smoothie maker #6									
kettle 1									
kettle 2									
kettle 3									
kettle 4									
Weighing scales x 11									

Info: _____ notes: _____

By ticking the boxes it states that the machine is clean, in good Working order and is safe to use.

Tips on making maintenance & health and safety checklists

Lucia M. Bovio, art and D&T technician



Location: _____ Monthly Check List Date: _____

Item	Checked
Scroll Saw (fretsaw) 2	Checked ✓
No materials/equipment are obstructing the machines (and extractors) basic function.	
Blade are clean and cuts neatly in a straight line	
Broken blades are replaced, machine has all working parts	
Oil/ lubrication is at a good level to allow machine to work effectively (i.e. if necessary sewing machine oil, bicycle oil can be used)	
Extraction zone is dust free (space under saw)	
Flexible ductwork is on good working order and debris free	
Extractor unit has been cleaned/ emptied	
Work zone around the machine is tidy, safe and clutter free.	
Machinery is working correctly without blockage, breakage, build up, damage and no unusual noises coming from both machine and extractor	
Equipment is safe to use	

Location: _____ Weekly Check List Date: _____

Logbook and Maintenance Sheet.

Machine: Startrite, 403, 503,603 trade band saw

Item	Checked
Band saw	Checked ✓
Blade is in working condition.	
The inside chambers is debris free, wheels and band can rotate freely (note that in manual blade doesn't not need lubrication.)	
No materials/equipment are obstructing the machines (and extractors) basic function.	
Flexible ductwork is on good working order and debris free	
Work zone around the machine is tidy, safe and clutter free.	
Machinery is working correctly without blockage, breakage, build up, damage and no unusual noises coming from both machine and extractor	
Equipment is safe to use	

- **Create a dedicated time in your week to full fill check lists**

It is vital that checks are carried out weekly or monthly, by giving yourself a dedicated and undisturbed time within your schedule, it will allow you to carry out any maintenance and allow you to make any necessary repairs you may discover.

G254 Health and Safety Maintenance of D&T Workshop

Equipment available from the CLEAPSS site, includes example lists of servicing and checking processes and the associated recording forms.

- **Create tasks for weekly and monthly checks**

Weekly checks and monthly checks should differ slightly, monthly checks will be useful for equipment that is not used often, or when a thorough check will be implemented. Daily checks should also be considered for equipment such as soldering irons or glue guns that are used every day. In busy periods, the LEV collection points may need daily checks.

- **Keep a physical record of your checklists within a secure file**

Having a physical checklist provides a range of benefits such as providing evidence that health and safety checks have been made on certain

Monthly Classrooms Check List

ROOM	RM	TEXT	ART	FOOD	CAD/CAM	DT Office	DT Prep Room	Food Prep
Fire Evacuation Route clear								
Fire blanket in place	N/A	N/A	N/A		N/A	N/A	N/A	N/A
Fire extinguishers available		N/A				N/A	N/A	N/A
First aid box available and fully stocked		N/A	N/A		N/A		N/A	N/A
Eye-wash kit available		N/A	N/A	N/A	N/A		N/A	N/A
Power sockets and lights have been checked and are not loose/damaged.								
Sinks and taps are clean, working condition and no leaking	N/A				N/A	N/A	N/A	
Permanent fixtures in good condition and security fastened, e.g. cupboards, display boards, shelving?								
Furniture in good repair								
Staff PPE are in good condition								
Students PPE: Goggles clean and scratch free	20	N/A	20	N/A	N/A	N/A	N/A	N/A
Aprons clean and usable					N/A	N/A	N/A	N/A

Report any unsafe faults to site manager/ Line manager

equipment. It may be beneficial to have a physical copy when working in a large team of technicians.

- **Allocate tasks between team members (if you are lucky enough to have a team)**

when working with a team of technicians it will be beneficial to allocate individual members with their own tasks to perform or which they specialise in, to allow all health and safety checks to be performed carefully and accurately.



This is an annual competition with the Food Teachers Centre to encourage students to showcase their skills around a theme, and this year's theme was: "Teacake Travels Around the World"

The pupils are asked to use a Tunnock's Teacake as the basis of a dessert. They could then add to it or combine it with other ingredients to enhance its value and appeal.

The judging criteria, as always, are:

- **presenting a stunning dish,**
- **creativity,**
- **skills,**

and

- **the use of ethically sourced ingredients.**

Ideas needed to reflect traditions, sights, smells and/or tastes of a chosen country or culture.

Ingredients did not have to be sourced from the chosen country, especially if this added to the food miles, alternatives are acceptable.

Look out for the 2022 competition on the Food Teachers Facebook page:

[Food Teacher's Centre UK | Facebook](#)

This year's two winning entries are.

Tunnock's Teacake Challenge

Barbara Rathmill, the Food Teachers Centre



The Winston Churchill School

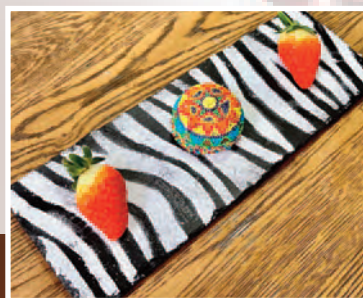
AGE 15 years

STUDENT Tristan Buckley

TEACHER Emma Reynolds

My family come from South Africa; therefore, I was inspired by the traditional patterns that are seen on fabrics. I used bright coloured sugar balls to create a design on top of the teacake. I stuck them onto the Tunnock's Teacake using an icing sugar and water paste. It took a long time to sort all the colours into pots, but I think it was worth it.

I created a Zebra stripe pattern stencil and dusted icing sugar over a black slate to create zebra stripes. Not only my favourite animal but also a prominent animal in South Africa. I added strawberries to the side as they are grown in South Africa, and these ones were actually imported from South Africa. The dish meets the teacake travels around the world challenge as it shows traditional South African patterns and Animals from South Africa.



Al Yasmina Academy, Abu Dhabi, United Arab Emirates

Lockdown Challenge

Year 8

I have made a design that represents Abu Dhabi which is one of the 7 emirates in the UAE.

I have encased the Tunnock's Teacake in a creative way. My Tunnock's Teacake on the side and added food colouring for example red food colouring made from beets.

I trimmed and roughly chopped the beets. I filled a medium pot halfway with cold water and add the beets. I heated the mixture over medium heat until it started to boil. I reduced the heat to medium-low and continued to cook the beets, uncovered, until there was only about 1/4 cup of liquid left.

Also, to make it look nice. The colours represent the UAE flag (it's the Tunnock's Teacake, but I decided to enclose it a multi-coloured mirror effect). The mirror glaze recipe tends to seem complicated! At the base of this my mirror glaze recipe are sugar and gelatin, which are the key ingredients. I heated the mixture to allow the gelatin to dissolve and combine my syrups that I had created from dates, beets, raspberries, and spinach to have a multi-colour effect. I allowed the glaze to cool off a bit before being poured over my chilled cake. I have learnt that what gives the mirror glaze its shine is it need to be poured at the

right temperature, which is around 110 degrees F.

I have created various compotes from fresh ingredients like raspberries, spinach, beetroot and dates as they are local produce. I did this because the colours signify the UAE flag, and I also used icing to carve out my school's logo (Al Yasmina Academy using colouring from fresh fruits). This was done so that it would be clear which school I am representing.

I have made my deserts from dates. I have also added food colouring to represent the UAE flag. On the side I have added my own encased 'Tunnock's Teacake'. I have also made my own high fibre home-made biscuits and crushed them to look like to sand we live in which is golden in colour and sometimes can look pale red.

I was very excited in preparing these designs as I love baking and making food products. I hope you like what I have completed as it was an enjoyable time developing and learning about different skills involved in food science and food preparation.



CLEAPSS small print

As mentioned earlier, Natasha's Law is a new aspect to the law around providing food for sale

There are also some updates to the Highway Code, so, although not something we, at CLEAPSS, deal with regularly, it would be sensible for all staff who drive, to have a look at the updated Code.

Something much closer to our area of concern is the updated British Standard, BS4163 Health and safety for design and technology in educational and similar establishments – Code of practice. This will be published in October, after a complete revision and updating process, that has taken nearly two years.

The Standard is a new document, with a considerable number of updates/changes, including:

- Complete restructure to make it easier to navigate the document
- The training requirements of supervisory staff
- Ventilation requirements – all areas, but particularly heat treatment areas, following IGEM updates UP11/3.
- The requirement for CO2 monitoring for new or refurbished facilities
- Guidance on the risks from welding, including the changes to the control of welding fumes
- Guidance on the latest requirements for gas in schools, older, properly working gas installations will remain acceptable, but are deemed not to current standards

- Strengthening the advice on fume controls when working with hot metals
- General guidance for plastics
- Distinctions between different types of Computer Operated Equipment
- Guidance on the use of computer operated equipment
- Injection and extrusion moulding machines (including some types of 3D printer systems)
- Further clarification on the requirements for fixed electrical servicing
- Requirements for portable appliance testing
- References to RPE and PPE throughout, including clarification on types of mask or types of eye protection
- More detail on COSHH requirements for some materials and processes
- Improvement of risk details for noise and HAVs throughout
- Work Exposure Limits updated throughout
- Advice regarding the use of table routers with single piece cutters
- Separation of a number of pieces of equipment
- Changes to naming – in metalworking, the term coolant has become metalworking fluids, all associated guidance updated
- Awareness of sensitising risks from metalworking fluids and other materials
- The use of barrier creams, no longer suitable as protection
- Clarification of requirements for guarding across all machines
- Advice regarding isocyanate spraying
- Clarification of the need for checks of lifting gear in motor vehicle workshops



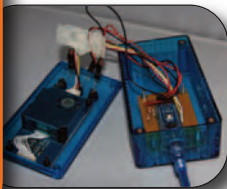
All CLEAPSS guidance materials will be updated to include these revisions.

The online training that we have produced is already in line with the new Standard, as CLEAPSS is part of the British Standard writing team.

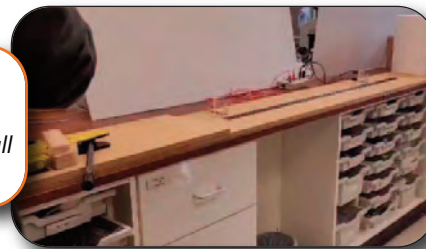


Some recent tweets

All this talk about ventilation in schools makes the air quality monitoring device we developed earlier this year, a bit more topical! [GL051 Air Quality Indicator](#) ([cleapss.org.uk](#))



Working with [@CLEAPSS_DT](#) on some air rifle guidance, coming soon via [@CLEAPSS](#). Here shown with a modified version of the [@CLEAPSS](#) g by freefall arduino timer. Results are very good



The [#engineering](#) challenge from [#TexasatTyler](#) is still open for entries, the first year has had 11 countries and 400 pupils involved. Take a look at the article in [#futureminds](#)



Considering 3D printing in schools? We have guidance ([dt.cleapss.org.uk/Resource/3D-pr...](#)), and helped to write the HSE guide mentioned by Joshua Evans from BOFA in this article: [tctmagazine.com/additive-manuf...](#)

I have just been speaking to someone who has worked through the CLEAPSS online H&S training for D&T, and he thought it was really useful - have you seen it yet? [dt.cleapss.org.uk/Resource/D-T-H...](#)



In the spring 2022 edition of Futureminds

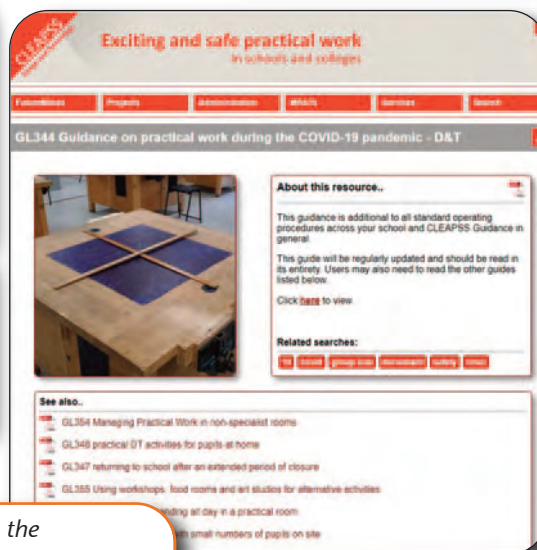
We will have an update on our online training programme, as well as our face-to-face courses.

We are currently working on the design and build of our new premises in Chesham, and are hoping to share some progress in the next edition. We hope to showcase mobile equipment solutions, and flexible working spaces for D&T, food and art.

There will also be the usual range of articles from suppliers, teachers, technicians and other authors. If you have an idea for a future article or suggestions for items we could include, please get in touch using the [Helpline](#) or email [dt@cleapss.org.uk](#).

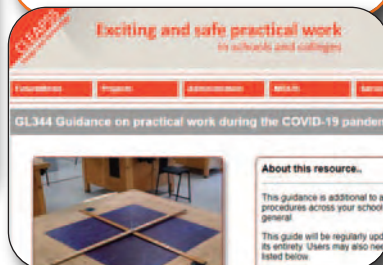


The facilities and equipment in D&T, food and Art are covered by the British Standard: [#BS4163](#) - this is under review and the public consultation is live, please take part: [standardsdevelopment.bsigroup.com/projects/2020-...](#)



The updated CLEAPSS guidance on practical work during the pandemic, is now live on the website - this is for use from Monday 19th July 2021: [dt.cleapss.org.uk/Resource-File/...](#)

We want [#CREST](#) Awards to improve girls' engagement in [#STEM](#), showing they can be part of this fascinating world - just like Dr Aimée Helliker. She earned a Gold CREST Award at A-Level and is now a lecturer in Military Engineering! Read her story: [britishscienceassociation.org/blog/working-h...](#)



What is engineering - lovely little video by the university of Newcastle AU, which can be used as a starter for September: [youtube.com/watch?v=bipTWW...](#)



Have you looked at the [#V&A #innovate](#) challenge? excellent project for KS3 D&T, Art, Food and STEM to get involved in: [vam.ac.uk/info/innovate#...](#)

