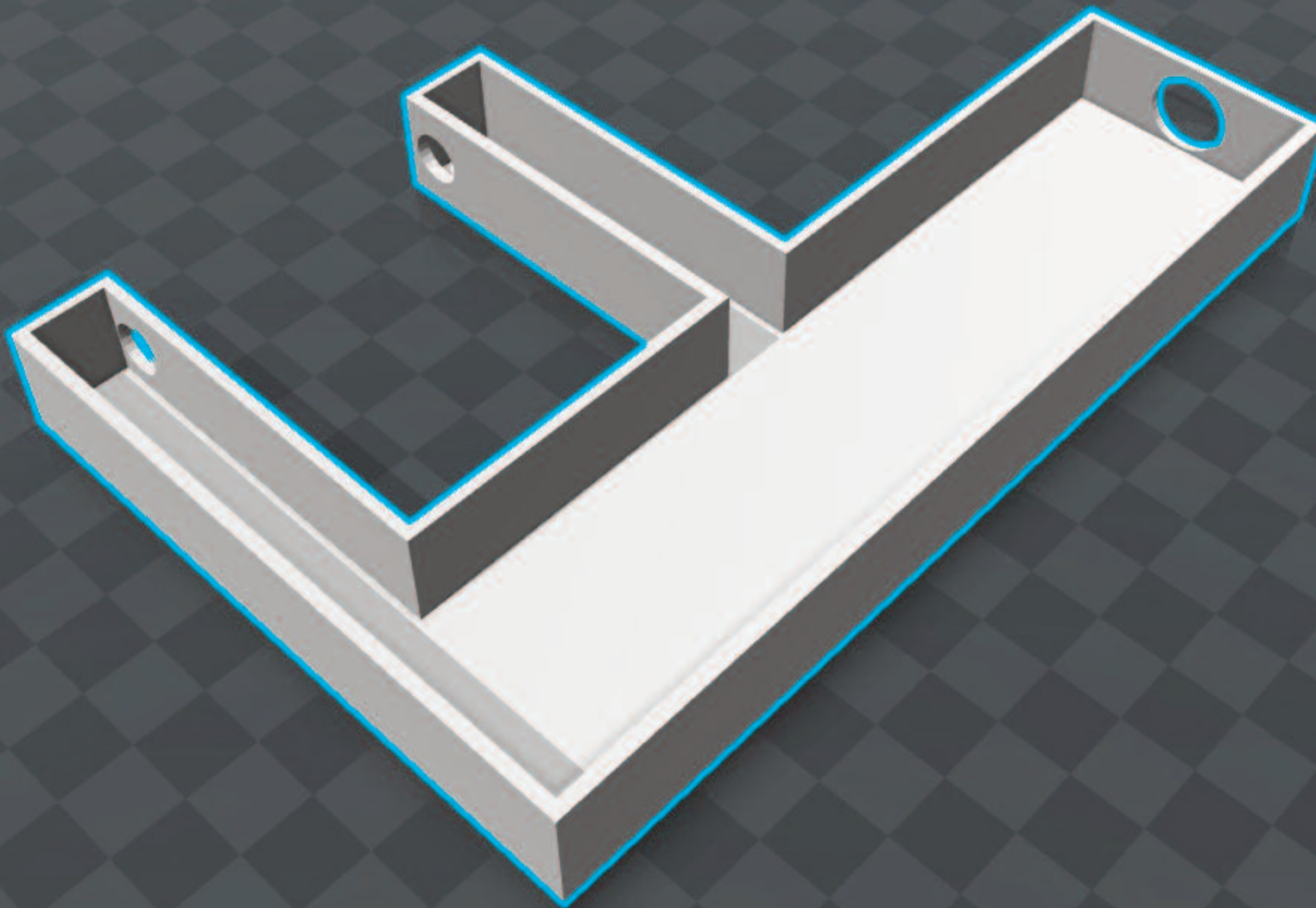


CLEAPSS
Design and
Technology

Future **mind**s

Tomorrow's world explored today



Autumn 2017

CLEAPSS D&T e-newsletter

Welcome to the Autumn '17 Futureminds.

This is the 6th edition and we have been really pleased by the number of readers, and the interest they have shown in the previous five.

In this edition are a couple of articles about some of the work we do at CLEAPSS, a report of the visit to SSERC (the equivalent of CLEAPSS in Scotland), and an update from the testing of 3D printers we are doing in conjunction with the HSE.



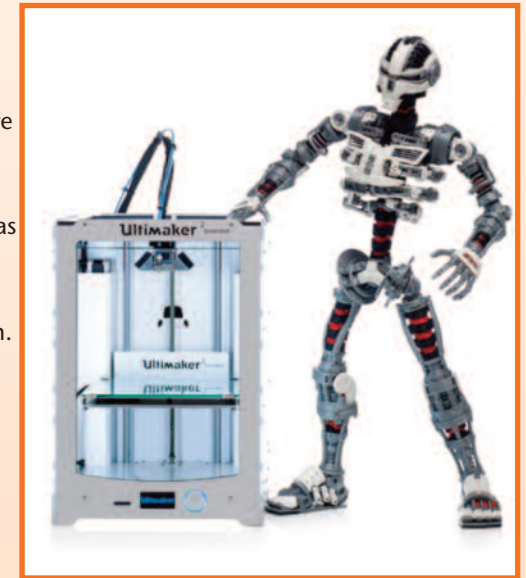
Among the invited articles, you will find one from Celtic Kilncare Ltd about servicing and maintaining kilns in school. Ceramics is becoming more common in schools, both in D&T and Art and Design, and from a number of our audits, it has become apparent that staff need access to training, and that kilns need servicing.

The British Nutrition Foundation has supplied a new article, following on from its interesting piece in *Futureminds* 04. The new article describes the training and support available for food teaching through the 'Food – a fact of life' programme and the Food Teacher Portfolio Programme.

Ultimaker, the 3d printer company, has an education programme and, during the summer, Dave had the pleasure of visiting the company to see what they can provide. As a consequence, Sonya Horton has written an article about integrating 3D printers into the curriculum.

The Food Teachers Centre has developed a new flexible learning programme for staff involved in delivering food courses. CLEAPSS has seen the course notes, which offer a comprehensive approach to teaching food safely.

The Dorset Studio School approached us for help with making edible water bottles! After some discussion we worked out a method of safely producing these innovative objects. Dariel has been kind enough to supply an article describing the process pupils worked through, and some images of the edible water bottles.



Visit to SSERC



In June, Dave spent a couple of days at SSERC's base just outside Edinburgh. SSERC carries out a similar role to CLEAPSS in Scotland.

There are a number of differences between education in Scotland and that for the rest of the UK. We know that teachers in many English D&T departments would love to see some of these carried over into their teaching.

The most quoted of these are:

- Class size in practical subjects is limited to a maximum of 20.
- Teachers have to undertake training to achieve their teaching standards, and have a structured programme of CPD to refresh their subject knowledge every 5 years.
- D&T still consists of technical subjects; woodwork, metalwork, technical drawing, as well as newer 'product design' qualifications.

Dave worked with Duncan (the SSERC D&T adviser) helping to develop courses for Scottish teachers and technicians. The courses, in metalwork and woodwork, are planned for two days each and are founded on skill development. Teachers and technicians can attend the course to develop their personal skills, with the view that they will return to school and be able to incorporate these into lesson planning and developing new project ideas.



Continued...

Visit to SSERC



The metalwork course covers:

- Bench skills
- Joining metals/fabrication
- Metal lathe
- Welding
- Forge/heat treatment
- Casting

Prior to teachers or technicians enrolling on the course they must have been on the 2-day 'safe use' training, which covers general health and safety requirements for teaching in workshops, and must be renewed every 5 years.

On a previous visit Dave attended one of the metalwork courses at a forge, where the teachers were working with the blacksmith and his colleagues to make wrought iron clocks. The teachers worked with industrial equipment to heat and work iron and steel to form shapes that had clock mechanisms fitted. We see lots of schools making clocks with KS3 pupils, but we have yet to see some made from wrought iron.

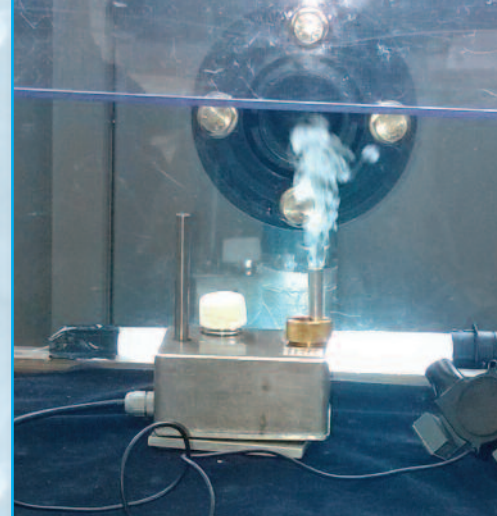
CLEAPSS continues to work closely with SSERC on developing support for both science and D&T.



3D printing update

Over the past two years CLEAPSS has been working with the Health and Safety Executive (HSE) and others to test the emissions from desktop 3D printers which use plastic filament heated and extruded to create a 3-dimensional outcome on a build plate. Among the printers tested are several which are commonly seen in schools.

The results show that there are some serious health concerns in using these devices that need to be taken into consideration when assessing the risks for their use. The focus of these concerns has been on fumes and nanoparticles



Users of the Internet can find a range of conflicting reports on the safety of 3D printers. Some suggest that “3D printers are safe”, others that there are significant safety issues in using particular materials. Most published reports concentrate on the fumes from the printing filament, rather than particle emission. There is a general agreement that PLA (Polylactic acid) produces ‘safer’ fumes when printing, as it does not contain some of the more harmful plastic components. ABS (Acrylonitrile butadiene styrene) is generally considered less safe because it gives off a range of chemicals when heated, including styrene, which are known to cause sensitisation and other harmful effects.

The HSE and CLEAPSS could find no reliable reports concerning emissions of nanoparticles. It is increasingly accepted that nanoparticles, such as those emitted by 3D printers and laser cutters, can be a significant health hazard, and effective controls should be put in place to protect the user. The HSE recommends a precautionary approach to risk management with control strategies aiming to reduce exposure to As Low As is Reasonably Practicable (ALARP).

Tests carried out at the Health and Safety Laboratory:

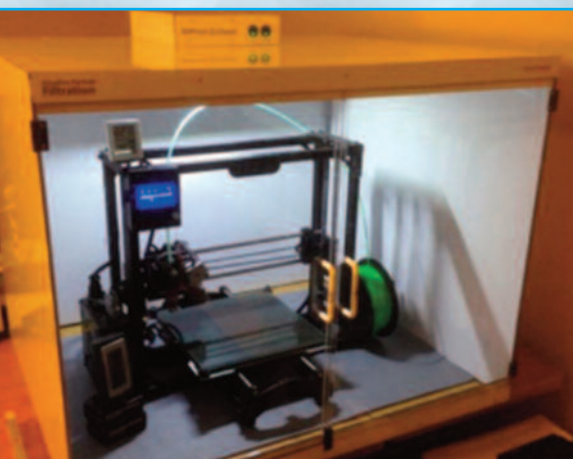
1. Pyrolysis Testing, mainly for fumes, small pieces of filament are burned and the exhaust gases are analysed
2. Emission Testing, mainly for particles, the 3D printers are placed in a wind tunnel and the exhaust gases are passed over a variety of sensors whilst the printer is working

Conclusions from the Pyrolysis Tests:

- Not all filaments are correctly labelled, one roll of filament was labelled PLA but was ABS, some filaments have no indication of their content i.e. ninjaflex, which was found to be polyurethane.
- All filaments give off fumes when heated, some containing hazardous products such as styrene, and isocyanates, which should be controlled under COSHH regulations.
- The colour can affect the emissions, both in quantity and content.
- Some batches of filament can differ from identically-labelled filament from the same supplier.
- Emissions increase during the heating cycle and decrease during the cooling cycle.

Continued...

3D printing update



Conclusions from the Emission Tests:

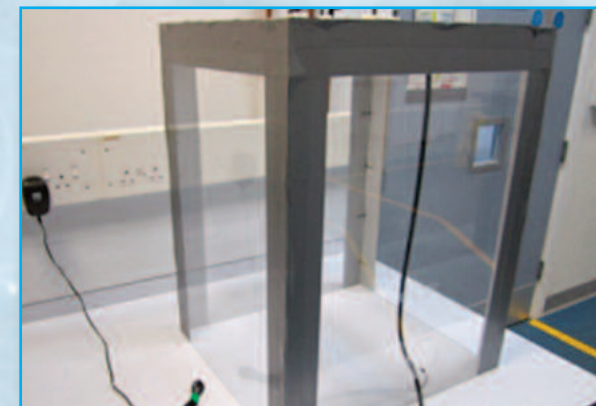
- All the printers tested, produced emissions that contained nanoparticles.
- The particle size and concentration of these is related to the heat of the printer extruder nozzle (hot end).
- An increase in the hot end temperature decreased the size of the particles.
- An increase in the hot end temperature increased the concentration of the particles.
- An increase in the hot end temperature increased the emission rate of the particles.
- Emissions from the same filament are different when used in different printers or under different conditions.
- Emission rates and average particle size depend on filament material.
- Exposure controls could reduce particle emissions by up to 99%.

Guidance to schools:

The hazards associated with 3D printing include:

1. Emissions of fumes and particles
2. Trapping hazard from moving parts
3. Burns from hot components

These hazards can become significant risks in school. Trapping and burning can be controlled by having a fully enclosed printer, however emissions may still present a risk. Ventilation, or placing the machine in an extracted unit should be sufficient to control emissions.



CLEAPSS Model Risk Assessment: 1.088 *Additive Manufacturing 3D printing*, is under review, but our current advice is to install ventilation for 3D printers, because it seems likely that HSE will recommend that systems are put in place to control the emission of potentially harmful particulates. The MRAT also gives advice regarding trapping and burns, running a machine in a controlled environment such as an enclosure will also reduce the risk of trapping and burning. In a desire to take up these new technologies, schools are increasingly buying several 3D printers, and even developing 'maker spaces' where multiple machines run simultaneously. Some schools are installing maker spaces in public areas such as the library or school foyer. These require careful consideration prior to installation, in order to ensure appropriate hazard control, including emissions. Schools should refer to the MRAT, more information regarding the testing is available on the CLEAPSS site and if schools are concerned about their arrangements they should contact CLEAPSS via the [Helpline](#).

The schools pottery kiln is all too often viewed as a fairly innocuous piece of equipment, frequently tucked away in the corner of a classroom, in its own room or even in the 'broom cupboard'. The fact that the kiln does not spin, rotate, cut, or move in anyway and makes very little noise often leads to it being somewhat overlooked compared to other D&T equipment when it comes to maintaining and using the kiln in a safe and efficient manner.

With many kilns energised from power supplies in excess of 60 amps and reaching firing temperatures of up to 1300°C, some kilns can literally be too 'hot to handle' if not maintained properly by specialist kiln engineers and operated by trained staff.

To maintain both safe & efficient operation of the kiln an electrical check is simply not sufficient. For the kiln to continue to operate safely and efficiently, an integrated approach to maintenance and operation is essential.

The Electric Pottery Kiln: Too Hot to Handle?

By David Morgan at Celtic Kilncare Ltd



Before & After replacement of a top loading kiln element set: Note the essential repair of the burnt out hot spot!

Electrical Maintenance.

In addition to the basic requirements of IEE Regulation Tests, the kiln's control instrumentation must be tested for correct operation, calibrated and certified once a year. Electrical measurements must be recorded. A simple 'OK' or 'passed' sticker does not comply with IEE Regulations. The electrical report should also record the test firing functionality results.

Safety Compliance.

Most electrical pottery kilns used in schools and colleges have unique safety features which must be checked and tested, in addition to standard electrical tests. These include captive key or captive shank electrical door interlocks and melting link or electronic, independent, over-temperature protection devices. The safety section of the report should also include the general condition of the kiln, the suitability of its location and proximity to combustible materials.

Energy Efficiency.

In addition to the electrical tests the load resistance of the heating elements should be measured and any decay in the present power consumption (energy efficiency) recorded. Heating elements should be inspected for " bunching" and " pitting" and/or horizontal collapse and preventative measures recommended. Primary and secondary heat insulation materials should be inspected and, where applicable, renewed.

Operational Compliance.

To maintain compliance with current HSE and CLEAPSS guidance, the kiln should only be operated by staff who have received safety training for the use of electrical pottery kilns. This is not teacher training in art & ceramics but bespoke training to operate the kiln. It includes maintenance requirements, safety procedures whilst firing the kiln and managing a situation in the event of a kiln control malfunction or an emergency.

Upon completion of the service a comprehensive report including electrical measurement recordings, temperature controller calibration, safety observations and future recommendations should be left with the school.

It is therefore vital to select a competent maintenance contractor with specialist kiln knowledge & expertise. Unfortunately some facilities service providers do not possess such specialist knowledge or the temperature calibration equipment necessary to provide a fully compliant service report. This could leave the school somewhat exposed in the event of a kiln related incident or accident, with a situation that is a little too hot to handle!

Article written by David Morgan at Celtic Kilncare Ltd, an independent company specialising in Kiln & Pottery equipment maintenance, safety compliance and Health & Safety Training (in Kiln use) for over 40 years. Further information is available to CLEAPSS members free of charge by contacting Celtic Kilncare Ltd on admin@celtickilncare.co.uk



'Meltdown' resulting from an overnight firing without a secondary independent over-temperature protection systems (Heatfuse) Collapsed & bunched heating elements well past their "change by" date and probably working at less than 25% efficiency

Food – a fact of life; from the British Nutrition Foundation

by Frances Meek, senior education officer, BNF



In 1991 the *Food – a fact of life* education programme was launched, comprising printed resource packs to support food and nutrition education in primary schools. From 1995 to 1997, packs were launched for secondary schools, and in 2001 the innovative Interactive Food Facts CD Rom was released. A few years later, the programme was available online at www.foodafactoflife.org.uk, initially with a healthy eating module for primary schools.

Since this time, *Food – a fact of life* has gone from strength to strength and the education programme now provides a wealth of free resources about healthy eating, cooking, food and farming for children and young people aged 3 to 16 years. The British Nutrition Foundation also supports teachers through face-to-face and online training, and the [Education Update](#), a monthly email newsletter.

Here's an overview of what can be found on the website to support food and nutrition education in your setting or school:

Years 3-5

Teachers working in nurseries, pre-schools, Foundation Stages/Phases and Early Years settings will find 12 food-based sessions with a leaders' guide and four activities and interactive activities focusing on cooking, where food comes from and healthy eating.

Years 5-8 and 8-11

Resources for Key Stage 1 and Key Stage 2 are based on Key Facts which have been developed to provide a comprehensive and progressive approach to teaching the topics of healthy eating, cooking and food and farming. The use of Key Facts provides a framework to build upon, ensuring that consistent and up-to-date messages are taught.

Using this framework, children will be gradually introduced to different concepts, skills and knowledge about ingredients, equipment and cooking skills and techniques. A range of resources is available, including presentations, videos, interactive games, recipes and much, much more.

Key Stage 1 and 2 [Schemes of Work](#) have also been written to support primary teachers.

Years 11-16

The 11-16 years area on the *Food – a fact of life* website has recently been updated so that resources are easier to find. There are also additional support resources including Food route – a journey through food (which are also available for Key Stage 1 and 2) and the numerous resources produced for the CommNet programme including [commodity information sheets](#).

There are also up-to-date [Schemes of Work](#) for Key Stage 3 along with grids with links to *Food – a fact of life* resources to support qualifications in England, Wales and Scotland.

Professional development

[The Food Teacher Professional Portfolio Programme](#)

The Food Teacher Professional Portfolio programme was developed by BNF to enable food teachers, at all stages of their careers, to audit, plan, organise and record their professional development.

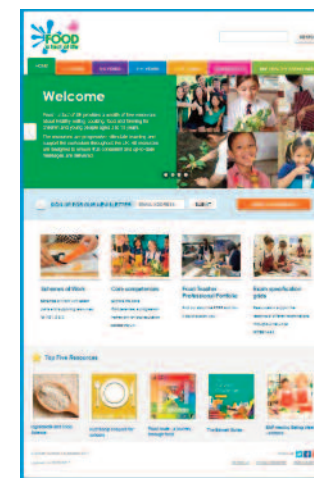
The programme formally started in January 2016 and by the end of the second year (July 2017) there have been over 1,900 registrations. One member of the programme has said

“As the only food teacher, I have used the programme as my bible!”

Activity during 2017/18 will focus on the 'Essentials of teaching food successfully'. There will be monthly support emails and six online training sessions. There will also be another conference for new or less-experienced food teachers in May 2018.

In addition, as part of the FTTP programme, BNF and the FTC propose to conduct research into the status quo of Initial Teacher Training (ITT) for secondary food teachers. It is anticipated that this research will, in the future, lead to a strategy for ongoing support for ITT providers and the development of guidelines for ITT based on the PHE framework.

If you are not yet a member of the FTTP programme, or know someone who might benefit from being involved, you can find more information here: www.foodteacher.org.uk



Continued...

Food – a fact of life; from the British Nutrition Foundation

by Frances Meek, senior education officer, BNF

Online training for primary school teachers

BNF believes that teachers play an important role in helping to shape children's food understanding. This is why we are launching our initiative to provide the free, online, teaching food in primary school course.

The training forms part of our charitable work, as well as lasting legacy for our 50th anniversary, ensuring that teachers are confident, competent and motivated in delivering fantastic lessons that inspire children, and equip them for life.

The course is being specifically created for initial and practicing primary school teachers. It is based on the requirements of the National Curriculum (England), the PHE Core Competences for Children and Young People and guidance to support primary school teachers deliver food teaching in schools (PHE/DfE). A course for primary schools in Northern Ireland, Scotland and Wales will also be available.

To register for the training when it becomes available, [click here](#). (Currently open to primary schools in England, other areas will be available shortly.)

Interactive Resources

[Explore Food](#)

Explore food is a user-friendly, online, nutritional analysis tool for school students, available free from *Food – a fact of life*.

Explore food has been designed to be easy to use, guiding students through the analysis of a recipe or a day's diet. It provides data for the student to analyse and draw conclusions away from their PC or tablet, further supporting their studies.



Why use Explore food?

- It is free to access.
- It has been updated to the latest McCance & Widdowson database.
- Students can use it at school or at home (great for homework).
- It is iPad friendly, as well as PC and MAC.
- Students can save and print their work.
- It supports what you teach.
- It creates food labels.

Explore food allows students to:

- calculate the energy and nutrients provided by a recipe or diet;
- compare the energy and nutrients provided by different food and drinks;
- model different portion sizes for a recipe;
- compare a diet for a day to UK Dietary Reference Values (DRVs);
- model different DRVs to a diet;
- save work to continue another time (saved as a file);
- export work to a spreadsheet file for further analysis or graph production;
- print work.

To access Explore food, [click here](#).

Coming soon

The ever-popular Food Skills resources have been updated and were re-launched in early September. Food Skills comprises 13 cooking modules with PowerPoint presentations and recipes to support food lessons and extra-curricular activities. Students are challenged to make three recipes, learning about food hygiene and safety, healthier eating and cooking, and budgeting whilst developing their practical and time management skills. This could be an ideal resource for those teachers wanting to practice making three dishes in preparation for the GCSE Food Preparation and Nutrition Non Examined Assessment Task 2.

Food – a fact of life, from the British Nutrition Foundation, comprises resources that are progressive, stimulate learning, and support the curriculum throughout the UK. All resources are designed to ensure that consistent and up-to-date messages are delivered. Teachers across all stages and phases are supported through professional development and are kept up to date through monthly emails and via social media – why not follow us on Twitter? [@foodaactoflife](#)
Be one of the first to find out about new resources, CPD, education news and research- sign up for our monthly email newsletter at: www.foodaactoflife.org.uk



INTEGRATING 3D PRINTING INTO THE NEW DESIGN TECHNOLOGY GCSE

by Sonya Horton, Ultimaker

The new GCSE specifications do not have an explicit requirement to deliver programmes including 3D printing technology (additive manufacturing). This is a disappointment to many manufacturers and other businesses, as they see this is a missed opportunity. There continues to be a widening gap between the skills of school leavers and the requirements of employers in the additive manufacturing industry.

Teachers with access to 3D printing can embed their use in the GCSE curriculum. Students can use these new technologies to model and modify their design ideas. The knowledge and practical skills they gain can help with further studies in education or employment.

The benefits of embedding 3D printing within the GCSE Design Technology courses include:

- More meaningful development of students' 3D CAD modelling skills. Students are modelling designs with a purpose as they have the ability to print them.
- Real replication of industrial practices. Students can undertake short projects such as making custom tools, jigs and templates or making moulds for casting.
- Deeper understanding of the benefits of new and emerging technology, and the hands-on experience which allows them to effectively and critically evaluate it's impact.
- Real rapid prototyping technology, allowing students to make multiple, quick iterations during the development of their product ideas simply by tweaking a CAD file and reprinting, which was not possible with traditional workshop techniques.
- The ability to design and make custom parts for final prototypes that would not be possible with traditional workshop techniques.
- The ability to manufacture high quality final prototype products and parts to specific sizes and tolerances.

3D printing allows students to develop unique design solutions with a professional quality finish. The ability to manufacture complex geometries allows more sophisticated designs and solutions to be realised. For example, students could develop a bespoke aid for a user with a specific difficulty or disability.

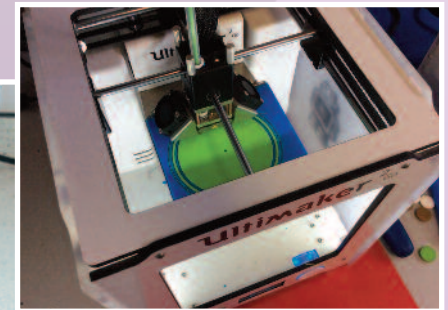
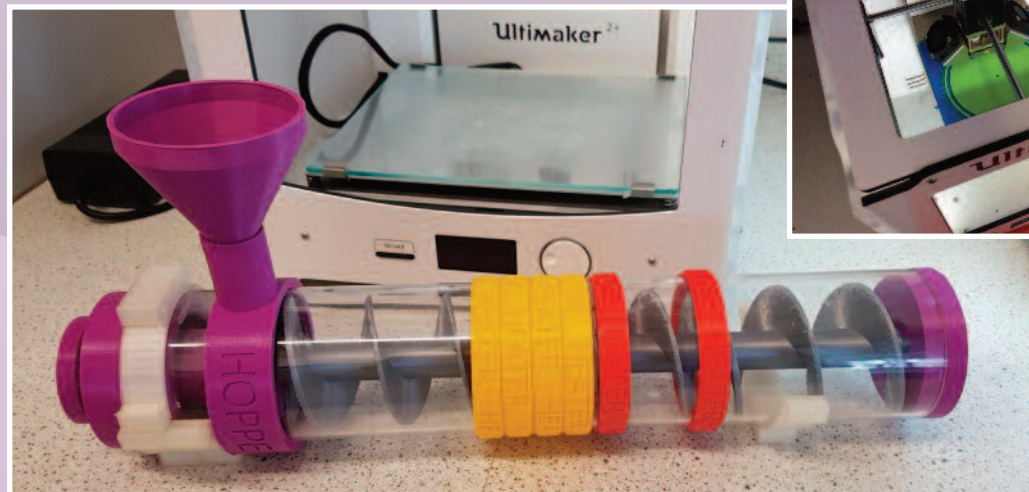
Printed models can have various percentages of internal structure and can even be hollow, this allows for lightweight models, perfect for projects that involve flight, such as prototype gliders and drone projects.

Students can also utilise 3D printing for creating custom casings for electronics, or integrating electronics and micro-controllers directly into a 3D printed product, such as a robotic device.

A novel way of utilising the 3D printer is to make instructional models. For example, students can learn about the injection moulding process, using the 3D printed model of simplified injection moulding machine produced by Lloyd Griffiths, Design & Technology teacher at Newport High School. Normally a difficult process to understand, the model aids learners understanding of both the process and the materials used.

If you are considering introducing 3D printing and don't know where to start, or you have the technology and are looking for inspiration, visit the CREATE Education Project at www.createeducation.com to download the FREE 3D Printing in the New Design Technology Guide and access lots more free projects, resources and ideas. You can also borrow a 3D printer for a month to run a project in your school to try it out with its free educational loan scheme.

CREATE
Education



Edible water bottles at the Dorset Studio School

by Dariel Anghilante

Dorset Studio School is a Y9 to Y11 school, which runs a lunchtime science club. The students put forward their ideas for activities and the teachers then develop strategies to enable them to do the activity.

One such activity was to make edible water bottles! One of the students had seen a video on Youtube of a person mixing various materials to make small 'blobs' of water that were contained within skins of a jelly-like substance. The teacher watched the video and was a little concerned over how this could be done in schools, so they contacted the CLEAPSS [Helpline](#).

Although this is a science club activity, it is a process sometimes used in food lessons 'spherification' and can often be seen on TV in programmes like Master Chef or the Great British Menu.

Helpline:

We are planning to make some 'edible water bottles', with food grade materials (calcium lactate and sodium alginate from a food supplies site) for our science club. Can these 'bottles' be safely consumed by the students, because although the ingredients might be food grade, we shall still be making them in the science lab and I can't see them going uneaten!!

<http://www.iflscience.com/chemistry/how-make-edible-water-bottles/> Thanks Dariel

Response:

Although this looks like fun, we would recommend that any activity involving food stuffs which may be eaten takes place in a designated food room, where there is less likelihood of contamination.

I would suggest you speak to the food specialist and see if it's something that they already do, or how they can enable access to the room for you to do the activity. It would probably help if you also worked with the food teacher or technician to practice the activity and have them with you in the room in case you need anything when working with the pupils.

On further discussion, Dariel explained that there is no food room, or food teacher, so the science teachers spent some time planning a way of carrying out the practical in a safe manner.

After cleaning and disinfecting a work area, and getting the students to thoroughly wash their hands, the students weighed out the sodium alginate and liquidized it with drinking water (1g:230ml. "We did not wait the recommended 15 mins to let the air bubbles settle as we didn't have time!"). The students then weighed the calcium lactate and dissolved it in drinking water (5g:900ml).

The alginate gloop was spooned up with small plastic scoop and carefully dropped into the calcium lactate solution (a black background is quite helpful here. (Note: the balls form because of a reaction between alginate and the calcium ions, and the resulting calcium alginate forms a semi-solid boundary around the sodium alginate. If your drinking water is very 'hard' it probably contains a lot of calcium already, and the activity may not work. Liquidize your alginate with distilled or deionized water instead. Ed.)

After waiting a little while the 'ball' of sodium alginate was carefully lifted out by hand ("we didn't have a slotted spoon") and rinsed in clean drinking water. Some of the students tasted the balls, which were flavourless but had a slimy texture!

Another time we might try using cola, squash or juice.

The balls are quite fragile so need to be handled gently or they burst.

This is an example of CLEAPSS support helping teachers to develop a safe method of carrying out a practical activity rather than being put off doing something because of 'Elf and Safety'.



Food Safety in Classrooms

by Barbara Rathmill, FTC

Food safety is crucial to all food education, which is why Food Safety in Classrooms is an ideal way to achieve the required qualification for working safely with food. The flexible learning course, provided by the Food Teachers Centre, includes the award of Level 2 Food Safety and accreditation against the national recognised framework for food teaching standards SECTION 9.1 to 9.6 'Implementing good hygiene and safety' (listed in 'Food teaching in secondary schools: A framework of knowledge and skills' 2015 Public Health England, British Nutrition Foundation and Department for Education).

This flexible learning course is designed for all who teach and support in food activities in school, including teachers, technicians, teaching assistants / higher-level teaching assistants, trainee teachers, special needs support staff, and cookery club leaders.

Everyone who works with food has a responsibility for safeguarding the health and well-being of their learners. The course also helps your school meet Ofsted requirements for 'safeguarding'. It is designed for those working in schools; as it delivers the Level 2 content with school examples to make it relevant. It also helps you teach elements of food safety confidently from KS3 to post-16.



Objectives of the course:

- To understand the terminology related to food safety and realise it's importance.
- To gain knowledge of the systems, techniques and procedures involved in food safety.
- To realise the importance of strict time and temperature controls when dealing with food.
- To understand the concept of food hazards and how the risk of food poisoning can be contained.
- To be aware of the importance of good personal hygiene and the role of cleaning in preventing food contamination.
- To understand the need for high standards of structure and equipment in food premises.
- To understand, plan and apply the standards for teaching food that relate to food safety.

The course is delivered by experienced food teachers, so instead of a generic course about 'Food Safety in Catering' the content is delivered in the school context. It includes essential planning and teaching information, risk assessment and other documentation relating to safe working practices. It explains food hygiene and safety, personal hygiene and safety related directly to classroom practice.

Through a modular approach of short recorded presentations, school focused activities, on-line support and live on-line Skype group discussions, those involved will:

- Share good practice to ensure a high standard of food safety and hygiene in the classroom
- Gain confidence to work safely with pupils when delivering food activities
- Implement safe working practices, develop risk assessments and documentation.

continued...

Food Safety in Classrooms

by Barbara Rathmill, FTC

The pace of the course is defined by the learner; there are 9 sessions and the assessment. Taught content and follow-up classroom activities take about 8 hours to complete with different routes to completion:

- Week by week: for example, doing one session a week for 8- 9 weeks.
- Intensive: for example, doing all or most sessions over a weekend or half term.

From the outset, the course leader will keep in touch with learners to develop a plan of approach to the programme. There is no time limit on completion of the course. Learners can slow down and speed up to fit with the ebb and flow of the pressures of the teaching year. Less experienced teachers or those setting up safety systems from scratch may take longer than those simply refreshing and reviewing.

The level 2 assessment and accreditation can be on-line or multi choice question paper, twilight /Saturday morning.

If you are interested in this flexible approach you can register at

<https://www.eventbrite.co.uk/e/food-safety-in-classrooms-on-line-autumn-2017-start-registration-38475893433>

Cost £80 + VAT (£96)

If you would like to offer your school for a one-day training, twilight session or assessment, or discuss which route is best for you, do get in touch.

More info Barbara.Rathmill@foodteacherscentre.co.uk

Session 1	Keeping food safe
Session 2	Hazards
Session 3a	Food Poisoning
Session 3b	High-risk foods
Session 4	Allergens
Session 5	Personal Hygiene
Session 6a	Premises
Session 6b	Pest Control
Session 7	Cleaning
Session 8	HACCP & Risk Assessments
Session 9	Legislation
	Assessment



CLEAPSS small print

Website changes

You may have already noticed, the CLEAPSS website has changed. Over the past year or so, we have developed three distinct websites; science, primary and D&T. These are accessed from the old www.cleapss.org.uk address, or via their own URLs. We would recommend that you bookmark the new site.

We have developed a new area called 'projects'. This includes some of the more common projects we see in schools. For each project we have identified the guidance most likely to be of use to a teacher when planning a similar activity. This should help teachers to pull together the information they need to develop their own H&S materials, when planning or developing new or existing project ideas.



Following our work with HSE at the labs in Buxton, we are revising our advice on ventilation with 3D printers, this will involve an update to the Model Risk Assessment 1.088 *Additive Manufacturing: 3D Printing*. The updated version should be available from the website before the end of the autumn term.



Audits

Over the past year Dave has carried out over 20 department audits across D&T and Art and Design, and has had the opportunity to meet with lots of teaching and technician staff. Some of the common issues arising from the audits are:

- Staff with little, or out of date, H&S training
- Equipment not installed correctly or not suitable for use in school
- Equipment not being used or maintained properly through lack of staff training

We recommend that schools carry out regular reviews of staff expertise and competence as well as checking the installation and maintenance of equipment; G79, G79A and G79B are available from the website for schools to be able to carry out a self-audit. The results from the review can be used to form the basis of a staff development plan, and help with keeping the practical working spaces safe. When CLEAPSS carries out an audit, we visit the school, go through the existing departmental H&S documentation, and discuss staff training, as well as checking the rooms, equipment and materials. Following the visit, CLEAPSS provides the school with a detailed report. The report contains a number of recommendations that the school can use to develop an action plan. This can be used to improve the facilities, and help staff to continue to develop good practices.



Ceramics

Over the summer we have gathered all of our materials on the use of ceramics in schools, including the use of equipment and kilns, into a single document. This new document is designed to help schools set up and manage the teaching of ceramics.

<http://dt.cleapss.org.uk/Resource-File/GL245-Ceramics-in-schools.pdf>

If you are already delivering a ceramics course, in D&T or Art and Design, you should ensure that you are familiar with the guidance in the document. Further advice is always available via the *Helpline*.



Electric Arc Welding

We have recently had a couple of queries from schools about the use of MIG and TIG welding equipment. It appears that some schools are developing new activities to broaden their D&T offer with the advent of the new qualifications across D&T. One area is engineering and the associated use of electric arc welding. We would remind staff considering working with such equipment that they need to be fully aware of the guidance in the MRATs. As with all equipment, staff should be adequately trained in its use before attempting to use it or teach others to use it.



Motor vehicle inspection pits

bsi. We have been made aware that some schools may still be using vehicle inspection pits. Whilst this is not strictly prohibited under H&S regulation, it should be borne in mind that, there is compelling advice against it. In the event of an incident leading to investigation, HSE inspectors would be very likely to take enforcement action on any school that was not implementing effective control measures. BS4163:2014 clearly states:

As they are not appropriate in schools and similar establishments, inspection pits should not be used.

Science updates:

The Department of Education has released new guidance on the safe storage and disposal of hazardous materials and chemicals. This guidance is for school leaders, staff and governing bodies and is available via a link from the CLEAPSS science website.

Primary updates:

Our primary magazine has evolved from PST (Primary Science & Technology) to *Explore*. There are some interesting articles on engaging science and D&T activities, with many more planned for the future. If you have links with primary schools or want to look at activities you can do with younger pupils, take a look at *Explore* and the materials on the CLEAPSS primary website.



Health and Safety statistics in the education sector

The HSE have recently published a range of statistics covering work-related illness and workplace injury. They show a considerable variance across different industries, and shows Education as the 4th highest industry for self-reported work-related illness with 3,630 per 100,000 workers, and below average non-fatal injury with 1,630 per 100,000 over the past 12 months.

These statistics reveal that 126,000 workers in the education sector suffered from a work-related illness each year, while 54,000 workers suffered a non-fatal injury.

<http://www.hse.gov.uk/Statistics/industry/education/index.htm>

The most common reason for ill-health is cited as stress, depression or anxiety, with the most common non-fatal injury being a slip, trip or fall on the same level.

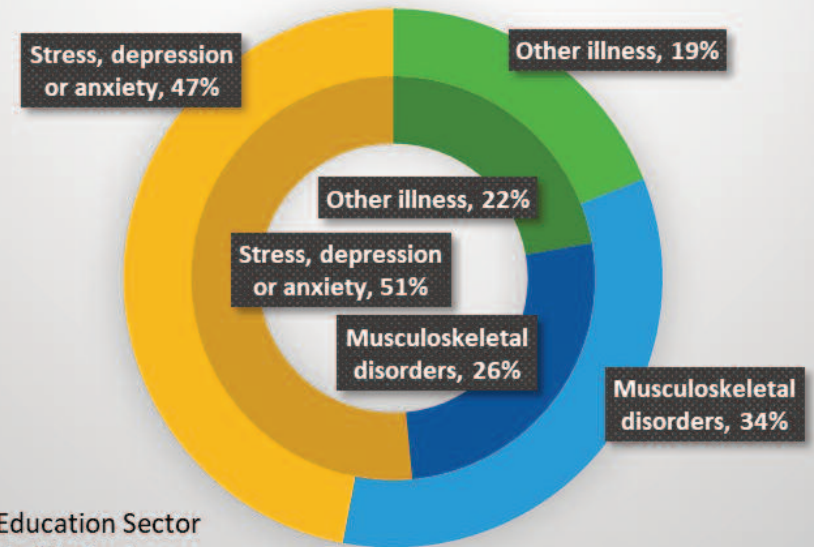
This leads to 54,000 cases of time away from work. Over a quarter (26%) of these cases resulted in absence from work for over 7 days. Across the whole Public Services sector, which includes education, it is estimated that 9.3million working days were lost each year between 2014/15 and 2016/17. This is equivalent to 1.2 days per employee, or around 40,000 full time employees being absent from the workplace for a whole year.

The data behind all of this, and many other statistics is available on the HSE site. It has been compiled from the Labour Forces Survey, RIDDOR and various other sources.

You may have read in Futureminds 5, Summer 2017, that we attended the HSE 'Helping Great Britain Work Well' and are continuing to work with HSE in developing good practice in the health side of Health and Safety as well as our work on safety in schools. We will have more information on this in future editions of FM.

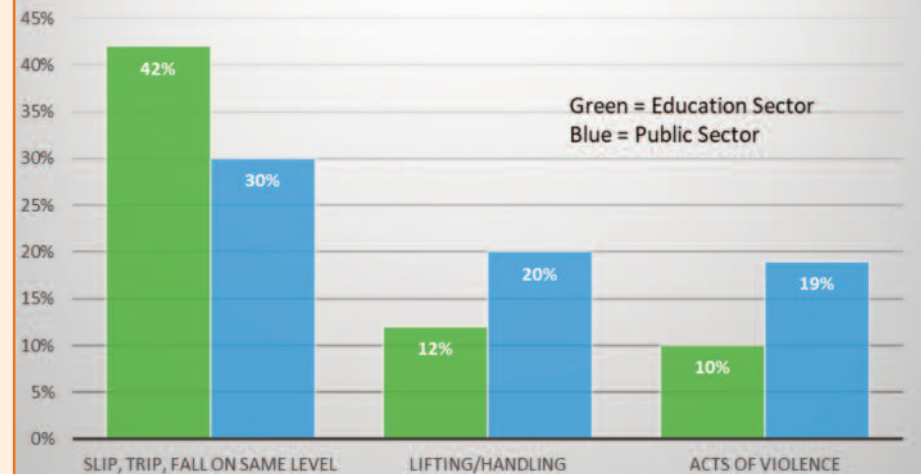


Work-related ill health by illness type



Inner ring = Education Sector
Outer ring = Public Sector

Non-fatal injuries to employees by most common accident kinds



Some recent tweets



HSE @H_S_E
Highlights from our annual conference were we introduced our revised sector plans & cross cutting health priorities.
youtu.be/N1LmjvjiG8

CLEAPSS D&T @CLEAPSS_DT
New chemical guidance for schools from @educationgovuk out today. We are rather proud of this joint work.
gov.uk/government/pub...

- School leaders, school staff and governing bodies in all maintained schools, all academies, independent schools and pupil referral units
- Academy trusts
- Local authorities
- Further education and sixth form colleges.

Key points

This guidance is not definitive and schools and colleges should ensure that they have access to professional advice, as well as their own suitably qualified and trained staff, competent in handling hazardous substances and materials. We strongly advise that schools and colleges secure advice on these matters through membership of CLEAPSS, either through a local authority or by direct subscription. CLEAPSS is independent of any other commercial or non-commercial organisation and accordingly its advice and guidance is impartial.

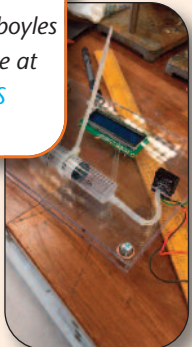


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#bbc click has lots of #VR ideas, good discussion points for #DT including disaster relief #robot
bbc.co.uk/news/av/techno...



CLEAPSS D&T @CLEAPSS_DT
#solarchallenge is underway, good discussion for #DT bbc.co.uk/news/world-aus...

CLEAPSS D&T @CLEAPSS_DT
Made a pressure boyles law device at #CLEAPSS today



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Talking about market research in #DT? What about #AI being used to help customers get the best deal?
forbes.com/sites/herbertr...

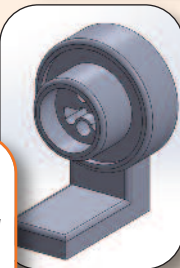


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Tesla presentation from #Elonmusk with so many points for future discussions in #DT youtu.be/vzT0uNT0ds8

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#3dprinting today, the carbon insets for the GM tube holder for #CLEAPSS



CLEAPSS D&T @CLEAPSS_DT
#3DPrinting today... a GM Tube holder for #CLEAPSS radioactives



CLEAPSS D&T @CLEAPSS_DT
@CLEAPSS_DT has been busy making a 3d printed geiger muller tube holder using conductive filament. Keep your eyes peeled at @CLEAPSS



CLEAPSS D&T @CLEAPSS_DT
Made a #3dprinted microscope at #CLEAPSS today



In FutureMinds 7:

- Updates from schools delivering the new GCSE
- Reports from CLEAPSS audits and training
- The latest news from the Food community
- Art and Design News
- Textiles news
- STEM activity

Don't forget you will need the 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

You can also follow us on twitter @CLEAPSS_DT