

CLEAPSS  
Design and  
Technology

# Futureminds

Tomorrow's world explored today

Live  
event  
edition!

University of  
Hertfordshire

U  
H

conference  
hertfordshire  
Fielder Centre



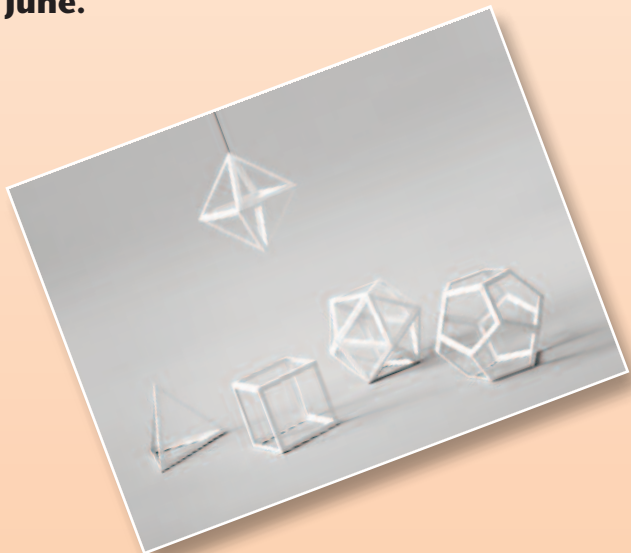
Summer 2019

# CLEAPSS D&T e-newsletter

## Welcome to Futureminds 11.

**This term has been already been busy. We have run more courses and carried out more safety audits than in previous years, and we have also updated and written more documentation, including working on the redesign of the MRATs, guidance on RPE, and 3D printing, and made various changes to the website.**

**However, the biggest area of work has been putting together the *Futureminds Live* event, taking place in The Fielder Centre, Hatfield, on Saturday the 22<sup>nd</sup> June.**



The event is designed to showcase the work that the contributors to Futureminds do to support practical and innovative D&T, Food and Art and Design.

The event is on a Saturday to keep down costs to schools. Tickets are £80, available from Eventbrite. There is free tea and coffee all day, a great lunch, and every attendee will get a goodie bag containing a whole host of free materials, including a 30% discount on Kora 3D printing equipment, making a saving of £170 on a safety cabinet to house your FFF printer, a sample kit from Tomoko of her construction and modelling materials, an Adidas sports drink bottle and lots of other materials and discounts from the exhibition stands and workshop presenters.

There will be two keynote speakers, one to start the morning and one to start the afternoon session.



The morning will start with Tomoko Azumi who is a director of TNA Design Studio, London; a furniture, product, exhibition and retail interior design consultancy for multinational clients. She will take us through the use of geometric shapes to create

fantastic solids. She will also talk about the way mathematics and design combine to create innovative and exciting products.

*Continued on page 2...*



# Futureminds LIVE

Remember *Futureminds Live* will be held at the Fielder Centre in Hatfield, Herts, AL10 9TP on Saturday June 22<sup>nd</sup>.



Felicity Milton will start the afternoon, she is an innovation strategist at Adidas who spends her days collaborating with experts across the brand to build, test and iterate new business models prior to commercialisation. Her talk will focus on innovation and how harnessing creativity and help to provide Increased performance In all areas.



*Driven by a constant desire for sporting innovation and a belief that anybody can and should be "a creator", we have placed creative thinking at the centre of our culture. We want to unlock real insight, we want to craft what is essential and immediate; celebrate what is human, what draws us together, and reveal that we are all connected.*

*When science and technology fuses with creativity through the lens of sport we have the power to unite, to challenge and to change lives. Science and technology is the attempt to understand and advance the way we deal with circumstances. It requires imaginative minds that reassess assumptions and conventions to deliver meaningful innovations.*

*Truly meaningful innovations couple performance, with a care for the environment. It is our ambition to achieve a net positive impact on the environment, to capitalize on technologies, to drive new performance aesthetics, to enable transparency & reduce the reliance on fossil fuel.*



## Tickets are available from Eventbrite until May 24th.

<https://www.eventbrite.co.uk/e/futureminds-live-tickets-55510809325>



# Futureminds LIVE

## D&T and Food

National Curriculum developments and the latest GCSEs require pupils to work on practical solutions to real problems. The workshops and exhibitions are designed to reflect the holistic approach to D&T, not through material-specific activities, but through problem solving and using the most appropriate material or process to make prototypes and models that can be used to develop successful outcomes.

There are also presentations and exhibitions covering the latest developments in Food teaching.

## STEM

Many schools are investigating STEM activities to enhance the curriculum, all of the presenters and exhibitors are fully engaged in STEM, both in school and in their own fields of work. Many of the workshops will equip attendees with strategies for implementing successful STEM projects and activities, either as specific-subject support or through extra-curricular clubs.

## Exhibitors:

### LearnbyLayers 3D

Phil will present a session on how to use LearnbyLayers in school to deliver an innovative and engaging 3D printing curriculum.



### Techsoft

A hands-on CAD/CAM workshop focusing on using 2Ddesign to explore Art and Design movements. Delegates will use 2Ddesign to directly output to a range of different computer-aided machines and have some classroom ideas that they can use.



### Bofa

Displaying the latest LEV equipment.



# Futureminds LIVE

## More exhibitors:

### Celtic Kilns

Interactive session on the use of ceramics in schools, including safe use of kilns.



### Create Education

A demonstration of CAD and 3D printing.



### British Nutrition Foundation

An interactive session around healthy eating; where food comes from; and cooking using classroom-ready activities from 'Food - a fact of life'.



### Festool

A presentation of the latest Festool equipment, cordless hand tools, and accessories.



### HPC Lasers

HPC Laser is one of the UK's leading suppliers of CO2 laser cutting and engraving machines, and CNC routers. Established in 2006, the team of skilled engineers have delivered, installed, serviced and supported over 4500 Laserscript machines across the UK into a multitude of educational, domestic and industrial applications.

### Stem Centre

TinkerCAD is a brilliant, free CAD package that can be used on either laptops or tablets. It makes a great introduction to CAD for KS2/KS3 students, and can act as a stepping-stone for more advanced CAD software packages. This session will provide an introduction to TinkerCAD, giving you the opportunity to play with the easy to use interface, explore the free online resources, and touch on topics such as classroom management and exporting files for 3d printing / Fusion 360.



# Futureminds LIVE

## More exhibitors:

### GoPrint 3D

A presentation of the latest machines for producing 3D models, at school and in industry.



### Food Teacher Centre

The Food Teacher Centre provides a platform to exchange best practice, gives advice and support to less experienced teachers, answering practical concerns and keeping them abreast of the latest curriculum changes. A one-stop shop for like-minded professionals who seek help and information.



### Textile Academy

The Textiles Skills Academy supports all aspects of textiles in schools. The presentation will include demonstrations and examples of good practice.



### Rapid – Airineers

Rapid will be presenting a range of equipment and resources, including examples of the Airineers drones, and the educational programme for schools to get involved with drone racing.



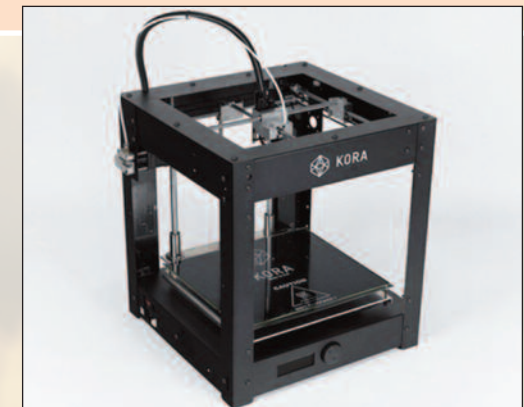
### HME

HME install and service equipment across the country and will present some of their kit.



### Kora

Kora has worked with HSE and CLEAPSS to develop safe working practices for using 3D printers. Displays will include the latest printers and safety cabinets. CLEAPSS members can obtain a large discount on Kora equipment.



Continued on page 7...



# Futureminds LIVE

## More exhibitors:

### Technology Supplies

Technology Supplies is a leading Design, Technology and Engineering specialist for education worldwide. Its globally trusted services include installations, from design and consultation to commissioning and training; maintenance services for all types of educational workshops; supply of over 6,000 curricula-aligned products; and excellent aftercare support across all products and equipment.



### F1 in Schools

F1 in Schools will be racing its cars, demonstrating the race track and technology that schools can access when taking part in the competitions.

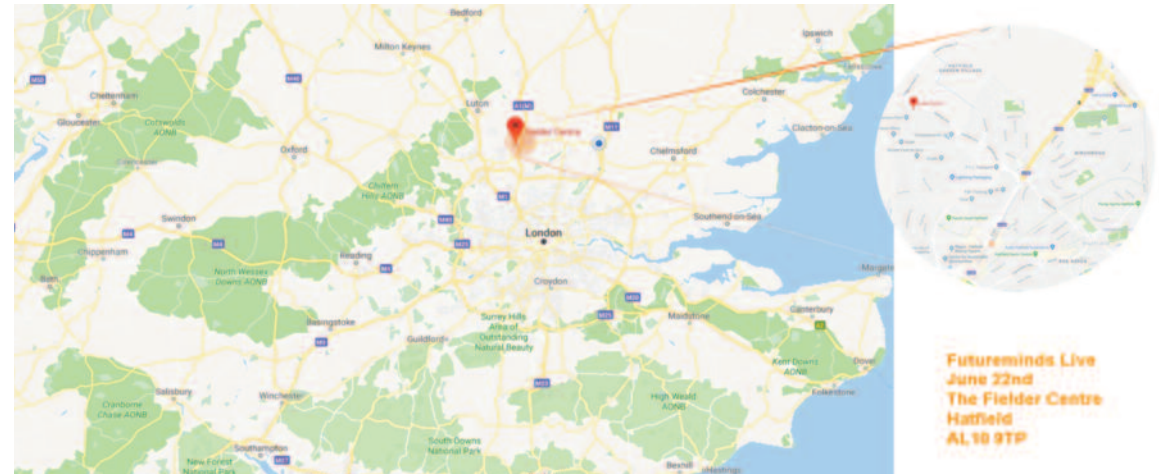


## Getting there:

The Fielder Centre is less than a mile from the Galleria shopping centre, about 2 miles from Junction 3 or Junction 4 of the A1.

Hatfield train station is also about 2 miles away, although there is no direct bus service from the station, there is a taxi service.

There is ample parking.



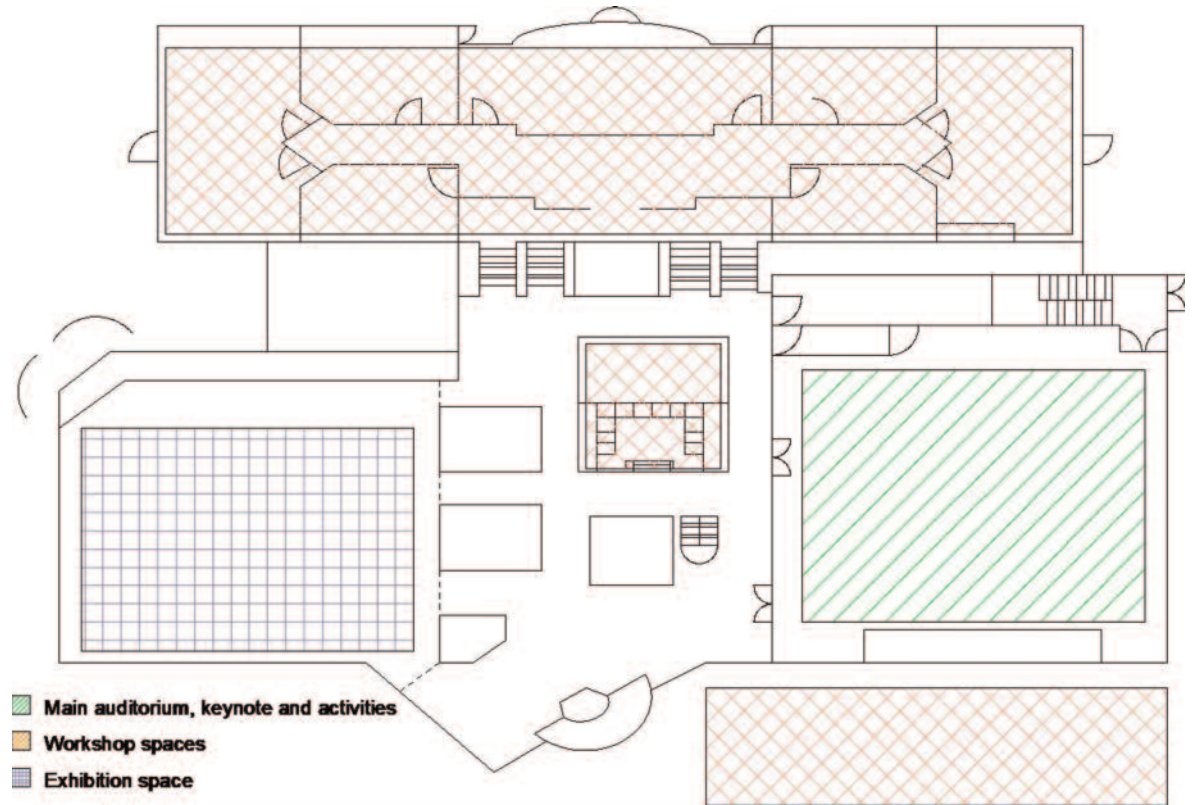
There are more photographs of the Fielder Centre and a useful floorplan on page 8...



# Futureminds LIVE



## Floorplan:





Saturday 22 June: 10am-3pm

The Fielder Centre, Hatfield, Herts. AL10 9DP

## An inspiring day for all D&T and Art & Design teachers

Hands-on ideas: drones, F1 for schools, 3D printing, food tech, latest equipment and much more...

Keynotes from: **Felicity Milton**, Innovation Strategist at Adidas and **Tomoko Azumi**, Designer

Resources across D&T and Art & Design: digital control, food science, materials, safety...

Delegate goodie bag including Tomoko Azumi design template, money-off coupons from Kora and other suppliers.

Ticket includes access to all sessions, lunch, FREE parking plus FREE tea & coffee all day!

Only **£80** for the day

No cover on a Saturday... So ask your school to pay your fee. See overleaf for the reasons why they should support you.



Book now:

[Futuremindslive2019.eventbrite.co.uk](http://Futuremindslive2019.eventbrite.co.uk)

@cleapss\_dt

Saturday 22 June: 10am-3pm

## Five reasons why your D&T and Art & Design teacher should attend:

- 1 Develop approaches to the **new D&T GCSE** with the focus on iterative design. Students are expected to generate a design idea, test it, change it, re-test it and so on, until they reach an optimum solution. **Find out how to support students in this through 3D technologies and CAD equipment.**
- 2 **Ofsted**: "Inspectors found that a considerable challenge facing schools is the modernisation of the D&T curriculum so that it keeps pace with technological developments... Tackling this issue... is essential if pupils are to become confident and capable members of a technologically advanced society." **Gain updates on the latest developments in D&T.**
- 3 Schools can use STEM to **enhance the curriculum** and so respond to the new Ofsted inspection framework. **Discover how to implement successful STEM projects that engage a diversity of students.**
- 4 **Healthy students** is a priority of all schools. "Develop schemes of work that take into account... national policies and statutory requirements, for example... current healthy eating advice, food safety advice." From 'Food teaching in secondary schools'. **Get up-to-date food tech guidance.**
- 5 **Collect resources** for the school. For the delegate cost of £80 **get over £200 worth of free resources** and discounts on equipment

For £80 with no cover needed, your D&T teacher could access all this at Futureminds LIVE.

For more information:

[www.cleapss.org.uk](http://www.cleapss.org.uk) and go to the CLEAPSS Technology site

To book:

[Futuremindslive2019.eventbrite.co.uk](http://Futuremindslive2019.eventbrite.co.uk)

STEM



# Food Technician Toolkit and Training Room.

Barbara Rathmill, FTC

**Join like-minded secondary Food technicians for this online training to share best practice, top tips and great ideas when working in the food room.**

**The training is designed for you to work at your own pace, there are 6 units of work, each will take about 30 - 40 minutes. Each unit has a video presentation to watch and some activities. All the resources are available for Technician Toolkit delegates via the online training room in a closed Facebook group with support from a mentor: [Barbara.Rathmill@foodteacherscentre.co.uk](mailto:Barbara.Rathmill@foodteacherscentre.co.uk)**



The teaching of Food is now compulsory in key stages 1-3 national curriculum, and the new GCSE Food Preparation and Nutrition is available for all schools.

In order to support secondary schools, we are providing online training for food technicians and support staff, with support from a Food Teachers Centre Associate.

## Technician Toolkit Programme

- Session 1 – Introduction: Where am I now?
- Session 2 – Health and Safety
- Session 3 - Skills
- Session 4 – Managing a Food Room
- Session 5 – KS3
- Session 6 – KS4

## Benefits of the training

- Develop awareness of the role of the technician or teaching assistant in a practical food area.
- Provide useful and up-to-date information so that correct procedures are followed, and quality teaching is maintained.
- Provide an opportunity for personal reflection in order, ultimately, to support teaching staff and students as effectively as possible.

## What technicians say about the training from FTC:

*“The course excelled in covering health and safety and the new Food and Nutrition requirements. I was also very impressed with the presentation pack to refer to later.”*

*“It was a really useful event meeting others in the same position as oneself. The course was very informative and will help me a lot in the near future.”*

For more details of our projects and events: [www.foodteacherscentre.co.uk](http://www.foodteacherscentre.co.uk)

The Food Teachers Centre public page: <https://www.facebook.com/foodteacherscentreuk/>

Contact us: [infor@foodteacherscentre.co.uk](mailto:infor@foodteacherscentre.co.uk)





# Safe selection and use of laser machines in education.

Steve Cockerham, HPC

**CO2 laser engraving and cutting machines are now in extensive use in education and can present hazards if not selected and operated correctly. HPC Laser look at some of the fundamental issues that should be considered.**



## Optical hazards

It is a common misconception that the visible red laser is responsible for providing the engraving and cutting function in a laser machine. In fact, this low power device is only used for positioning and it is the much more powerful invisible beam, usually generated in a laser tube in the rear of the machine that provides the more powerful beam for the engraving and cutting functions.

Similar to the way in which the sun's rays can be focussed and intensified using a magnifying glass, CO2 laser engraving and cutting machines work by passing this invisible laser beam of typically 6-7mm diameter through a focussing lens. This reduces the beam diameter down to only microns at the correct focal height (usually around 50mm from workpiece to lens) and increases the intensity of the beam sufficiently to enable cutting and engraving of suitable materials.

Once the beam has passed the focal point it begins to diverge, weaken and scatter around the machine cabinet. This scattered beam is then absorbed by the coated metal surfaces of the machine. Because of the relative ease in which the focussed beam weakens and becomes harmless, it is the unfocussed beam that is considered the more hazardous of the two, particularly due to its ability to travel long distances whilst losing only a small proportion of its power.

## Fire safety

Firstly, and most importantly NEVER operate the machine unattended. No matter how tedious the cutting or engraving process is, do not leave the machine whilst it is operating.

A properly functioning compressor delivering a good supply of air to the machine nozzle clears away smoke, debris and fumes but also minimises the risk of igniting flames during processing. The effectiveness of the air assist compressor should be checked periodically.

HPC Laser operate a strict policy in terms of training in machine safety. There are warning labels on each of our machines, there are warnings and notifications in our operating manuals and machine supervision is a very clear element of our training programme when we supply a new machine. As part of our standard training programme, every customer is fully briefed on the risks of leaving the machine unattended.

Cleanliness is another very important factor in fire risk mitigation. Whilst cutting materials such as wood and plastics, potentially flammable deposits can collect on the machine bed. If they are allowed to accumulate these can increase the risk of ignition. Dealing with this risk is straightforward - just clean these deposits from the machine bed on a regular basis.

Always keep an easily-accessible fire extinguisher by the machine, just in case. Because electricity is involved and you may have to tackle a fire whilst the machine is still plugged in, we recommend a CO2 or other electrically-compatible extinguisher. HPC Laser also recommends the training of appropriate personnel in the use of fire extinguishers.

Keys to operate the machine should only be accessible to suitably trained and competent persons.

Basic machine housekeeping is always recommended and very good practice. Keep your machine cabinet clean and free from dust and material offcuts. Adopt a policy of regularly cleaning and maintenance as part of your operating regime.

Regardless of the brand of your laser machine, never allow your machine to be operated unattended or by unauthorised persons.

## Material hazards

Because of the incredible flexibility of modern laser engraving and cutting machines, it is easy to forget that not everything can be safely processed. PVC for example produces hydrochloric acid, carbon monoxide, dioxins and chlorinated furans when burned and can seriously damage the machine but, more significantly, present significant health risks to anyone in the vicinity of the machine.

If you are in any doubt about the safety of using a particular material, it is imperative to discuss your requirements with the material manufacturer, and obtain a copy of their appropriate health and safety documentation before starting work.

*Continued on page 12...*

## Compliance with safety standards



Even in education, buyers of laser machines often overlook the matter of compliance with the appropriate EU safety standards. The relative ease of buying potentially non-compliant and hazardous machines either directly from an overseas manufacturer or through a UK supplier brings with it a potentially serious safety risk.

In compliance with international standards, laser machines are classified from class 1 to 4 depending upon the level of laser radiation emitted from the machine during operation. A DVD player for example would be typical of a class 1 system where the laser beam cannot escape and no special safety provisions are required. Class 4 laser systems would typically have a means for the operator to make direct contact with the laser beam, such as open slots in the machine cabinet or the absence of a lid safety switch. Operators of such machines should be aware of the safety requirements of using a class 4 laser system, including the requirement to wear laser-compatible safety glasses. The UK Health and Safety Executive state that class 4 machines are not suitable for use in an education environment. This view is reinforced by CLEAPSS, an impartial organisation providing health and safety advice to education and recognised by the HSE, the DFE, DEFRA and the Home Office.



Any equipment imported into the EU must be compliant with the appropriate EU directives which specify the legislative requirements of the equipment. Various ISO and EN standards offer product-specific guidance on how to comply with these directives. It is this combination of

directives and standards that form the basis of the compliance assessment that must be carried out.

Once an assessment of the product has been undertaken and compliance is proven, a technical file of supporting evidence is compiled. The file owner is then able to create their own declaration of conformity which states the directives and standards that the machine is compliant with.

The wording of some ISO/EN standards can be open to a degree of interpretation by the reader and good practice is to ensure that assessment is carried out against the most stringent interpretation of the standard.

HPC Laser's 2019 range of Laserscript engraving and cutting machines now incorporate industry leading Allen Bradley safety switches on all machine panels required for operation and maintenance. These panels include the machine lid, any drawer or panel that can be removed for debris recovery and the door containing the laser tube itself. Such switches serve to ensure that under all reasonable circumstances the operator is unable to gain access to the potentially hazardous unfocussed laser beam.

Safety standards compliance also requires the machine supplier to offer a comprehensive operating and maintenance manual with the equipment. Such documentation should include safe location and handling instructions, instructions for safe operation and a map of all machine warning labels with instructions on how to obtain replacements should any be lost.

## Conclusion

Laser engraving and cutting machines form an integral part of the UK education curriculum. When selected and operated correctly they can provide safe and reliable operation for many years. If you would like any further guidance regarding safe laser machine operation, certification, or selection please do not hesitate to contact HPC Laser or CLEAPSS who would be pleased to assist.

[www.hpclaser.co.uk](http://www.hpclaser.co.uk)

<http://dt.cleapss.org.uk/Resource/MRAT-1-032-Laser-Cutters.aspx>





# The Unmanned Aerial Vehicle Show



You may have read in Futureminds, that CLEAPSS has done a lot of work on drones and the safe use of unmanned aerial vehicles (UAVs). We have met with various bodies over the past couple of years and attended a range of conferences and shows. Last year Dave attended the (free) UAV show in the Excel Centre in London, which was full of interesting equipment and experts from around the world. This year the UAV show has added an emphasis on careers, as this is a massively expanding area for future work. If you want to offer advice to your pupils about this sector, it may be worth contacting Caroline Dillon (see below) or arranging to attend the show.

## Join us this November for Europe's biggest UAV Show.

*Caroline Dillon*

Do you wish to find out about the latest the UAV industry has to offer? Maybe support pupils in their investigations of career opportunities? Or are you simply passionate about drones? Then this show is made for you!

The drone industry is one of the world's biggest and fastest growing sectors. However, it can sometimes be difficult to see how to break into this exciting and innovative area.

Every young person needs high-quality career guidance to make informed decisions about their future. This is why we will be launching our brand new Careers' Zone at the UAV show to help them get access to the very best and latest career advice.

## A little bit of background about the Commercial UAV Show...

Celebrating its 6th year in 2019, this 2-day, free to attend, show prides itself on being a one-stop event that brings together the technology and the experts that will showcase the exciting changes developing throughout the UAV ecosystem.

Last year we welcomed:

- industry giants such as Airbus, DJI, Google and Boeing,
- top regulatory bodies like The CAA and ARPAS,
- a wide range of universities and colleges from all over the country (UCL, Aberdeen, Newcastle, Coventry, City, University of Central Lancashire, etc.).

And already reconfirmed this year are Airbus, DJI, the CAA, ARPAS, Aberdeen University, University of Central Lancashire and others.

## What you can expect from our Careers' Zone?

Our brand-new Careers' Zone will be taking place on our giant expo floor.

Across both days, participants will be able to get a feel for the latest trends, plus connect with, and get advice from, various academic bodies and leading industry experts, all for free.



*Continued on page 14...*



# The Unmanned Aerial Vehicle Show



The careers zone will be open on Day 2 of the event:

- From 10:00 to 11:00 our partner universities and schools, and our exhibitors will have a chance to pitch their various course and career opportunities
- We will then continue (from 11:00 to 15:00) with our interactive "How did I get started?" session where participants will be able to hear and receive valuable advice from industry leaders on how best to kick-start or further their careers.

## What else can you expect from Europe's leading UAV Show?

In addition to our Career's Zone, this year's show will showcase:

- An exhibition floor full of the market's most exciting and ground-breaking UAV manufacturers, users, service providers, etc. showcasing the latest this sector has to offer
- A vibrant and interactive platform to meet new suppliers, benchmark pricing and purchase new products
- A brand-new agenda relevant for both smaller enterprises and large-scale businesses composed of 3 different programmes:

-Our high-level conference which will see industry pioneers cover topics such as innovative aircraft design and control systems, new

regulations, urban innovation and autonomy, data management and integration, and so much more

-A brand-new VIP UTM Summit which will welcome senior representatives from all-across the sector in one place, allowing them to meet, network and discuss current and futures industry challenges and solutions

-Our seminar theaters featuring interactive talks and workshops from our exhibitors, partners and industry aficionados which include our brand-new Careers' Zone designed to help you kick-start careers in the UAV industry

Contact [caroline.dillon@terrapinn.com](mailto:caroline.dillon@terrapinn.com) to find out more about how you can take part in the show.

This year's show

([www.terrapinn.com/UAVShow/FindOutMore](http://www.terrapinn.com/UAVShow/FindOutMore))

will be taking place the 12th and 13th of November at the ExCel, London. We look forward to seeing you there.





# D&T and The Planet's future.

Dawn Foxall, Textiles Skills Academy

## Encouraging students to think about how design can help combat climate change!

David Attenborough, Prince Charles and Bill Gates have all been very public in their concerns over the issues facing the world in terms of climate and resources. Recently the British Government has taken the lead and passed a commons motion to declare an 'environment and climate emergency'.

WWF's [Living Planet Report](#) stated that in just over 40 years, the world has seen almost 60% decline in wildlife across land, sea and freshwater and is careering towards an unbelievable decline of two-thirds by 2020! - In less than a generation.

School children worldwide, inspired by the teenager Greta Thunburg, have rallied to join the campaign for developing new ways to protect the planet.

As educators, we need to consider how we support this in the everyday activities of school. In every subject there needs to be an understanding that we need to participate, both as individuals and as collective organisations in doing our bit!

D&T is in a prime position to motivate and inspire young people to investigate, develop and promote new ways of combatting climate change. Product design is where we can instil the absolute requirement of circular design, where we put as much emphasis on the end of a product lifecycle as we do the aesthetic.

A fresh wave of technological innovation is deepening our understanding of tough environmental challenges and giving us new ways to solve them. We are seeing new approaches to measuring and reducing emissions of greenhouse gases such as methane; Scientists have also developed a way to grow truly green, biodegradable bioplastics. We have already seen a significant move to electric vehicles, but this needs investment in infrastructure and more efficient batteries and battery-charging technology.

Food is another area where new technologies and ideas are needed to feed the 7 billion people on the planet. We know that 25% of the world's global emissions come from production of food! A major part of this is meat production. The growing trend of vegetarian and veganism has an effect, alongside alternatives such as lab-grown meat and meat substitutes. These might have seemed like the stuff of science fiction, but the supermarket shelves already carry a wide selection of alternatives to the traditional sausage! ([Beyond Meat](#))

Continued on page 16...



# D&T and The Planet's future.

Dawn Foxall, Textiles Skills Academy

It's not just about new technologies and ideas. The fashion and textile industry has begun to realise the fact we can no longer support fast fashion. The huge volume of water usage in growing, dyeing and finishing textiles is already a concern and being brought to the attention of consumers by the likes of TV personalities such as Stacey Dooley. The amount of fuel used to produce and ship textiles around the world is also a concern and yet we see the astonishing waste of clothing that has not seen the shop floor, sent straight to landfill or [burnt!](#)



D&T has a role to play in educating future consumers to make good decisions. This could include buying less and keeping for longer. The impact of this could be that industry produces fewer, better fitting and higher quality products, which are recyclable or biodegradable. Young designers should be trained to understand it is part of their role to ensure circular design – *what will happen to that gorgeous red polyester dress when the customer has finished wearing it?*

Some of the major textile brands are taking climate issues seriously, taking steps to ensure their products have less

impact or do not continue to contribute to climate change.

Product development has to be circular, with the end of the lifecycle an essential part of that loop. Adidas has produced a great example of this called the Futurecraft.Loop shoe. The shoe is made using a single recyclable material, eliminating the need to disassemble before recycling. Adidas then accepts the shoe back from the user when it reaches the end of its life, to recycle into another product. This is seen as an intelligent use of a variable structure using the same material for specific purposes within a product, and the brand taking 100% responsibility on the recycling treatment of the product.

The future of product design in schools must include the end use and disposal of products, not just the traditional aesthetic need and fit for purpose. The design loop should be a closed loop.

Our next generation of designers and engineers must be taught to understand the full lifecycle of a product, including its end of life disposal.

Links:

<https://www.worldwildlife.org/pages/living-planet-report-2016>

<https://materialdistrict.com/channel/sustainable/>

<https://www.beyondmeat.com>

<https://www.independent.co.uk/news/business/news/burber-ry-burns-stock-designer-clothing-fashion-industry-environment-a8454671.html>

<https://news.adidas.com/running/adidas-unlocks-a-circular-future-for-sports-with-futurecraft.loop--a-performance-running-shoe-made-t/s/c2c22316-0c3e-4e7b-8c32-408ad3178865>



**TEXTILES  
SKILLS  
ACADEMY**



# TEXTILES SKILLS ACADEMY

Dawn Foxall

## What we do and why?

The Textiles Skills Academy was founded in January 2015 after many conversations with

educationalists, D&T teachers and industry leaders who saw the desperate need to support the teaching of textiles in schools.

Jamie Oliver and his campaign to raise awareness in Food education has had some impact, but there is very little being done for textiles in education, or linking

the textiles industry with what is taught in schools. There is growing urgency for skills in all areas of the industry in the UK but there is no national plan to manage this.

Jenny Holloway at Fashion Enter Ltd. ([Fashion Technology Academy](#)) in Haringey, North London and Chris Nieper of [David Nieper](#) in North Derbyshire, have developed educational organisations directly leading to potential employment within the textiles industry. There are plans for a Leicester hub similar to Fashion Enter and other local initiatives, where local manufacturers and large brands, such as NEXT and ASOS as

part of their rationale and marketing, want to sell British-made products and work with local producers.

Young people are also starting up their own businesses within a variety of areas in the textiles industry, to meet the growing demand for higher quality, limited number, longer lasting products. These bespoke solutions help support a slower way of doing business and a more discerning consumer. This can be nurtured in school through careers advice, practical experiences and working with experts.

The Textiles Skills Academy aims to go some way to support this by bringing together experienced education presenters and industry experts to deliver relevant events, industrial visits, seminars and practical workshops for Art, Textiles and D&T teachers, to aid the delivery of the curriculum and to raise awareness of the vast array of careers and the recruitment issues of the industry.



Continued on page 17...

# TEXTILES SKILLS ACADEMY

Events are delivered by skilled and experienced teachers, trainers and industry practitioners. They give delegates an opportunity to develop classroom resources, receive updates on the curriculum and industry practices, improve existing skills, learn new skills, there is always the opportunity to network with fellow teachers.

With the recent changes in the curriculum and pressure on school budgets, it is ever more important to ensure textiles continues to be taught well in schools, to do this it is important that staff are continually developing their own skills and knowledge. It is also vital for industry that we can engage staff and parents in the future career opportunities available.

[Textiles Skills Academy](https://www.textilesskillsacademy.co.uk) (TSA) website includes an updated list of textiles related courses being delivered by a variety of organisations, including those run by the TSA, Boyd Education and D&T Association. TSA also manages a vibrant Facebook Group, the [Textile Teachers Centre](https://www.facebook.com/textileteacherscentre), which is a self-help group which also promotes relevant courses and workshops, networking events and other events of interest.



## Textiles Skills Academy Summer and Autumn Term courses:

### Textile Skills: Exploring Artists:

Tuesday 25 June: Buttershaw College, Bradford  
Saturday 29 June: Chiswick School  
Saturday 6 July: Maidstone Grammer School, Kent  
Saturday 12 October: King's College, Taunton  
Monday 28 October: Dormston School, Sedgley

### Simple Pattern Cutting for KS3/4 and post-16

Tuesday 25 June: Buttershaw College, Bradford  
Saturday 29 June: Chiswick School  
Monday 28 October: Dormston School, Sedgley

### Constructed Textile Skills: Developing a sketchbook

Saturday 28 September: The Emmanuel School, Nottingham

### Links:

<https://www.textilesskillsacademy.co.uk/events-19/>  
[www.facebook.com/groups/147120592128743/](https://www.facebook.com/groups/147120592128743/)

<https://fcfta.com>

<https://www.davidnieper.co.uk/education-skills>





# Dave's Allotment



The spring is a busy time on the allotment, lots of work to do, but every day it gets a little better. The winter was not particularly bad in the South East, however, we still had some cold air and frosts. Planting is always a risky business, lots of variables, and weather was one I didn't take into consideration enough!

In October I planted some over-winter potatoes to be ready for Christmas dinner. However, I missed a weather warning of frost in November and so didn't cover the tops. The frost killed off the growth. I had to go to the supermarket and buy my potatoes for Christmas dinner!



Similarly, against the advice of the others at the allotments, I planted out some early runner beans. Although I covered them with a fine mesh cloche it was not good enough against frost and cold air, and over one night all the plants turned brown.



But, it's not all bad news. I have managed to keep loads of produce going through the winter. Onions, planted in November, are coming on well, the bulbs are showing above the ground and they should be ready to harvest in May/June, when the tops start to fall over. Garlic planted in October is standing proud, also ready for harvesting in the next month or so.

Asparagus goes dormant over winter and comes back in April. It seems to grow about 200mm over night!

Cabbages 'like' a good frost, so they survived the winter, as did broad beans, leeks and spring onions.



As the weather has started to warm up, it's time to start planting. I have planted runner bean seeds in the ground, and some others as seedlings, started in my shed. These should give a broader period of harvesting in July. I have also planted pea seeds and seedlings, again to extend the harvest period.

I experimented with some sugarsnap peas that had gone past their use-by date in the back of the fridge! The 20 plants I managed to grow are in the soil now, and should bear fruit in a few weeks.



I learnt my lesson with the potatoes, so I have now planted a new crop, and covered the first to show with fleece. There are three sets of potatoes, first early, planted in January (underground when its frosty), should harvest around June. Second earlies went in during February and should harvest in August and main crop potatoes were planted in March and should harvest September/October.



I have started a small flower bed around my fruit trees, partly because I like flowers

and partly to attract pollinators. It is a nice thing to cut a bunch of flowers and take them home to brighten up the room on a winter's day.

The main job over the last couple of months has been getting the new plot ready for planting, which has taken a lot of digging and weeding. Now that things are planted, it should get easier. The weeds will have to fight for space with the plants and I can hunt them down more easily!

Watering is the big job now, nearly an hour at a time, every couple of days. But everything is looking good and folks at CLEAPSS benefit from the spare produce. So far this year it's only been rhubarb, but that will soon be changing.
















**If you want to get started on a school allotment, or just a windowbox, there is plenty of support available, feel free to contact CLEAPSS and get information from Dave, take a look at the summer Explore as that has an article on growing plants in schools, and take a look at the various campaigns that can support you.**

**The RHS has a school gardening campaign (<https://www.rhs.org.uk/get-involved/schools>) with loads of free resources and support for visits to RHS properties around the country. They have a facebook presence and twitter: @rhsschools If you want to keep up to date on the progress at the allotment follow us in Instagram: @parrys\_plot**

# CLEAPSS small print

## MRATs

Over the past term we have been developing a new format for the MRATs, which we hope will make them more immediately useful. At the recent DATA H&S conference, delegates were shown the proposed format and invited to comment on it, and make suggestions for improvements. The new-format MRATs, some of which will also have some updated information, should go live on the website later in the year.

<p><b>1.071</b> Related to: COSHH Regs</p>	<p><b>Wood working:</b> Dust</p>		<p>Applicable to: blockboard; hard wood; MDF; particle boards; plywood; soft wood</p>	<p>See also: L225 1.074 to 1.086</p>								
<p><b>Process(es) covered:</b> Hand operations do not usually produce large quantities of dust but machine operations often do. Operations such as checking dust control equipment and emptying dust bags are also covered.</p>												
<p><b>Labelling:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; text-align: center;"> <p><b>Harmful</b></p>  </td> <td style="width: 25%; text-align: center;"> <p><b>Sensitiser</b></p>  </td> <td style="width: 25%; text-align: center;"> <p><b>Dust Mask</b></p>  </td> <td style="width: 25%; text-align: center;"> <p><b>Eye Protection</b></p>  </td> </tr> </table>					<p><b>Harmful</b></p> 	<p><b>Sensitiser</b></p> 	<p><b>Dust Mask</b></p> 	<p><b>Eye Protection</b></p> 				
<p><b>Harmful</b></p> 	<p><b>Sensitiser</b></p> 	<p><b>Dust Mask</b></p> 	<p><b>Eye Protection</b></p> 									
<p><b>Control Measures:</b></p> <ul style="list-style-type: none"> <li>• So far as reasonably practicable, local exhaust ventilation <b>must be</b> provided to control the dust at its source.</li> <li>• Eye protection <b>must be worn at all times</b> when using machines</li> <li>• If staff may be exposed to high dust levels while checking dust control equipment or emptying dust collection bags, a dust mask to standard PFP1 <b>must be worn</b>. If the task is likely to take more than 15 minutes or if the dust comes largely from MDF, the mask should be to PFP3.</li> <li>• Regular cleaning using a dustless method (eg. an industrial vacuum cleaner) is needed to reduce background dust levels and prevent fire.</li> </ul>												
<p><b>Details of Dust Hazards</b></p> <ul style="list-style-type: none"> <li>• The hazards of wood dust are discussed in the HSE information Sheet W5 30: Toxic Woods. While hardwoods tend to give rise to more effects than softwoods, there is a large variation from one tree to another of the same species.</li> <li>• Any person, including a pupil, who suffers from any of the complaints below or suspects they may have been induced, should seek medical advice.</li> </ul>												
<p><b>Examples of the attributes of certain woods fall into the following categories:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"><b>Strongly allergenic</b></td> <td>Box, Mahogany, Iroko, Rosewood, Satinwood, Yew and Teak.</td> </tr> <tr> <td><b>Biologically active</b></td> <td>Larch, Pine, Cedar, Ebony, Sapele, African Mahogany and Poplar. Significant exposure could result in symptoms of rhinitis, asthma, dermatitis or eczema.</td> </tr> <tr> <td><b>Allergenic</b></td> <td>Chipboard, Blockboard and Plywood are manufactured using phenolic and amino resins and the resulting dust may cause allergic reactions in persons who have already been sensitised.</td> </tr> <tr> <td><b>Carcinogenic</b></td> <td>Hardwoods, particularly Oak and Beech, have been blamed for the very rare cancers observed in the furniture and cabinet-making industries. The much shorter exposure times in school workshops make the risks there extremely low.</td> </tr> </table>					<b>Strongly allergenic</b>	Box, Mahogany, Iroko, Rosewood, Satinwood, Yew and Teak.	<b>Biologically active</b>	Larch, Pine, Cedar, Ebony, Sapele, African Mahogany and Poplar. Significant exposure could result in symptoms of rhinitis, asthma, dermatitis or eczema.	<b>Allergenic</b>	Chipboard, Blockboard and Plywood are manufactured using phenolic and amino resins and the resulting dust may cause allergic reactions in persons who have already been sensitised.	<b>Carcinogenic</b>	Hardwoods, particularly Oak and Beech, have been blamed for the very rare cancers observed in the furniture and cabinet-making industries. The much shorter exposure times in school workshops make the risks there extremely low.
<b>Strongly allergenic</b>	Box, Mahogany, Iroko, Rosewood, Satinwood, Yew and Teak.											
<b>Biologically active</b>	Larch, Pine, Cedar, Ebony, Sapele, African Mahogany and Poplar. Significant exposure could result in symptoms of rhinitis, asthma, dermatitis or eczema.											
<b>Allergenic</b>	Chipboard, Blockboard and Plywood are manufactured using phenolic and amino resins and the resulting dust may cause allergic reactions in persons who have already been sensitised.											
<b>Carcinogenic</b>	Hardwoods, particularly Oak and Beech, have been blamed for the very rare cancers observed in the furniture and cabinet-making industries. The much shorter exposure times in school workshops make the risks there extremely low.											

<b>Risk Assessment</b>	
<b>Hazards:</b>	
<b>Dust</b>	Wood process dust is hazardous by inhalation. (See over for further details.)
<b>Flammable</b>	Sawdust is flammable.
<b>Risks:</b>	
<b>Dust</b>	Hard-wood and soft-wood dusts have a WEL of 5 mg/m <sup>3</sup> (8 h TWA) <sup>1</sup> . Wood dust irritates eyes and the respiratory tract. Exposure to wood dusts above the quoted limits can give rise to skin and lung disorders. Individual wood-working machines without extraction equipment have produced levels of 5 to 10 times the WEL during periods of use. Because of this limit, employers have the duty to keep the dust level so far below the limit as reasonably practicable. When considering individual employees' exposure to wood dust, the employer must <b>take into account</b> their exposure from all sources. For example, 30 minutes at the circular saw, 20 minutes at the planer, 10 x 2 minutes observing pupils at the sander and exposure to background levels throughout the day. The risk of cancer is extremely low. In general, extraction will be needed at machine saws of all types, sanding machines and any other type of wood working machine where fine dust is produced, including portable power tools.
<b>Flammable</b>	General dispersion of sawdust should be controlled. The design of dust collection equipment should be such that it does not increase the risk of fire and explosion.
<b>Further information:</b>	
<ul style="list-style-type: none"> <li>• Medium density fibreboard (MDF) uses a urea-formaldehyde resin as bonding agent and has been accused of producing hazardous fumes when worked. There is still <b>no evidence</b> that this is <b>true</b> but it <b>does</b> give rise to much fine dust which must be controlled. CLEAPSS document PS33, <i>Medium density fibreboard (MDF)</i>, gives up-to-date information. Note that hand sanding of MDF can produce large amounts of dust, which should be controlled.</li> <li>• Waterproof MDF (usually coloured green) presents the same hazards as ordinary MDF: it is treated to absorb less water and is so more suitable for use in kitchens and bathrooms.</li> <li>• Some people are allergic to the dust from any sort of timber and special measures may be needed.</li> <li>• Some employers prohibit the use of some or all tropical hardwood timber. Iroko dust has <b>particular problems</b>. D&amp;T departments may be offered old Iroko science bench worktops following refurbishment of laboratories. The general advice from CLEAPSS is that Iroko should not be used but if it is then no hand or machine sanding should be done by pupils and when being cut by machine the operator should wear a face mask to PFP3 whilst cutting is in progress. Teachers should check with their employer for any such restrictions.</li> </ul>	
<b>Local Exhaust Ventilation</b>	
<ul style="list-style-type: none"> <li>• CLEAPSS guide L225, <i>Local Exhaust Ventilation in Design and Technology</i>, gives details on the regulations covering LEV, ways of providing it, appropriate tests and sources.</li> </ul>	



## Polyurethane wood glue

It was brought to our attention, via a helpline query, that some schools have started using a polyurethane-based wood glue. There may be other types available, but the type we have come across is EVO-STIK Resin 'W' Polyurethane Wood Adhesive.

It took a bit of work to find the safety data sheet on this.

This adhesive has an isocyanate base, so care should be taken when using it. We would not recommend that pupils use this adhesive, as it can cause skin irritation, eye irritation and can be harmful if inhaled.

Anyone using this type of adhesive must read the instructions carefully and only use it with appropriate PPE, eye protection, disposable, chemical-resistant gloves, and use it in a well-ventilated area.

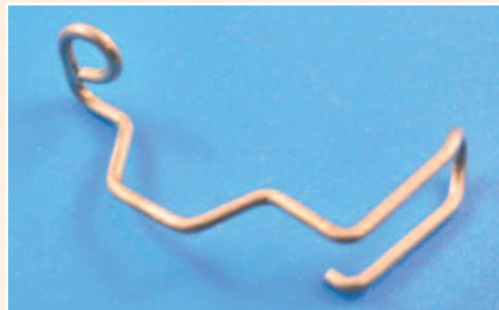


## Finger guards for sewing machines

Every year we hear about an incident in Textiles or Art where a pupil, or member of staff has sewn the needle into their own finger. Anecdotally it seems that this is happening more than it should, although we do not have any data on this. We would be interested to hear from schools where this has happened, so that we can build up a more detailed and realistic set of results.

However, in investigating one of these incidents, it was suggested that machines should be fitted with finger guards. HSE recommends that guards are fitted, however this is intended for industrial machines (which would normally be fitted with guards and other safety devices) whereas most schools use domestic machines. Some domestic machines come with finger guards, which should be fitted and used at all times. Where guards are not fitted, there may be after-market guards available that can be fitted to the machines.

We have started to look at the fitting of finger guards to domestic machines. There are a



number of versions available from various websites. Some fully enclose the needle area, while others have a piece of robust wire that wraps around the needle. Fully enclosing the needle has the added benefit of providing eye protection.

In the revised MRATs we will recommend that finger guards are provided where the risk assessment demands it, where there is the possibility of the user running the needle through their own finger.

Not all domestic machines will take all types of guard, so if you are seeking to purchase guards, you will need to check with the manufacturer for suitability.



In practice it seems that some of these injuries occur when the finger slips under the presser foot or the presser foot is raised. No guarding will stop this, as the presser foot is, in effect, a guard. It appears that reminding pupils to take their foot off the foot pedal, when manoeuvring materials with the presser foot up, is an essential aspect of avoiding such injuries.

## Briwax

Since the last revision of the MRATs, we have come across some resources where the Safety Data Sheets (SDS) have been updated in line with changes in regulations.

One such resource, commonly found in D&T departments, is Briwax. If you have purchased any recently, you may have noticed that some versions carry a warning: **Suspected of damaging the unborn child**. This is because it contains Toluene. Where Briwax is still in use, we recommend that all users check the ingredients and where toluene is present, wear disposable, chemical-resistant gloves. If you are unsure, treat it as containing toluene. However, in schools and colleges it may not always be possible to know when staff or pupils are pregnant, we therefore recommend that an alternative finishing wax should be used, one that does not contain Toluene.

Briwax itself does produce such a product, named simply 'Briwax – Toluene Free'.



## Welding

In January 2019, HSE released new guidance on the control of fumes in steel welding:

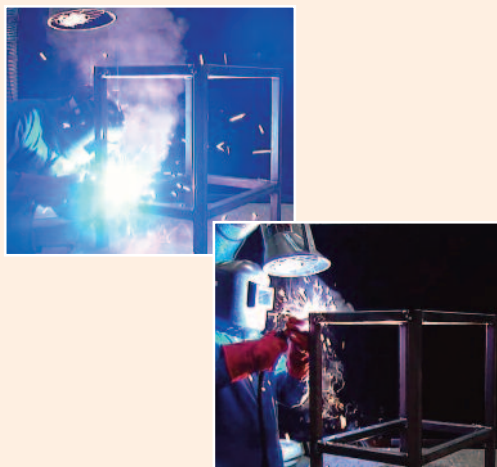
- There is new scientific evidence that exposure to all welding fume, including mild steel welding fume, can cause lung cancer.
- There is also limited evidence linked to kidney cancer.
- There is a change in HSE enforcement expectations in relation to the control of exposure of welding fume, including that from mild steel welding.
- All businesses undertaking welding activities should ensure effective engineering controls are provided and correctly used to control fume arising from those welding activities.
- Where engineering controls are not adequate to control all fume exposure, adequate and suitable respiratory protective equipment (RPE) is required to control risk from the residual fume.



We have produced two new documents dealing with welding in schools and colleges:

1. Managing welding fumes in schools and colleges
2. Using a welding facility in schools and colleges

These are both available from the website and will help staff understand the latest recommendations and work safely in this area.



## Routers fitted to router tables

Over the past few years we have carried out lots of safety audits, looking at D&T and Art departments. In many of these we have come across hand-held routers clamped into tables. BS4163 states:

*A portable routing machine may be turned over and fitted to a proprietary purpose-made table and designed for intensive use to act as a small spindle-moulding machine using one-piece cutters. In this mode of working, the portable router should only be used by an employee, who should be a competent person specifically trained in its use, or by learners assessed as competent under the direct supervision of a competent person specifically trained in the use of the machine. The cutter should be guarded at all times when in use.*

*A push button no-volt and overload starting switch should be in place. In this mode, the machine should be controlled by a starter incorporating overload protection and no volt release and a conveniently positioned, emergency stop switches (which could be the normal "off" switch) or other suitable control device that can quickly stop the machine in an emergency.*

*A push stick or push blocks, and anti-kickback devices should be used where the risk assessment shows that they are required.*

**Homemade router tables should not be used in any educational establishment.**

If you have a hand-held router, and intend to use it as a spindle moulder, you must meet the criteria above, and have suitable and effective LEV where dust is a potential hazard.

If you are unsure whether your arrangement is safe to use, contact CLEAPSS via the helpline.





# Some recent tweets



If you are interested in a short starter for what has been #3Dprinted take a look at the MS technology page: [msn.com/en-gb/money/te...](http://msn.com/en-gb/money/te...)

Valuable H&S update from Dave Parry of @CLEAPSS during @DTassoc H&S conference



Post in school with the CLEAPSS triangle should be circulated across D&T and Science, as there are often shared messages.

The autumn edition of *Futureminds* will have a review of the *Futureminds Live* event, and ideas for the next event.

It will also carry articles from the Food Teachers Centre and Textiles Skills Academy discussing the latest developments in those areas. We are hoping to have some updates from DATA and others on the progress with the new GCSE and other changes in the curriculum.

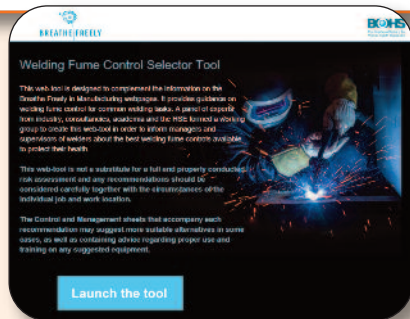
Great to see CLEAPSS mentioned in the @H\_S\_E Annual Science report for our joint work into 3D printer emission controls. See Page 47 on the report here : [hse.gov.uk/research/conte...](http://hse.gov.uk/research/conte...)

More updates to model risk assessments, to reflect the latest #HSE guidance on welding, see the short article in #futureminds page 19: [dt.cleapss.org.uk/Resource/Futur...](http://dt.cleapss.org.uk/Resource/Futur...)



35 updated model risk assessments, anything that refers to dust masks have been updated to suggest you look at the RPE document: [dt.cleapss.org.uk/Resource/GL310...](http://dt.cleapss.org.uk/Resource/GL310...)

Don't forget you will need the latest login and password for the CLEAPSS website to be able to access the materials, you should already have this in school, but if you are having difficulties, contact us 01895 251496, or via the website: [www.cleapss.org.uk](http://www.cleapss.org.uk)



At #hseconnect today, video welcome from the minister

When I heard there was a pi shop I was expecting pastry, but this is an interesting move, a #RaspberryPi high street store in #Cambridge great #DT discussion and place to go. [bbc.co.uk/news/av/uk-eng...](http://bbc.co.uk/news/av/uk-eng...)



You can also follow us on twitter @CLEAPSS\_DT

You can also follow Daves allotment progress on Instagram @parrys\_plot



#CLEAPSS guidance mentioned in report on #3dprinting from #kora on [edtechnology.co.uk/Blog/3d-printi...](http://edtechnology.co.uk/Blog/3d-printi...)



Using #LEGO to make a prosthetic arm, a real problem and a neat solution, great #dt starter. [news.sky.com/video/david-wa...](http://news.sky.com/video/david-wa...)