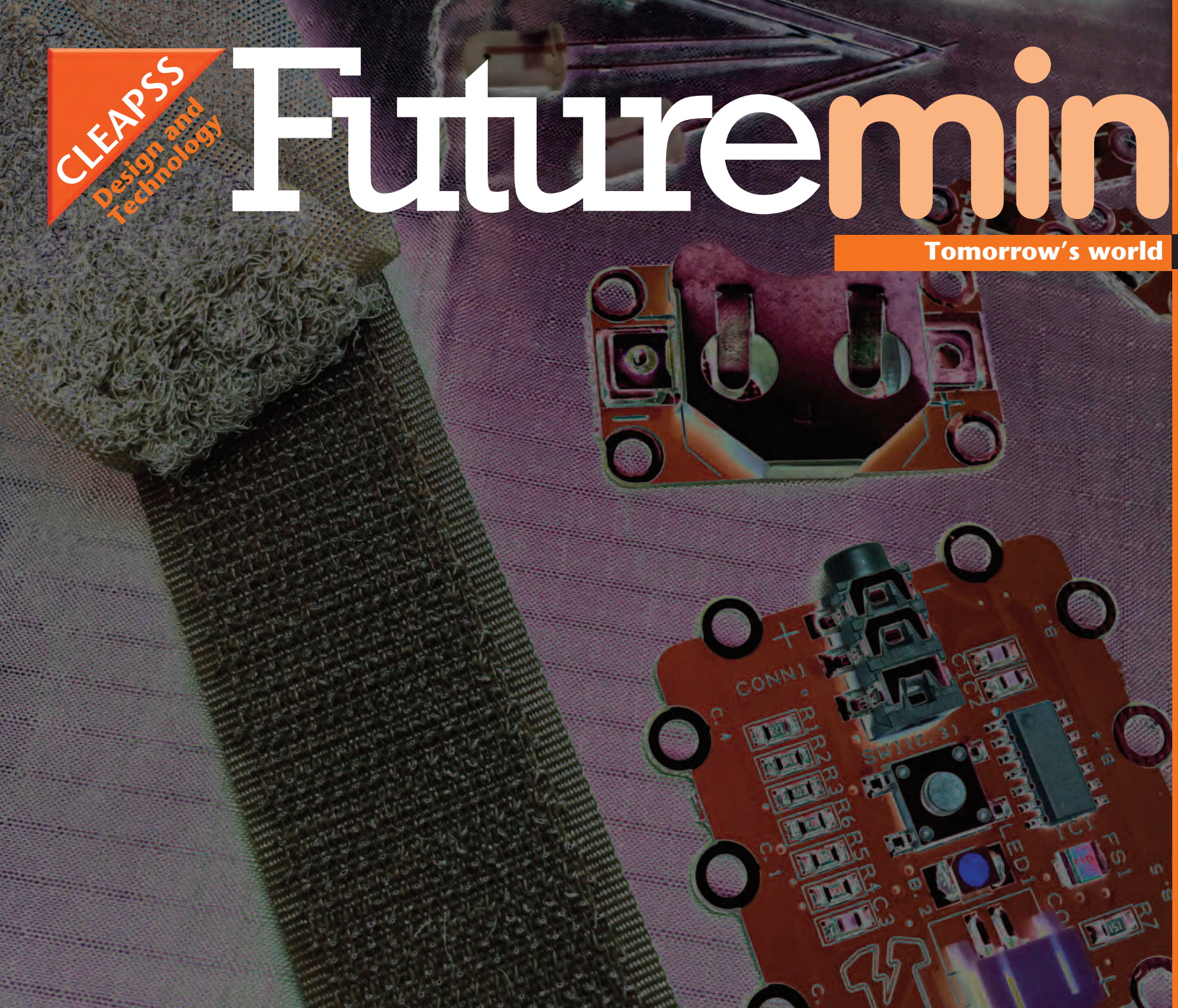
CLEAPSS Design and Technology

Futureminds

Tomorrow's world explored today



Spring 2016

CLEAPSS D&T e-newsletter

Introduction

CLEAPSS is the national advisory service for advice and support for health and safety in science and technology for local authorities and other employer organisations and their schools and colleges.

We have been providing this service in various guises since 1963, and over recent years D&T support has grown considerably. We were involved in the writing of the British Standard, BS4163:2014, including the latest version which is available from the BSi website. We also work with various national bodies and organisations, such as awarding bodies and publishers, to help ensure that schools and their staff are given consistent, useful practical and health and safety advice.

Over the past year we have run courses across the country, covering a range of health and safety topics, for D&T teachers and technicians. These include:

- **Health and Safety Management for Heads of D&T**
- **The Safe and Effective D&T Technician**
- **D&T Workshop Maintenance**
- **Auditing H+S in D&T**
- **Assessing and Managing Risk in Primary D&T**

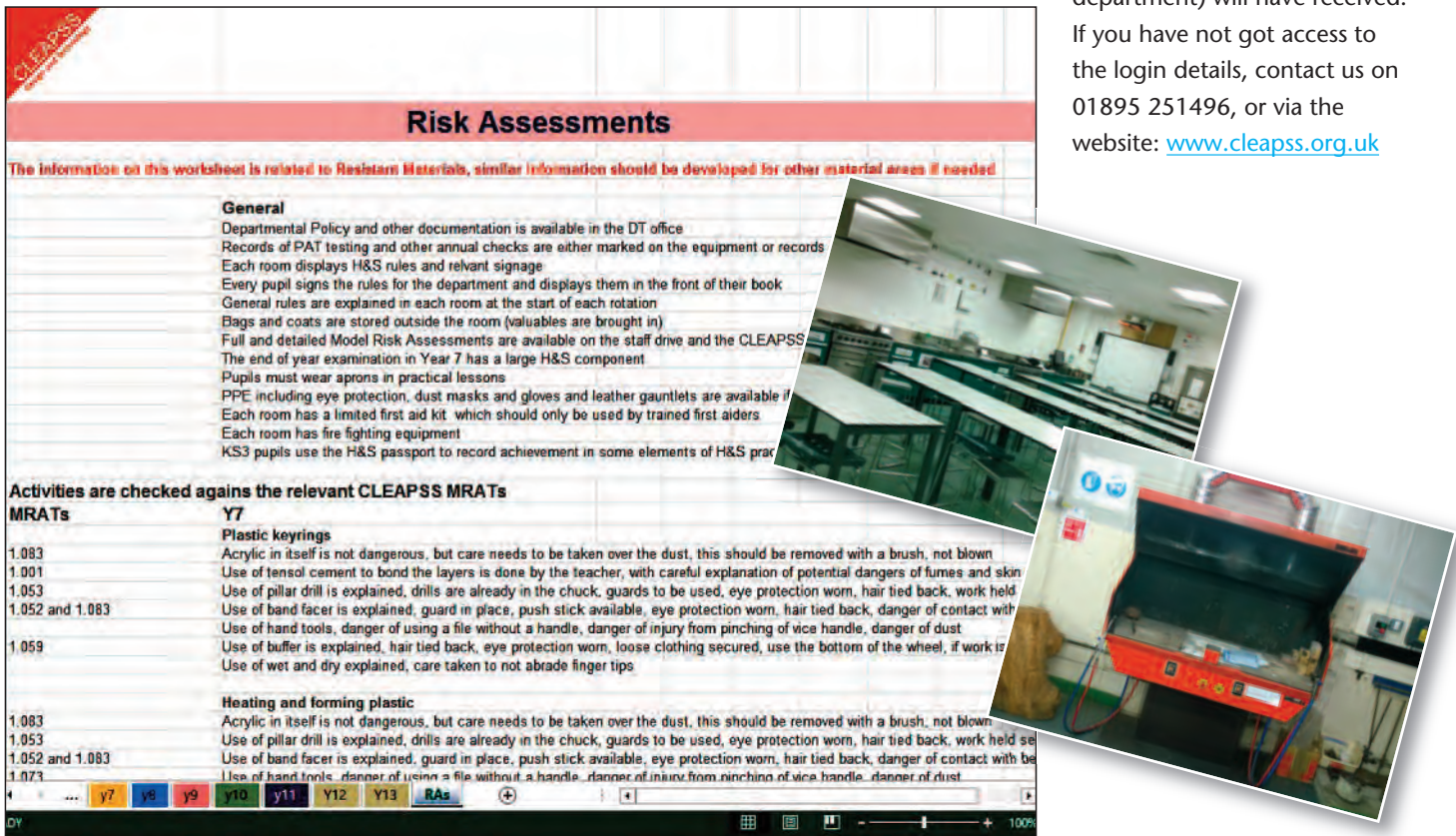
We also work closely with local authority safety officers and have run a number of training events to help them carry out audits of both D&T and science in their schools.

We have also undertaken audits of D&T facilities in around 30 school. In most cases these were arranged with the individual school, but in some they were arranged by the local authority or academy trust. An audit is usually takes a day. We spend 2 or 3 hours in the department, talking to staff, going through any health and safety documentation, and checking the facilities. Photographs are taken of items of particular interest or concern.

Following the visit we provide a report which includes recommendations, which are often illustrated within the photographs section. Following checking at CLEAPSS the report is emailed to the school and, where appropriate, to the employer, with the suggestion that the recommendations are used to develop an action plan.

CLEAPSS also develops and produces a wide range of documents and other supporting materials which are available to members from the website. These include guides to support staff in carrying out their duties as well as documents that can help teachers to record their work or the progress of their students. One such document is the *Health and Safety Passport* developed to record pupils' progress in the safe use of equipment and facilities in D&T. Another popular resource is E171 *Using Model Risk Assessments in D&T*, which is a spreadsheet that can be used to plan and record lessons and schemes of work as well as recording risk assessment materials.

All of the CLEAPSS resources can be found on our website. To access them you will need to sign in using the login and password that your school (possibly the science department) will have received. If you have not got access to the login details, contact us on 01895 251496, or via the website: www.cleapss.org.uk



CLEAPSS Courses

We have recently trialled a new 1-day course for DT departments. This is designed to be delivered in school to the whole department, including the head of department, teachers and technicians.

The course has three sections. The first considers the legal requirements for school D&T and good practice seen in school visits and audits around the UK. The second explores the use of Model Risk Assessments and detailed consideration of department equipment and processes and how they are enhanced through safe working practices. The final, afternoon, session is practical, giving staff the opportunity to work together, along with the trainer, to practice a skill or use a piece of equipment.

Our courses are designed to be delivered in the delegates own schools using the equipment in the DT rooms. We need a teaching space for the first session, with a projector. For the rest of the day we will need access to the practical areas so that delegates can look at the equipment and machines and use them to practice their skills.

The course aims

- By the end of the day delegates will be confident in being able to assess risk prior to embarking upon a planned practical activity. This assessment will involve an awareness of the hazards associated with the use of equipment in the D&T workshops.
- Delegates will learn about support available from CLEAPSS and where to go when guidance is needed.
- Delegates will learn the safe operation procedures for each piece of fixed equipment in the workshop, and will have gone through a risk assessment process for each machine.
- Delegates will have had the opportunity to practice using the machines under close supervision.

This course satisfies the requirements for staff to have refresher training every 5 years. It will provide an opportunity to develop team working and ongoing mutual CPD for D&T teachers and technicians.

The bespoke nature of this training will be enhanced by carrying out a safety audit prior to the course, so that the trainer can focus on the particular needs of the school. This could be a self-audit, supported by CLEAPSS Guide G79 or you can arrange for CLEAPSS to visit the department and carry out an audit for you. Please note that there will be a separate charge for the latter option. Irrespective of whether an audit has been conducted or not we always adjust the course to make it appropriate to the facilities and practices that are in place in the host school. This approach has proved really successful with staff appreciating the programme.

One aspect that is fundamental to the success of this course is the concept of working together to develop confidence. The schools that have hosted the courses so far have commented that the day was an excellent teambuilding activity as well as a health and safety course.

We are further developing our training to include more machine-based activity, with particular emphasis on the role of the teacher in using workshop equipment and the role of the technician in using prep room equipment and maintaining workshop equipment.

If you are interested in hosting one of our courses we would love to hear from you – either email us or give us a ring.

If you wish to carry out a self-audit, G79 *Auditing H&S in a Secondary School D&T Department* (available from the website) has the information you need to carry this out. If you could send CLEAPSS the outcome from this prior to the training it will help the trainer to construct the day to better meet your requirements.

IsoSketch; ‘low risk high reward’

By Mark Wemyss-Holden of The Drawing Tool Company

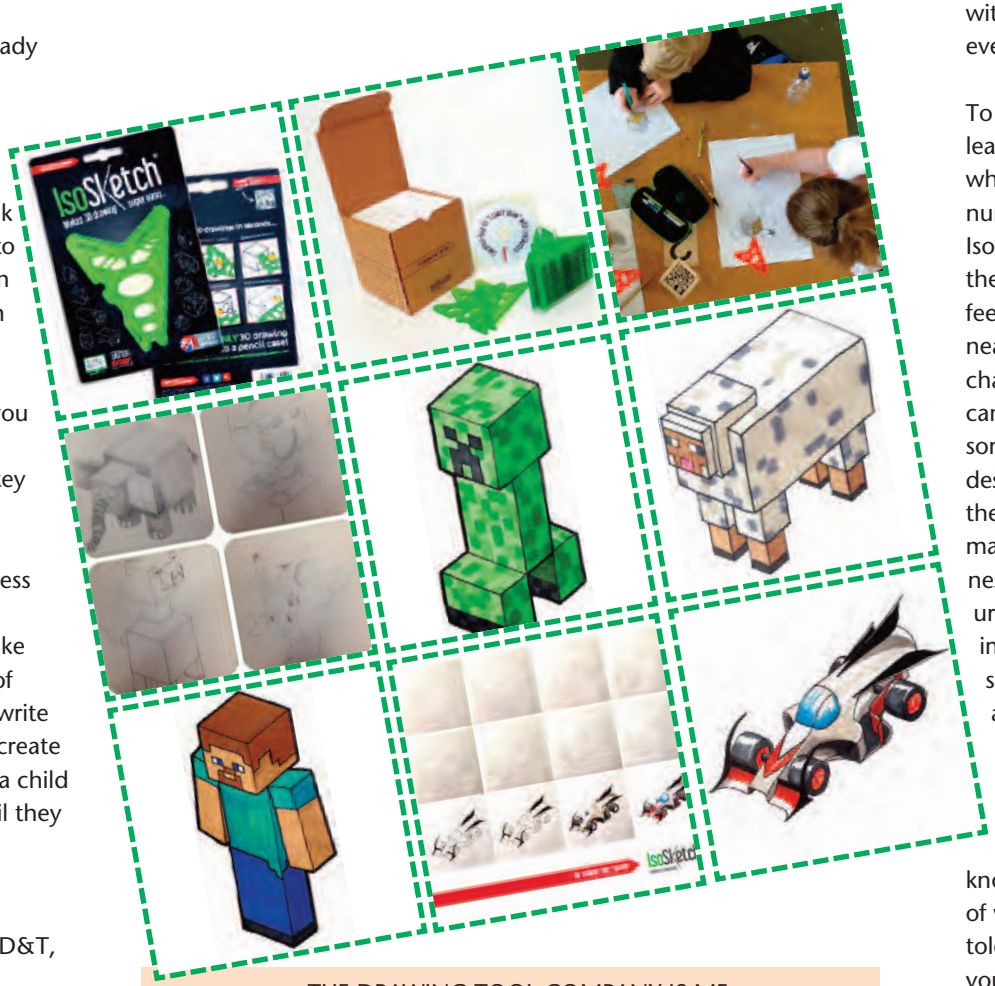
Getting children to think like designers is the most important skill to learn in early years. Tools and processes can always be learned later on in bigger, fully equipped workshops with specialist support staff. What can’t be taught quite as easily at secondary schools is the thought process that leads to the creation of really interesting ideas. That’s what getting secondary-ready for D&T really means.

A study in the USA showed that 98% of children aged 5 were capable of passing a creative thinking test at genius level. After 5 years the number shrank to 32% and by 15, just 10% possessed the ability to think ‘outside the box’. This was attributed to them being increasingly ‘educated’ whereby a set of firm rules and limitations had been instilled on their imaginative thinking skills. The point is simple – encourage creativity and let the message be “yes you can!” rather than the other way around. It’s so important to instil the belief that imagination is a key skill, not a distraction.

One crucial bridge to overcome in the design process can quite often be the difficulties pupils find with grasping 2D and 3D drawing. Learning to ride a bike becomes a much more accessible task with a pair of stabilisers, much in the same way that learning to write requires templates and guidelines to learn how to create the shapes of different letters. You wouldn’t teach a child to write by just telling them to keep practising until they got the hang of it.

That is where IsoSketch comes in. Developed in a Manchester school as a universal sketching aid for D&T, the teacher-designed tool supports the learning of proper 3D drawing. By using the tools alongside a series of free video tutorials featured on The Drawing Tool Company website, pupils can independently learn the basics of 3D drawing with their stabilisers on. As the teacher, you can use these videos with your whole class or send pupils away with their own tool, a tablet and a QR code to follow the video at their own pace. Crucially, no specialist knowledge is needed to teach with IsoSketch – think of it like a one-to-one tutor with every single pupil.

Proper Design & Technology in Primary schools needn’t mean expensive, heavy, potentially dangerous equipment and resources. In fact many aspects of great D&T can be delivered sat at tables, outside or on the floor. The design process has many different faces, just one of which is manufacturing.



To further reinforce the support, a set of printable learning resources is supplied with the Classpack, which consists of 30 IsoSketch drawing tools, a handy numbered stacker and storage case. In D&T terms, an IsoSketch activity is about as low-risk as they come with the main benefit being that every pupil will find their feet on the ladder of believing “I CAN draw”. Some neat applications for IsoSketch are creating Minecraft characters, or more simply a blockhead character that can then be easily turned into a practical session with some pre-cut wooden cubes and string. Have them design a wacky racer and make a balloon drag car from the resulting design, create bird box designs and manufacture a series of simple bird boxes to observe nesting. This could lead on to the subject of urbanisation, extinction, the food chain, human impact on the environment and more. Ultimately, sketching is a fundamental part of any design project and should be focussed upon early in your pupils’ journey.

Instead of them turning up in Year 7 with the usual cries of “I can’t draw”, how great would it be to know that their new D&T teachers were hearing tales of what they designed and tested at primary school, told with enthusiasm and beaming grins. Whatever your approach to D&T, IsoSketch is an essential addition to your arsenal and a hugely effective way of getting your pupils secondary-ready.

THE DRAWING TOOL COMPANY IS ME,
MARK WEMYSS-HOLDEN AND A FEW GOOD FRIENDS.
THE DRAWING TOOL COMPANY
www.thedrawingtoolcompany.com

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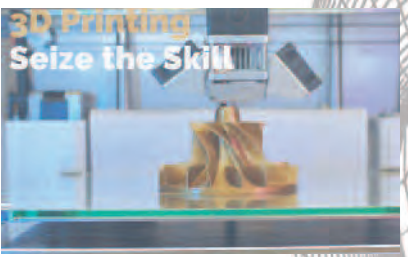
Designing for 3D

By Dr Achilleas Sesis of 4Delta

3D Printing:
Not a Hype but a Technical Skill

3D printing is experiencing an, almost exponential growth, both in machine technology and printing materials. This serves as a catalyst for the simultaneous development in services and applications, where currently it has infiltrated almost every product-making activity of our societies. Some of the prototype ideas include printed culinary edibles, full-scale houses, components for the transport and manufacturing industry, wearable arts and medical parts. Perhaps an interesting fact is the affordability of this manufacturing tool, where current desktop system can be purchased for as low as few hundred pound (£).



Desktop 3D printing, is now widely available in schools and typically used in homes by those for whom technology is a hobby. As a result numerous interactive websites have sprung up, offering designs to be readily printed. This is great, but I want you to take a step back and think. The beauty of 3D printing lies in the ability to design and build our own ideas. While the technology is rapidly moving, a fundamental element so often overseen is the ability to design. Essentially desktop 3D printing was pioneered to enable the creator within you and your students.

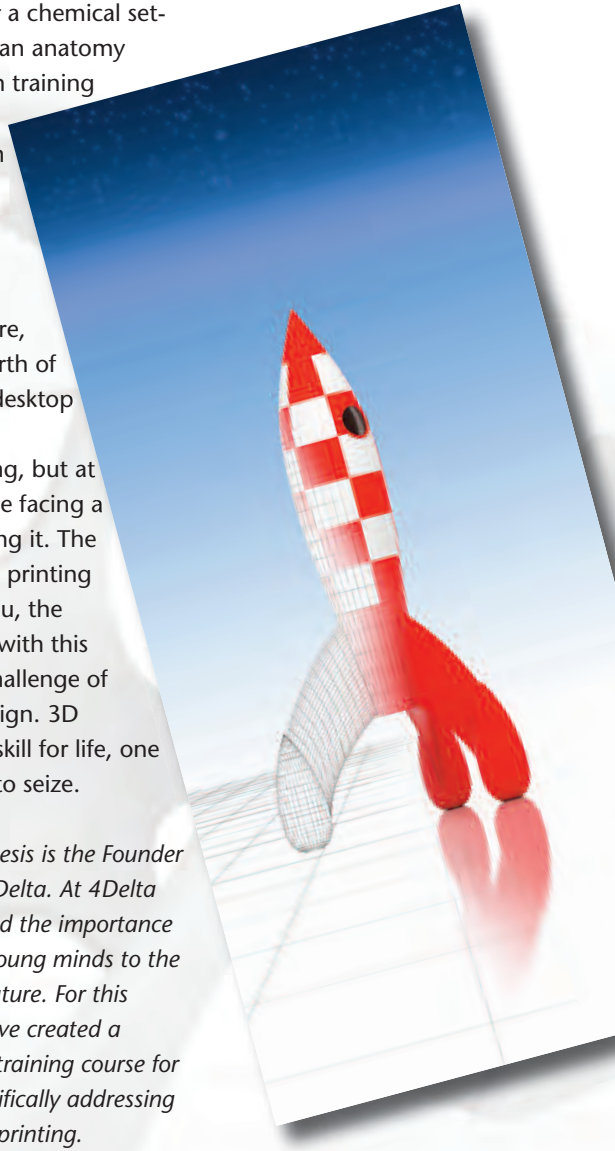
A fundamental prerequisite to be an independent 3D printing maker requires you to be a computer aided design (CAD) software user. This is a technical skill typically associated with product designers and all the types of engineering. Files produced through the use of those software are exported in a format that a 3D printer can understand. This basic requirement for the use of 3D printers has often been overshadowed by enthusiasm for their potential applications. As a result, we start seeing the first signs of nullifying its benefits, with perhaps the most visible being the repetition of printed parts. Does the image of another chess piece haunt you? Does this sound worrying? Unfortunately it should, if those first signs are left to become a trend then we are in danger of derailing the drive towards the creation of skilful pupils, a matter often discussed and brought to the top of the agenda in decision-making bodies. We must not forget one of the key principals of education is to create independent thinkers/makers, and as you strive to enhance the independent spirit of your pupil, why should you allow it to happen in this case?

More importantly and pertinent in education, where the boundaries between teaching topics can be easily bridged, 3D printing has the potential to go beyond the narrative of the Design and Technology curriculum. Students from all subjects can participate in the making of things, such as copies of archaeological artefacts for a history debate, wind tunnel test pieces for an aerodynamic project, part making for an electronics housing, props for an art performance, support structures for a chemical set-up, parts for an anatomy study or even training aid for students with impairments. The list is endless.

So here we are, seeing the birth of widespread desktop complex manufacturing, but at the same time facing a threat of losing it. The beauty of 3D printing lies within you, the creator, and with this comes the challenge of technical design. 3D printing is a skill for life, one for students to seize.

Dr Achilleas Sesis is the Founder and MD of 4Delta. At 4Delta we understand the importance of exposing young minds to the tools of the future. For this reason we have created a Cloud-based training course for students specifically addressing CAD and 3D printing.

For more information please visit our website at:
http://education.4delta.co.uk
or email us at
education@4delta.co.uk



By Julian Davis of HME Technology

HME has been supporting schools in the subject of Design and Technology (D&T) since 1985. A family owned business situated in the heart of the country, which manufactures heat treatment and the Union range of finishing equipment at its factory in Worcestershire.

HME has always made health and safety its top priority, when designing and supplying equipment and full workshops for education. To this end the staff at HME have been comprehensibly trained through the National Examination Board in Occupational Safety and Health, British Occupational Hygiene Society (P601), Gas Safe, and have attended CLEAPSS and DATA training.

In the 30 years HME has been supporting D&T, as standards and techniques have changed, it has had to change to ensure our users remain safe,. This has been particularly important over the last 4 years where D&T has been subject to drastic changes to its core status on the curriculum, and the future developments of new GCSEs and A Levels.

HME, through its Chairman Martyn Hale, has lobbied Parliament to ensure D&T maintains its status, and has helped to encourage support from Red Bull Racing, The Dyson Foundation, DATA and many others.

HME Technology in partnership with the Birmingham Innovation Fund and with the support of local MPs , DATA, BESA, and CLEAPSS has opened a dedicated workshop training facility, where D&T teachers can be trained and pass on their knowledge to their peers. Training courses on woodworking, metalworking, heat treatment and CNC machinery are catered for, along with the Core Training on health and safety in D&T.

HME, with its New Training Centre, is now in a position to start to champion the new D&T National Curriculum programme and support the new qualifications with a range of services, alongside the machinery and equipment servicing and installation. HME will be supporting D&T teachers even further by releasing up to 15 teacher task sheets to support teachers in using their creativity and professional judgment to plan and teach successful D&T and Engineering projects. These task sheets will also:

- *support schools to cover aspects of the national curriculum 2014*
- *develop schools use of health and safety documentation, risk assessments and COSHH, based on British Standard BS4163 (2014)*
- *focus on learning outcomes in D&T and engineering so that learners in schools, colleges and academies are able to design, make, and evaluate functional products for specific users and purposes.*

The importance of D&T cannot be overstated as if delivers STEM practically – the key to productinve employment through engineering.

This completes the circle of support which HME provides for D&T teachers; from design, manufacture, supply, servicing, refurbishment and maintenance contracts (of machinery and local exhaust ventilation), through to supporting the curriculum and new qualifications to ensure that teachers, technicians and pupils can access this exciting and engaging subject.

For further information contact HME on 01527 83900 or email contact@hme-tech.com

Over the past couple of years we, at CLEAPSS, have been developing a variety of aspects of D&T and STEM activity and this year we have engaged with a couple of schools to support them in entering the Greenpower racing challenge.

We have started a blog to record how things progress over the year, from a start of no equipment, no vehicles and no teams, to a point where we are hoping that the schools will be able to compete in the national events. Please take a look and leave comments
cleapssracing.wordpress.com

GREENPOWER RACING CHALLENGE

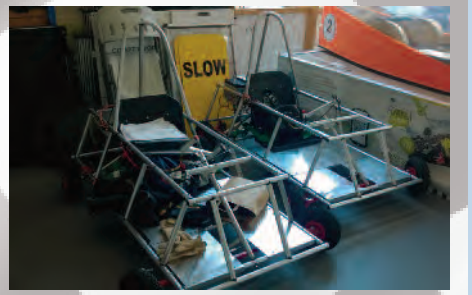
Our role in this project is to provide advice and guidance, as well as the purchasing of the kits for the base vehicles. We hope the schools will get excellent engagement and enrichment activities from taking part in the competition, whilst we will have the opportunity to develop support materials that can be used by other schools hoping to deliver similar activities.

Dave visited the Greenpower office in west Sussex to arrange the ordering of the kits and to meet with Laura Horsfall – what an inspiring young lady; She started racing Greenpower cars as a teenager in Tendring College and went on to win at national finals. When she left college she was able to secure a job with Greenpower and is now the 11-25 Project Manager. It just goes to show that having an opportunity like this can open doors and change a young persons life. Laura loves her job and was really helpful, not only in ordering the kits, but in providing help, support and guidance (and some freebies).

Martin Nicholson D&T Head of Department at Ashlyns has secured a space in an old store room that he will have converted ready for the kit to arrive.

Jeremy Reading Head of Science at Presdales has purchased a shed and its sitting waiting for the chassis to arrive.

Although these two schools will be competing against each other, we hope they will be able to bounce ideas off each other and share experiences.



CLEAPSS Microcomputer Competition
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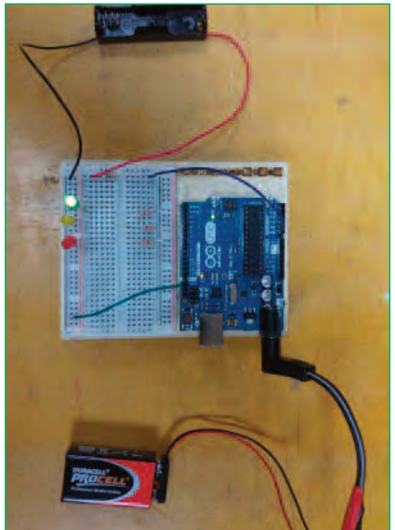
Following on from the success of the CLEAPSS annual primary competition we launched our 'Microcontroller Competition' at ASE and BETT in January. The competition is open to students in CLEAPSS member secondary schools and colleges...

The brief:
Students are to design and build an electronic device with uses a microprocessor or microcontroller such as Arduino, Raspberry Pi, BBC Microbit, or another type, not listed.

Entries will be expected to submit a PowerPoint presentation of their work illustrating the problem they have tackled, how successful their outcome has been and an example of it working.

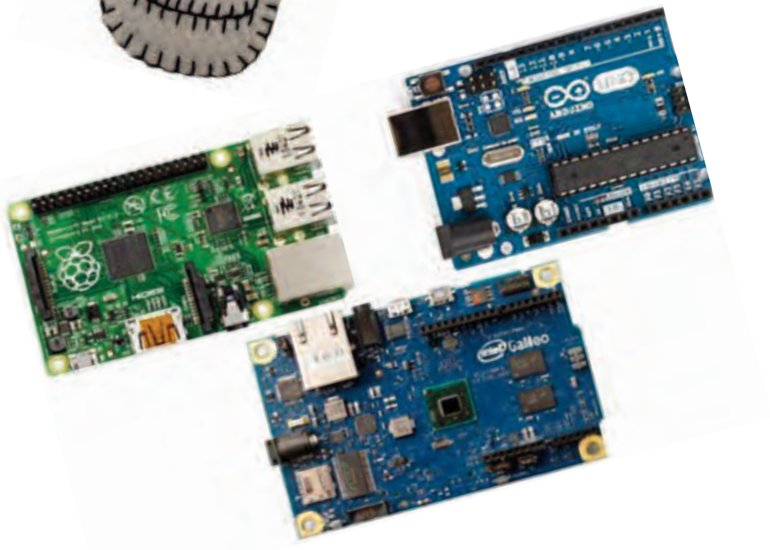


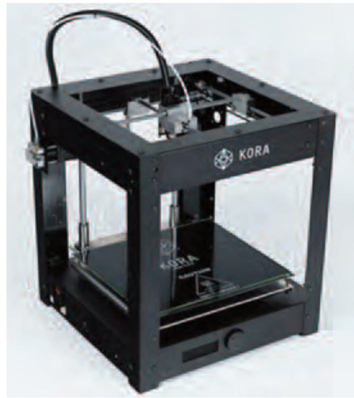
Criteria for judging will include:

- Uniqueness of device
- Balancing a complexity of device with efficient use of resources
- Success in solving a real world problem
- The layout and content of the PowerPoint file.

You can find more details on the website, but get in touch if you have any queries. This is a great opportunity to promote STEM subjects within school and may be best suited to lunchtime/after school STEM clubs. The competition is open to all ages, as either group or individual entries.

Prizes include a 3D printer from Kora www.kora.co.uk, software from Techsoft www.techsoft.co.uk and e-textiles packs from Julie Boyd www.julieboyd.co.uk. Judging will be in July with prizes being awarded soon after.
The winning entries will be exhibited at next years' ASE and BETT.





Food Preparation and Nutrition GCSE

Over the past year the Awarding Bodies have developed specifications for this new GCSE for first teaching from September 2016.

At a recent conference organised by the Food Teachers Centre in the University of East London in October, the Awarding Bodies presented their specifications and outlined the content and support that they were offering schools.

http://foodteacherscentre.co.uk/

The well-organised conference (200 delegates) also provided lots of information for teachers to consider over the next two terms, in preparation for beginning this new GCSE in September. The Food Teachers Centre has produced a range of really useful documents, including a comparison across the Awarding Bodies and a review of the alternative courses such as the VCerts offered by AQA and others.

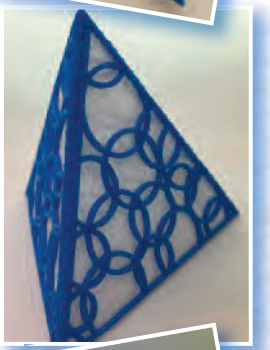
Some potential users of this course have raised concerns over the assessment process; a practical investigation and a timed practical examination. One point was over the impact of class size on the practical examination. Some of us remember previous instances of managing a group of pupils doing such an exercise.

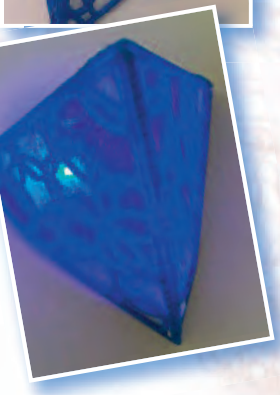
On our website you will find guidance on class size, and we would be interested to hear about assessment arrangements that schools are planning or considering. We also have guidance and Model Risk Assessments for Working with Food so when you are planning your teaching programmes it may be worth taking a look at the CLEAPSS materials to ensure that you continue to work safely.

Over the coming months we plan to attend a number of courses and conferences exploring developments in D&T at GCSE and A Level. Look out for reports in the CLEAPSS D&T e-newsletter.

TEXTILES

But not as you know it!





Changes in D&T at KS3, 4 and 5 mean some teachers, including Heads of Department and curriculum managers, feel uncertain about where textiles fits in, even though it's clearly referenced at both KS3 and 4, has its own qualification at KS5, as well as being part of the new KS5 Product Design specification. The wider focus of the new curriculum means non textiles teachers have dismissed references to timber and metals as irrelevant to textiles, and textiles teachers have seen these references, along with keywords like electronics, thermoforming and ferrous, as scary, and not the textiles curriculum they are used to.

The reality is, however, that 21st Century textiles is more linked to these concepts than we might think and many textiles teachers are teaching these areas without realising it. Take the concept of thermoforming polymers, for example. These may seem alien to textiles teachers but most teach about thermoplastic properties of polyester and nylon, for example, when teaching techniques such as permanent pleats, and many use the thermoplastic properties of plastic carrier bags, melting them together to make non woven materials for a range of products.

As well as these activities using the concept of thermoforming, carrier bags are made of polyethylene, which along with polypropylene, are members of the polyolefin family and both are thermoforming. Well known by RM teachers, but less familiar in textiles, these are both listed on the A Level Product Design Textiles specification taught since 2009, and are used for things such as Aeroskin competitive swimsuits http://goo.gl/0b4xsb and Helly Hansen's sports product base layer fabrics http://goo.gl/LzUvfF

So it turns out that there isn't as much difference between textiles and non textiles materials after all. But what about references to wood and metal in the new curriculum, surely these can't be linked to textiles?
Well, what about bamboo, which is used as both a wood and a fibre? And don't forget wood pulp is the source for many regenerated textiles fibres such as viscose (just like MDF). As for metals, Tacott is a stainless steel and brass knitted fabric with uses from architecture to fashion http://goo.gl/zTnEzU. And then there's conductive fabrics and threads used for e-textiles and X-Static silver coated yarns and fabrics used to enhance anti microbial protection http://goo.gl/mdhjIo.

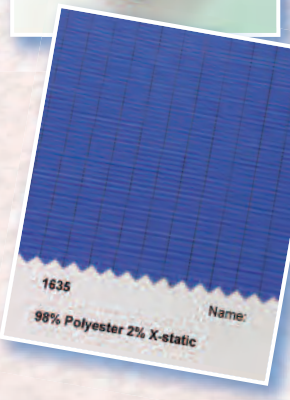
As well as the new GCSE opening up opportunities to think about materials differently students also have the chance to work with new equipment and ideas. Some textiles students make buttons and embellishments from non textiles materials, and whilst they might get limited marks for this, especially if they use CAD/CAM, time is often better used elsewhere as marking criteria focuses on the use of textiles materials.

The new GCSE still allows a focus on traditional areas of textiles, but the option to use less traditional textiles materials, along with the possibility of combining textiles and non materials, opens up exciting possibilities. Think of high street stores that retail garments and jewellery as one item, or lighting products that combine hard and soft materials.

Textiles has changed and running alongside the traditional elements are exciting developments and a blurring of material areas (oh, and by the way it isn't the dying industry many say it is, but that's something for a different article!). The wider focus enables students to combine materials and ideas in ways they haven't before, as well as reflecting design in the real world. It offers the opportunity to embrace new ideas and textiles will play a key role in this and in moving D&T forward in the future.

Visit Julie Boyd's website for D&T teachers for information on courses, competitions, free resources and much more www.julieboyd.co.uk
To sign up for a free weekly D&T newsletter email Julie Boyd julie@julieboyd.co.uk

Follow Julie Boyd on Twitter & Facebook @julieboydonline



Safe use of knives in the kitchen

The HSE provides guidance on all things related to safe working practices and has a specific page on the safe use of knives in a kitchen environment.

http://www.hse.gov.uk/catering/knives.htm

Accidents involving knives are common in the catering industry. They usually involve cuts to the non-knife hand and fingers. In teaching food-related subjects, it is important that teachers stress the need for pupils, and others, to work safely with knives.

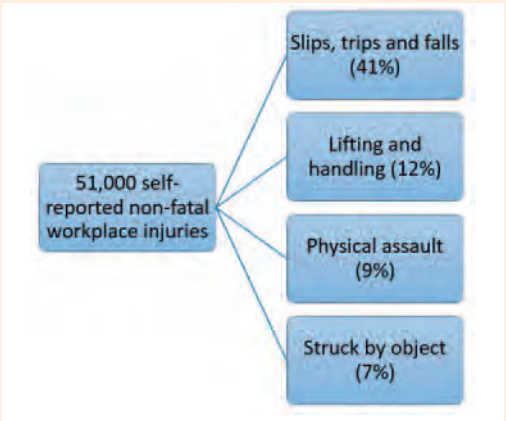
Some tips from the HSE pages. Although these are written as for employees, it is expected that these tips will guide any training, including that in schools.

- Train employees (pupils) in the safe use of knives and safe working practices when sharpening them
- Use a knife suitable for the task and for the food you are cutting
- Keep knives sharp
- Cut on a stable surface
- Handle knives carefully when washing up
- Carry a knife with the blade pointing downwards
- Store knives securely after use
- Use protective equipment as required

Similar advice would be good practice in the use of scalpels and craft knives.

Health and safety responsibility

Working in the Education sector is a relatively safe occupation, but it is important that all staff are aware of their responsibilities for keeping themselves, their colleagues and others safe in the workplace.



In the education sector 4% of workers suffer from an illness they believe to be work related and 2% have sustained a work related injury. This led to 1.6 million working days lost during the year 2014/15

All CLEAPSS training includes a brief analysis of the statistics related to working in schools.

In a recent blog post from Judith Hackitt (the Chair of the HSE)

http://www.hse.gov.uk/news/judith-risk-assessment/index.htm

she describes a role play situation, in which a HSE inspector is interviewing the supervisor of a member of staff who has been injured. When asked if the supervisor had considered the risks involved in the job the member of staff was undertaking when the incident occurred, the supervisors response was 'that's not my job'. The term 'not my responsibility' is often used when investigations are taking place, however, H&S is everybody's responsibility. If you are a manager or supervisor, you need to make sure that you have considered the risks that other staff may face in their duties as well as the risks faced by pupils in your care, or others that may be effected by your work.

Queries from the CLEAPSS *Helpline*

A major aspect of CLEAPSS support for schools is through responding to helpline queries. Most of these are dealt with via email as it can be very difficult to get hold of a teacher or technician during the school day.

Over the last term we have averaged over 5 D&T helpline queries a week, more than one a day. Although this might not seem a lot, it is a rise over the past years and indicates that the service is of real importance to our members.

The most common queries last term were:

Do primary school teachers need specialist food qualifications to teach food?

The quickest answer is: no, the necessary skills may be obtained through on-the-job training, self-study or relevant prior experience.

However, the employer must decide on what level of competence is required of their employees, and how that is to be ascertained. So, if the employer requires that a teacher must hold a particular qualification (or equivalent) then they do need to hold it. If you are unsure, check with your employer. In most primary schools the employer is the local authority, although that is changing as the academy programme increases.

Most employers would expect teachers embarking upon any practical activities to have some sort of training or experience, in order to safely carry out the activity. One way of demonstrating that the teacher has had training is a relevant certificate from a recognised provider.

For food teaching, a variety of organisations offer training, including online training, which would satisfy this requirement. There are three different levels of training, level one being the minimum level that is accredited up to level three which is suitable for those with responsibility for supervising others:

Level One: 2hrs

Content:

- Keeping yourself clean and hygienic
- Keeping the work area clean
- How food can become contaminated and how to avoid this happening

Level Two: 2 – 3hrs

Content:

- The importance of food safety training
- Personal and legal responsibilities
- The impact of food borne illness
- How to avoid food contamination through good hygiene practices, and safe temperatures and storage
- Hazard Analysis Critical Control Point (HACCP) Food Safety Management System

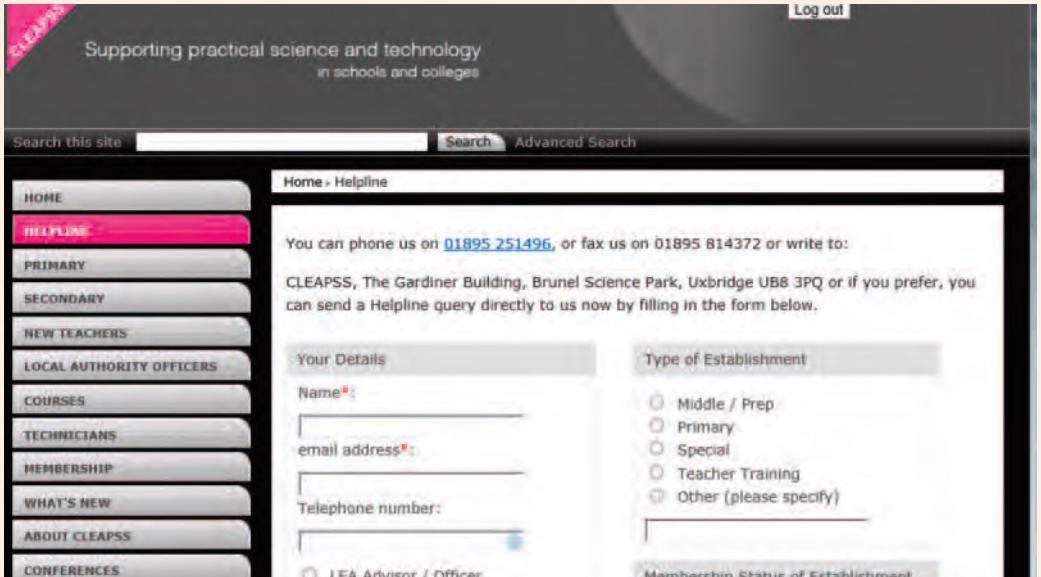
Level Three: 8 – 10hrs

Content:

- Understanding food regulations and legislation
- The role of the supervisor
- Food safety hazards and contamination
- Food-borne illness
- Microbiology
- Food safety management (HACCP)
- Food preservation including food storage and temperature control
- Personal hygiene
- Workplace equipment and design
- Cleaning and disinfection including pest control

Although not strictly necessary, we would recommend that in a primary school, at least one member of staff (such as the D&T coordinator, or person with responsibility for food teaching), should have undertaken recognised training.

We will have more to say on this, and other training, in forthcoming editions of this newsletter.



Should schools reduce the use of MDF and use plywood instead?

The use of MDF is not considered any more of a problem than other timbers, except that it generates more dust - any dust is a problem.

Changing the material will not necessarily make the operation any safer – it's the process that is generating dust, so the dust needs to be controlled.
The majority of fixed machines that generate significant amounts of dust, such as sanders or saws, will have a fixed LEV system which is regularly monitored and serviced.

For hand sanding of materials where there is no built in LEV equipment, a hood can be linked up to a HEPA-filtered vacuum cleaner (Henry Hoovers can have HEPA filters). Since such filters are readily available, this may be a simple and effective solution.

If you are planning on running a project where you can predict there will be large amounts of dust generated by hand sanding, you may want to consider investing in a bench that is specifically designed to draw dust away from the user, or a bench to extractor, and limiting the sanding to taking place on that bench.
We try to avoid recommending that pupils wear dust masks because they tend to wear them incorrectly. Masks must conform to the standard FFP3 and must be fitted as closely as possible. Disposable masks, by design, are more easily fitted to the face and are generally one-size. They can be used continuously for an hour only and must be disposed of at the end of the day (technically the end of the shift). Reusable masks may appear to be more cost-effective, but these must be properly fitted to the individual user and are subject to the inspection and maintenance regime required by the manufacturer. One such requires monthly inspection and maintenance with filter replacement when the filter is (are) visibly clogged or breathing becomes more difficult. In addition, face fitting should only be carried out by a trained specialist, so is unlikely to be possible in school.

I used MDF extensively in school (I gave up teaching in July), although dust was generated we controlled it with LEV on the sander and band saw, and avoided using fret saws, using a laser cutter instead for complex shapes. We also avoided hand sanding where possible.

It is unlikely that normal classroom activities will raise enough dust to meet the Workplace Exposure Limits for pupils, but there is a risk that these limits could be achieved for teachers and technicians, so perhaps you need to consider how much of the activity is taking place over a day or a week.

Using low-emission, formaldehyde-free MDF will help. The introduction of LEV will be even better. However, it may be that the activity needs rethinking if you are concerned over dust generation and cannot get LEV installed.

Some schools have dropped MDF, in favour of other man-made boards, but this does not always improve the dust issue.

We also have queries regarding how to carry out risk assessments or what sort of documentation should be kept in the D&T department. Both of these topics are central to our training for Heads of D&T and technicians (see the website for courses).

If you have a query please get in touch using the helpline form on the website http://www.cleapss.org.uk/helpline

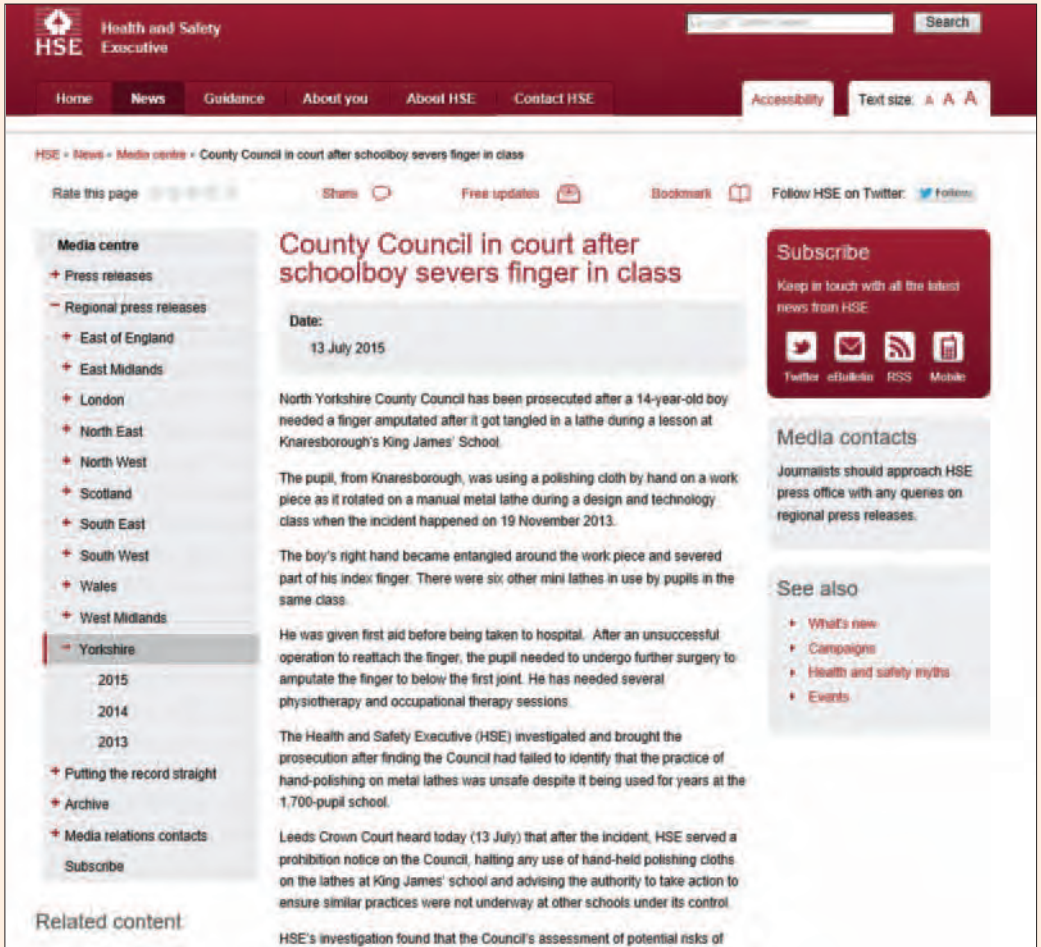
Lathe entanglement accident

Earlier this year CLEAPSS was involved in an HSE investigation. The employer, North Yorkshire Local Authority, was being investigated following a D&T incident in one of its secondary schools.

A pupil was polishing the surface of a piece of metal in a metal lathe, using soft cloth. The cloth became entangled, dragging the child's finger into the work piece, which led to the child having part of his finger amputated.

The activity was not covered by an appropriate employer's risk assessment. This practice had been identified as a significant risk of injury and was reported in a HSE publication in 1993

http://www.hse.gov.uk/pubns/eis2.pdf



Although the activity runs contrary to any sense of safe practice, It had become accepted practice across the team of staff in the school and, anecdotally, across a number of other schools.

Although the guidance from CLEAPSS and HSE (Engineering Information Sheet 2) is primarily associated with the use of emery cloth, we would like to highlight the fact that the same issues arise with any piece of cloth or loose material being used on a moving part of a lathe or any other machine.

All D&T teachers and technicians should refer to relevant CLEAPSS Model Risk Assessments prior to embarking upon any practical activity. We have, in addition, produced a number of useful documents to help schools develop and maintain safe working practices, including:

L235 – *The Theory of Risk Assessment in Design and Technology*

GL171 – *Using Model Risk Assessments in D&T*

E171 – *Planning and Assessment spreadsheet*

Coming up in the next edition:

News about the new GCSE specifications for Food and Nutrition and information about the BNF Healthy Eating Week

More information on the progress of the Greenpower racing teams

An update on the GCSE specifications for Product Design

An article from one of the national machine servicing companies

Stories from teachers that are developing interesting projects
And lots more…

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

You can also follow us on twitter @CLEAPSS_DT