CLEAPSS Design and Technology

Futureminds

Tomorrow's world explored today

Summer 2021

CLEAPSS D&T e-newsletter

Welcome to *Futureminds*, summer 2021. It's a little different to the summer 2020 edition!

When we put together last summers' edition, we posed the questions:

"How many of us had heard of Zoom before March 23rd? Other than as a teaching resource. How many had thought of using MS Teams to run a pub quiz? WhatsApp chats, skype and a whole host of other applications have enabled people to keep in touch with loved ones, and learn new skills."

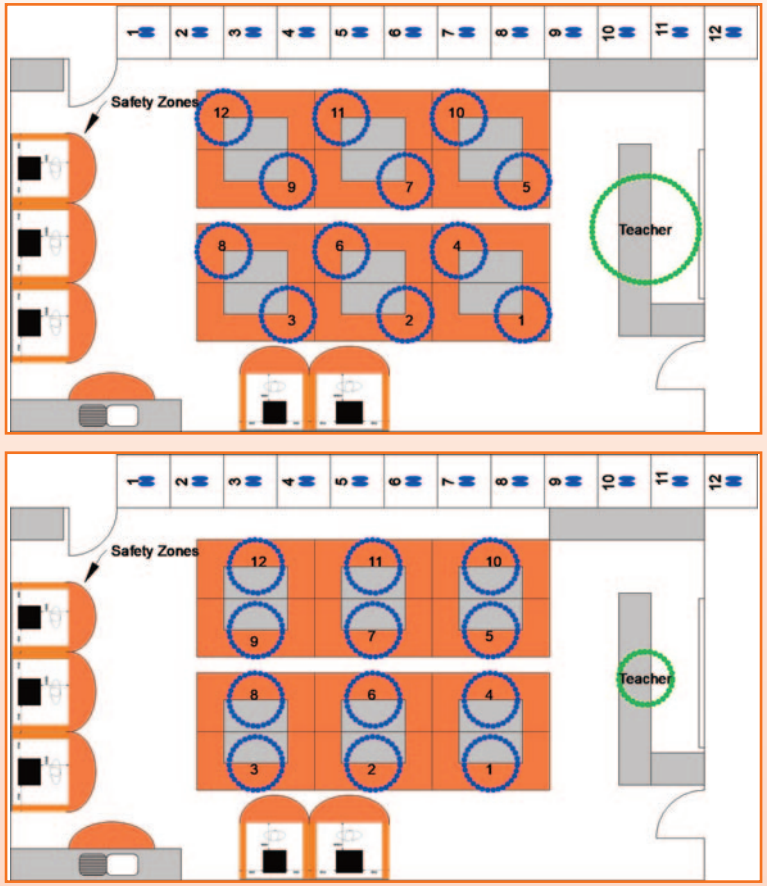
Our technological skills have developed over the past 12 months. We have all learnt more ways of delivering lessons and sharing information, using a whole range of new technologies and some ingenious uses of older ones.

Thankfully, teachers and pupils are back in schools across the UK, teaching and enjoying learning through face to face lessons. Here at CLEAPSS, we continue to update our guidance to support schools in these 'interesting' times.

Over recent months the most significant change concerned the removal of the requirement for 'meticulous cleaning of all equipment between uses. We have agreement from the authorities for 'standard washing techniques' to be used instead. This means that there are a number of choices to be made when sharing equipment:

This means that there are a number of choices to be made when sharing equipment:

- **Can it be washed with hot soapy water?**
- **Can it go through a domestic dishwasher on a hot wash?**
- **If it cannot be washed using these methods, can it be wiped with a disinfectant impregnated cloth or disinfecting wipe?**
- **If none of these apply, equipment will need to be quarantined for 48 hours, or 72 hours for plastic items.**



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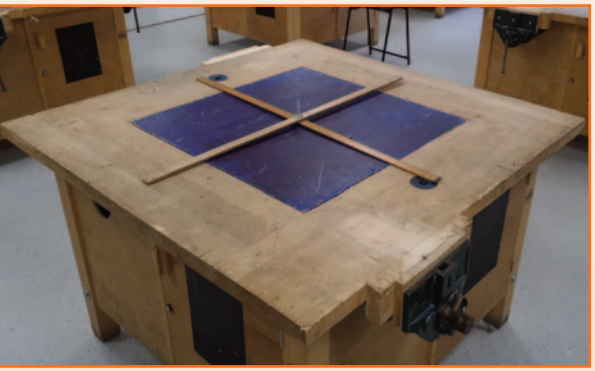
Many schools have resumed practical lessons in workshops, food rooms and art studios. From our ***Helpline***, we have seen that the main difficulties experienced by staff have been around managing the time to clean between groups, and ensuring that social distancing and the wearing of face coverings, don't generate health and safety difficulties.



Our first **ONLINE TRAINING** programme was launched in the spring term. We are pleased that it has proved popular with teachers and technicians who have worked through the 'self-study' section of five videos. We have also put together follow-on training, which is an online session with the CLEAPSS D&T adviser who will run through some of the points from the videos and give delegates the opportunity to raise questions or concerns. The self-study videos units can be used free of charge by members, the follow-on session costs £95 per person.

We have also been able to provide some face to face training. The first of these was in a north London school, where we had previously carried out an audit. The department felt that some H+S refresher training would be useful for the whole team, so we eventually managed to arrange it for April.

Whole department training has three components:

- **Theory, including roles and responsibilities, legislation and regulations, risk assessment, and controls that should be in place to ensure a safe working environment.**
- **Practical which involves carrying out risk assessment on equipment and activities, what needs to be recorded, and how to do this in an efficient and effective manner.**
- **Further practical working with machines and equipment, refreshing knowledge and practicing the use of equipments with the close supervision of the Adviser.**

CLEAPSS has its own COVID protocols, and we agreed how to combine ours and those of the school on this occasion. The staff arranged themselves around the room, ensuring that they maintained social distancing, and open doors and windows ensured plenty of ventilation. The theory part of the training presented no difficulties at all.

During the practical training, it was interesting to see that the staff had already developed a way of moving around the room whilst maintaining social distancing. While observing and individual machine, the staff arranged themselves with plenty of space between themselves, the machine, and presenter. Social distancing may already be starting to become 'muscle memory'!

At the end of the day we agreed it had been a successful training event, and for me, it was good to be back in front of teachers and technicians.

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CE or not CE, UKCA or UKNI?

(Notes from a presentation hosted by BSIF (British Safety industry Foundation) in February 2021 on the post-Brexit changes to quality marking in the UK.)

The CE mark has been in use for many years as an indication that a product conforms to European health, safety and environmental standards. It is widely recognised, and CLEAPSS has recommended that schools should look for this mark when purchasing products.

However, following Brexit, the CE mark is being replaced in the UK for some, but not all products. Products that are manufactured to be sold in the UK, which meet certain safety standards will need to carry a mark that states this, but the marks will be changing. This does not mean that the CE mark has gone, but it does mean that schools will need to be aware of the new quality standard marks, and what they mean.

New products in the UK will start to carry UKCA (UK Conformity Assessed) mark from Jan 2021 (you may have seen some already). Such products will be certified as meeting UK quality standards. At present, these standards are the same as they were under the CE marking system. Because Northern Ireland, at present, remains aligned with the EU it has its own standards mark, UKNI.

Goods manufactured, or assembled, in the UK, can be sold until January 2022 carrying only a CE mark.

The dates of change are related to the point at which the goods are marketed, not when they are manufactured or purchased. Thus, goods marketed in 2020, but not sold until 2022 can continue to carry a CE mark only. This may have a bearing on machines and equipment that are stocked by UK distributors, as some equipment may have been manufactured in 2020, but will only make it out to customers in 2022.

Some goods exported from the UK into Europe will have to carry a CE mark because the EU, at present, does not recognise the UKCA or UKNI marks. If a manufactured product is to be exported from the UK to a European or other overseas state, it will need to meet the requirements of individual states, rather than EU wide standards. These are things like furniture and food.

For example: a piece of workshop equipment, such as a cordless drill, made in the UK, would need to carry a UKCA mark, for sale in the UK, and a CE mark if it was also to be exported to the EU, it may have to carry other marks for other countries. The important thing to look for is the UKCA/UKNI or CE mark (on older equipment).

Goods sold into Northern Ireland will carry the UKNI mark and a CE mark. UKNI never appears on its own. UKCA marks, alone, are not valid for Northern Ireland.

UKCA marks are already in use on some products, but from January 2022, UKCA (or UKNI) will be required to replace the CE mark, but can be on a sticker, placed over the CE mark, or alongside it. From January 2023 the UKCA (UKNI) mark must be securely affixed to the product.

Some more highly regulated goods imported from Northern Ireland or the EU require regulation compliance, over and above the CE/UKCA/UKNI system. This affects chemicals and some other goods, that may be imported from the EU via NI.

If you would like more information regarding the changes of the marking, BSIF have some very detailed guidance on their website:
BSIF | British Safety Industry Federation

CE

UKCA

UKNI

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The British Standard BS4163:

Health and safety for design and technology in educational and similar establishments – Code of practice 2014

Over the past year we have been working on the review and updating of the British Standard. During the review it has become clear that there will be some major changes. We strongly advise that D&T, food and art staff get involved in the consultation. It's a big Standard, so you may want to set aside some time as a whole department to look at it.

The public consultation will start in June, and will be live for two months. As soon as we get the link for the consultation, we will tweet it @CLEAPSS_DT and put it into the CLEAPSS email alert.

The new Standard will come into force from sometime in October. Its requirements will be incorporated into all relevant CLEAPSS documents, so that they remain aligned.

Although the British Standards Institute uses the term 'Standard' when talking about this, and other documents, the term is interchangeable with Code of Practice.

New podcast

Steve Jones – the Director of CLEAPSS, has done an interesting podcast with Pearson science.

If you have 20 minutes to spare, you will find out all about what CLEAPSS does on a day-to-day basis, as well as how we support schools to put together practical activities, to help engage pupils and help teachers and technicians.

https://soundcloud.com/edexcelscience/8-staying-safe-in-the-lab-with-director-of-cleapss-steve-jones

The importance of building design sustainability into curriculum models

by Tony Ryan, Chief Executive Officer Design and Technology Association

Over the last two years, my experience has demonstrated that we have moved the conversation from 'should we be teaching sustainability' within the D&T curriculum to 'how do I best incorporate sustainability into my curriculum model?'

The Association worked closely with Practical Action just over eighteen months ago to create a face-to-face course, supported by the British Council ,to tackle the integration of this learning into the design and technology curriculum. I had the pleasure of delivering this course in several training sessions across the country. I saw teachers enter the room, sure of the importance of relaying a body of knowledge and awareness to their students but uncertain just how to do this, to practically skipping out of the door to integrate this work into every aspect of student learning. This free course has now been converted to an online module and can be found here.

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The importance of building design sustainability into curriculum models

by Tony Ryan, Chief Executive Officer Design and Technology Association

The course is built around the United Nations 17 Goals for Global Sustainability. It follows the principle that to engage at a personal level truly, one needs to understand the scale of the issue and the urgency for everyone. We can all start to make small changes to our lives that on their own may appear to be insignificant, but when looked at globally can make a significant positive impact.

While I have no intention whatsoever of turning this short article into another piece about the pandemic and its long-term effect on how society acts, thinks and plans, there is no doubt that the last fifteen months have shone a light on the importance of global action. There is no such thing as an issue that affects one nation only and, therefore, can be ignored by wealthier, perhaps less-impacted nations (and that's before we even start to tackle the issues around morality and responsibility). If we want to preserve the world that we live in for future generations, we all need to alter how we interact with the planet and its resources.

It is a much-cited 'fact' that over 80% of the ecological impact of any product is locked in at the design stage. Over the years, as advanced manufacturing techniques and developing materials science have allowed us to produce cheaper to manufacture products quickly. There is a powerful argument that we have become lazy and greedy consumers. We have allowed a throw-away culture to prevail with very little thought, at the point of purchase, going into a product's environmental credentials, just what its life cycle might be and what happens to that product when it is no longer fit for purpose.

The average person in the UK throws away around 400Kg of waste each year, over seven times their body weight. Of the 26 million tonnes of waste produced in the UK each year, over half goes to landfill. Imagine the positive impact on the environment if everyone in the UK worked to reduce their waste by just 50Kg.

To truly understand the importance of sustainability to design, you need to carry out a full product life cycle. For example, on the British Council course mentioned earlier, we encourage teachers and students to follow the life cycle of a pair of jeans purchased from a major high-street retailer. The first time I undertook this exercise, I was shocked at the environmental impact of producing one product as cheaply as possible, keeping that cost at the point of sale to something that will encourage bulk sales, and the consequential negative impact on the environment.

When carried out with a class of young pupils in a primary school, they too were amazed at just where their clothes were coming from, the significant impact of transportation and when all aspects of design, raw materials, manufacture and transport are considered, the incredibly low end-price. This naturally led students to ask where the profits from the product were going and whether this profit share was proportionate and equitable. I am told the result was young people rummaging through the insides of clothes in-store to find the country of manufacture and asking key ethical questions with their parents before sanctioning a purchase...now that is real impact!

Designers are starting to shift their focus from price to ethical sustainability. Still, the drive must come from consumers who demand more than mass-produced, fast-moving, disposable goods for all design to change. It is up to us as design and technology teachers to engage our pupils in discussions that enhance their awareness in this field, enabling them, as future consumers, to influence the design of products and forcing a lasting positive impact on global environmental health.

D&T the design and technology association

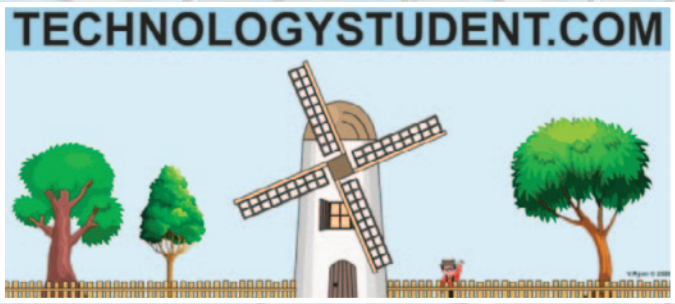
Teaching and learning strategies – design & technology leads the way

Introduction

During this difficult year, remote learning has taken centre stage, putting pressure on teachers and pupils. To motivate pupils working from home, D&T teachers have had to vary their teaching strategies and master online learning software.

Online learning is likely to continue, as a way of reinforcing knowledge, taught in a classroom and workshop. It has also been a way of encouraging independent learning.

This article explains some of the learning strategies, I have developed and used in recent years, and throughout the remote learning period. They are all published through technologystudent.com.



By V.Ryan - technologystudent.com -
World Association of Technology Teachers

Create your own knowledge maps

Knowledge maps are simple in concept. A single visual slide/page, full of questions relating to a topic, with links to helpful information. Knowledge maps give the teacher the option to set precise work for pupils and are suitable for all age groups. They can also be used in combination with a textbook, if working in a classroom or without an internet connection.

Knowledge maps are usually published in PDF and PowerPoint format. The latter is editable, so that new slides can be added, allowing pupils to create their own electronic file. Ideal for remote learning, independent learning and homework.

How can you produce your own knowledge maps?

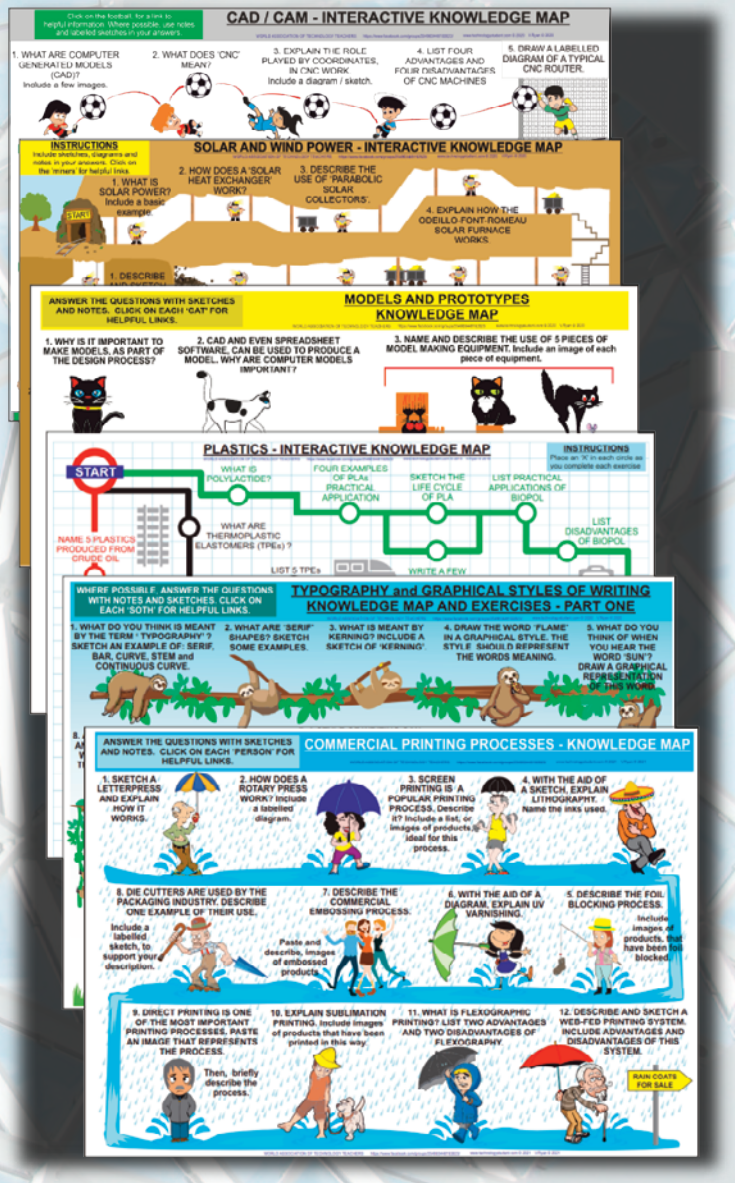
They can be created on a PowerPoint slide, importing the images you intend to use, adding questions, followed by links to helpful websites. I create my knowledge maps in CorelDRAW and export them as PDFs. However, exporting to PowerPoint from Adobe Acrobat Pro, is a different matter, as internet links attached to graphics, tend to be lost. The best way is to create a png/jpeg of the knowledge map, import it to a PowerPoint slide and then add the links to websites.

https://www.facebook.com/groups/254963448192823

I recommend you have a go at publishing knowledge maps, as they can be tuned precisely, for your pupils.

A word of warning. Be careful which websites and resources you link to. You have no editorial control over external websites. They may simply disappear, or the content of the pages you link to, may change. Only link to trusted websites.

You can try some of my knowledge maps out at:
https://technologystudent.com/equip_flsh/knowled1.html



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Teaching and learning strategies – design & technology leads the way

Pdf apps and smart learning sheets

From my experience, pupils can lose interest and motivation if they are faced with navigating through a detailed website searching for specific information. Most pupils need guidance in their learning.

Interactive mobile PDF Apps are relatively easy to create and they are very useful. You do not need your own website to create an PDF App. A typical App introduces pupils to a specific area of knowledge, for instance 'Art Movements'. An App typically comprises fifteen or more slides. Each slide is a revision card. For instance, one slide may summarise Art Deco, the next Cubism etc. If a pupil/teacher requires more detail, simply clicking on an image on each slide, will take them to the correct page on a website (this is called 'One Touch Learning' (OTL)). My Apps are supported with Smart Learning Sheets, in PDF and PowerPoint format, providing a complete D&T learning package.

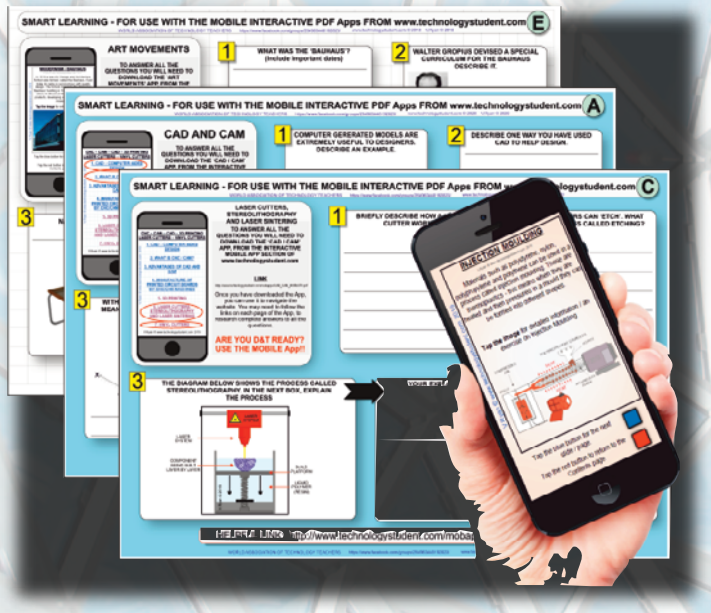
In summary, each App has been designed to be a simple way of navigating a website or a number of websites. They are ideal for both Mobile Devices and PCs, working on any device. A great aid to independent learning and revision.

By V.Ryan - technologystudent.com -
World Association of Technology Teachers

How to create your own PDF Apps:

Using PowerPoint, create a 8 x 5cm slide. This matches the screen ratio of most mobile phones and tablets. Write a revision card for each slide and include an image. Link each image to more detailed information, on a website. Then, export the PowerPoint as a PDF. The PDF will keep its links to websites and resources, and be compatible with every type of device.

You can try some of my Apps and Smart Learning Sheets at:
https://technologystudent.com/despro_flsh/mobapp1.html



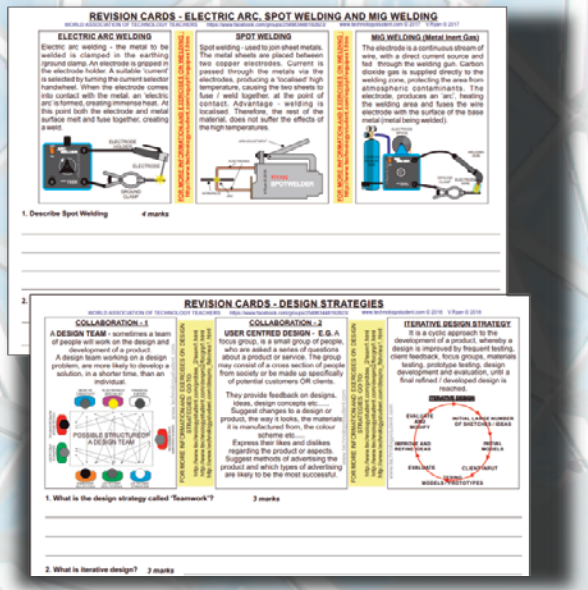
Retrieval practice revision cards

One of the best ways to boost a pupil's ability to 'retrieve' knowledge, is to use 'revision cards'. The cards are a summary of knowledge, based on theory lessons recently delivered. Pupils answer two or three questions, using their own memory of recent lessons, the information on the cards, or links to websites, to retrieve the answers. This is a proven method of boosting learning/memory, as well as evidence of assessment.

Working through a set of revision cards, allows a pupil to build up a set of questions and answers, ideal for examination practice. They are easy to produce and are an excellent addition to resources for revision.

You can try some of my cards at:

https://technologystudent.com/despro_flsh/all_revcards1.h



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Teaching and learning strategies – design & technology leads the way

More strategies to motivate pupils

Have you struggled to find a variety of teaching and learning strategies, suitable for D&T? Worried about your next lesson observation? Worried about your next OFSTED inspection?

Consider trying the variety of learning strategies: Revision Webs, Boxed Learning, Circular Learning, Three Way Revision Exercises, Starter Cards and Hexagonal Analysis.

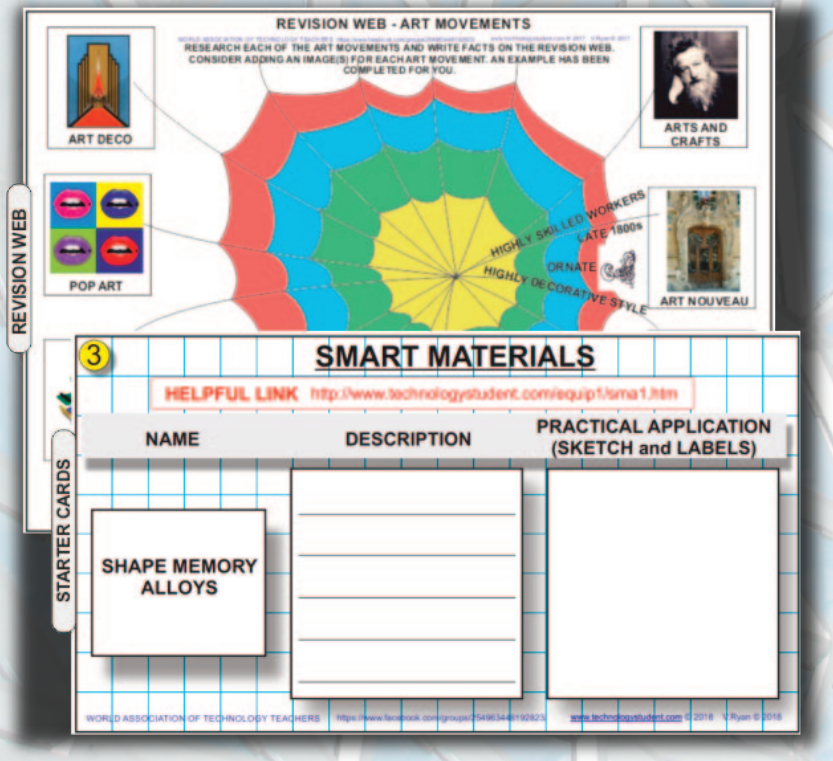
For more examples try: https://technologystudent.com/despro_sh/new_revison1.html

Maintaining the interest of pupils and motivating learners, has always been a problem faced by teachers. Try out some of these teaching and learning strategies on your pupils. Vary your teaching methods and you may impress your senior colleagues, pupils and even OFSTED inspectors.

By V.Ryan - technologystudent.com - World Association of Technology Teachers

The main benefits of using a range of teaching and learning strategies in D&T are:

- Student motivation and self confidence increases.
- Students tend to spend more time, on their own individualised learning, when experiencing a range of learning strategies.
- Productive interaction and discussion between students, promotes active learning and memory retention.
- Different strategies reinforce student learning, especially when cooperative learning is involved.
- Students are more comfortable with their learning, when they are armed with a variety of learning tools and strategies.
- Students who normally struggle, when being taught in a standardised way, often make progress, when alternative learning strategies are introduced.
- Students gain ownership and directorship of their learning.



360° FOOD

by Barbara Rathmill, The Food Teacher's Centre

The Food Teacher's Centre support network has over 7000 members and offers a range of different methods of accessing help for food teachers, including resources, ideas and training.

One of the latest developments is the 360° Food Training Room.

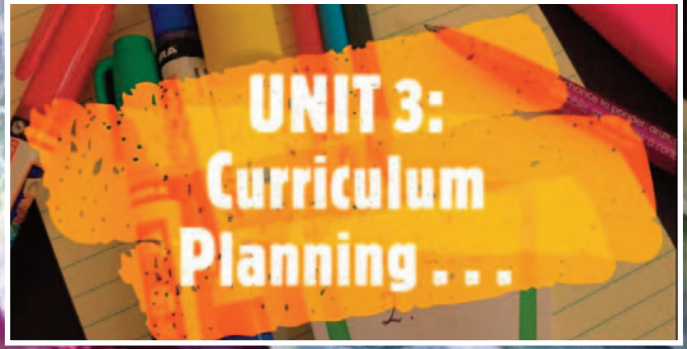
What is the 360° Food Training Room?

It is a comprehensive, on-line training room that educates and supports food teaching for 11 – 14 years (KS3). Approximately 1 full day of professional training that fits teachers' needs and routines.

The 360° FOOD Training Room addresses best practice in key stage 3, 11 – 14 years food education including:

- **how to plan what to teach and why**
- **what content to include**
- **which resources effectively support the curriculum**
- **exemplar teaching schemes and resources**
- **safety and food room organisation**
- **the effective use of success criteria in assessment**
- **teaching in different situations (COVID-19)**
- **ongoing support via training room group**

In addition to providing a one-stop shop for teachers of food, it also provides on-going support throughout the year via new content and group discussion sessions.



What would I gain from joining the 360° Food Training Room?

- **In-depth coverage of the foundation documents upon which the food curriculum for 11–14-year-old students is based.**
- **Clear and visual presentations applied to food curriculum planning, in bitesize guides.**
- **Fully illustrated examples of curriculum organisation for food, schemes of work, support booklets, homework**
- **Signposting of trusted resources with ideas for practical strategies to create a higher challenge classroom.**
- **Help and support for teaching in different situations.**
- **Printable slides for all presentations to aid user participation.**

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360° FOOD

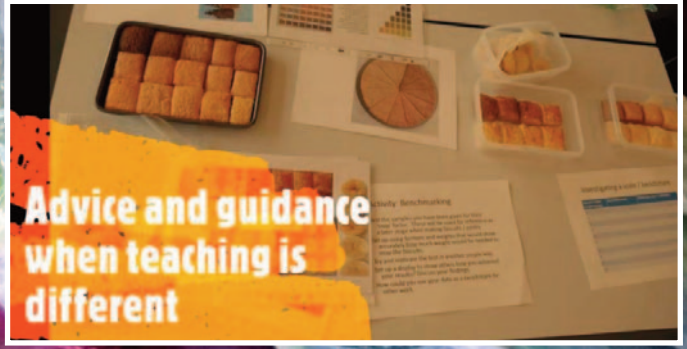
by Barbara Rathmill, The Food Teacher's Centre

What is special about the 360⁰ Food Training Room?

A team of experienced and highly qualified subject specialists from the Food Teachers Centre has worked together to create this unique one-stop shop.

Why use the 360⁰ Food Training Room?

- Unlimited access to the training room for a school year, with handouts to download and links to further useful resources.
- Best use of time: flexible access, revisit when needed, ready-to-use resources.
- On-going extra motivational content throughout the academic year of purchase e.g., support for open evenings.
- Over 5 hours of training.
- No need to be away from your lessons.
- No cover needed for your classes.
- No travel arrangements or costs.



Who is the 360⁰ FOOD Training room for?

- For teachers who lead and are in charge of food activities at Key Stage 3 or equivalent.
- Teachers who prepare students for GCSE Food Preparation and Nutrition and other qualifications.
- Teachers who are new to food teaching, and part-time teachers.
- D&T teachers without food curriculum knowledge who need to teach across the faculty.
- Experienced teachers who may wish to refresh the way they teach food.
- Newly or recently qualified teachers.

For more information 360⁰ FOOD – https://foodteacherscentre.co.uk/online-training/360-degree-food/

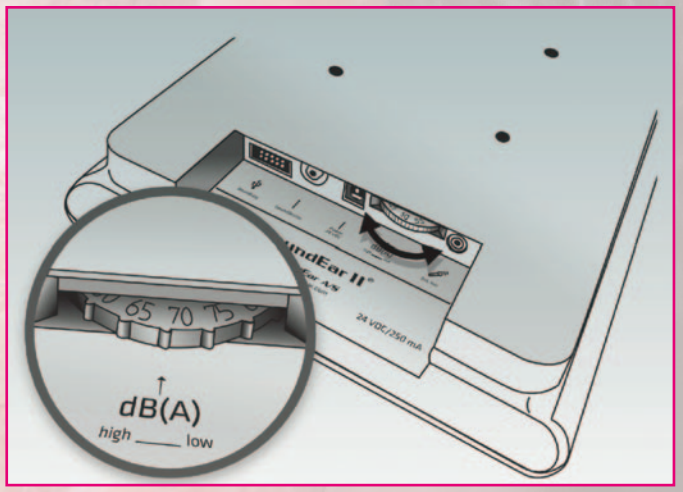
Environmental Monitoring for the Classroom

by Alasdair Jones, Techsoft UKLtd

SoundEar Making Noise Visible

Noise is more than a nuisance. According to the Health and Safety Executive, some 17,000 people in the UK suffer deafness, ringing in the ears or other ear conditions caused by excessive noise at work.

Even in a normal classroom background noise can exceed recommended values, but the problem is multiplied in a D&T workshop and there's more to it than classroom management. The result is a loss of focus and concentration which has a negative influence upon teaching and learning, and ultimately a risk of hearing damage. Prep rooms can also be a problem area, because they are usually where the noisiest equipment is operated (think: planer/thicknessers, circular saws, and large extraction units).



We're all familiar with the blue signs showing a pair of ear defenders, but it's easy to forget to wear ear protection, or simply ignore the sign. With a visual reminder that noise levels are above recommended values, it is more likely that operators and others will take notice. Students and teachers can easily understand clear and unmistakable warnings displayed as soon as the noise exceeds the limit, and immediate action can be taken.

The SoundEar is a simple 'plug-and-play' unit, which can be hung in a prominent position on the wall. The device is set from the factory to show a warning at the upper exposure action value of 85dB and can be easily adjusted between 40-115dB.

The unit is dust and water-proof making it perfectly suited to a workshop environment. With purpose-designed health surveillance software, an integrated log means that data can be monitored and recorded for up to 600 days.

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Environmental Monitoring for the Classroom

by Alasdair Jones, Techsoft UKLtd

SoundAir A visible warning for poor classroom ventilation

Carbon Dioxide (CO_2)

CO_2 has long been recognised as a workplace hazard at high concentrations. It is naturally present in the air we breathe and is not harmful at low concentrations. As the concentration of CO2 in air rises it can cause headaches, dizziness, confusion and (at high concentrations) loss of consciousness. When a lot of people are gathered in the same room CO_2 levels can increase, and air quality can deteriorate.

The law requires employers to ensure an adequate supply of fresh air in the workplace, and obviously this is vital in the classroom environment. Recent studies have shown that CO_2 concentration can have dramatic effects on students' well-being, levels of concentration, learning capacity and ultimately exam results. Some school buildings have better ventilation than others, but in most, it is not possible to identify the effectiveness of the normal ventilation.

The SoundAir can be hung on the classroom wall and the non-dispersive infrared (NDIR) technology continuously monitors levels of CO_2 in the environment. A flashing red light is shown as soon as the concentration of CO_2 in the room gets too high (usually above 1000 parts per million), indicating that action is needed to improve ventilation.
Levels can be set between 400-2000PPM. This simple, effective device can have a dramatic effect on improving the classroom environment.

COVID-19 Precautions

Air quality is more important than ever at the moment. The HSE recommend using CO2 monitoring to identify poorly ventilated areas during the COVID-19 pandemic to allow proactive improvements to be made. Good ventilation reduces the concentration of the virus in the air and reduces the risks from airborne transmission after someone with the virus has occupied an enclosed area.

Visit
www.techsoft.co.uk/products/safety
for further details.

Preventing Injury and Danger in your DT Workshops

Whoever first said that prevention is better than cure certainly knew their stuff!

Satisfy due diligence in the prevention of injury, danger and mishaps in your D&T workshops with these three fundamentals:

- Regular safety inspections of machinery and workshop environment
- Regular maintenance of machinery
- Regular refresher training for machinery users

Regulations require regular safety inspections of your machinery and dust extraction systems. An annual safety inspection by a knowledgeable and suitably competent specialist is the recommended way of ensuring that you are complying with current safety regulations and guidelines.

The subsequent provision of a clear report for each machine or dust extractor will highlight any issues (actual or potential) that may exist so that you can assess the risks, or arrange appropriate maintenance/upgrade work and satisfy yourself that it is once again safe to be used.

Once you are confident that your machinery is safety compliant and well-maintained the next thing to ensure is that all the members of your team, teachers, assistants, apprentices and technicians, are appropriately trained and certificated. In addition to initial training, there is an expectation that refresher training should be available for staff over a three to five year period.

Training must have been received, and competence achieved and certificated, for each type of machine. Training on the use of a benchtop scroll saw, for example, does not prove competence in the safe use of a floor-mounted bandsaw.

Training for the safe and competent use of fixed or portable power and hand tools is also available, whether a user is experienced or a novice. This applies to pneumatic tools as well as battery and power tools, and includes such commonly used tools as routers, saws, planers and sanders.

Good training will include a range of precautions related to each machine, such as the selection and setting of guards and tooling, safety settings, improving productivity, programming, and much more.

Often, the best way for the members of your team to receive this type of training will be in your own workshop(s), using your own machines. This is an efficient way for you to manage the logistics of fitting the training to the collective availability of team members and the calendar demands of the school term.

It's important to ensure that appropriate certificates are issued to the individual members of your team by the trainer. A range of training and related certification is available including, for example, Certificate of Competence in the Safe Use of Woodworking Machinery, Apprenticeship (and Level 2) in Machine Woodworking (or Saw Milling), etc. Some certification requires the completion of theory models and tests.

Machinery Safety Solutions (MSS) is a trusted provider of inspections and safety upgrades, LEV Thorough Examination Testing (TExT) and Inspection, maintenance, adaptions & installations and training. We are always happy to advise users by email or telephone.

admin@machinery-safety-solutions.co.uk

01795 477988

by Karen Norris, MSS

Old school,

new technology

by Anthony Byrne, Gratnells

With its idyllic duck pond, ancient oak trees and historic church perched on a hill, the village of Fingringhoe in Essex feels frozen in time. The tiny primary school, built in 1863, also oozes a sense of history. Indeed, it seems an unlikely location for someone to test out a new piece of potentially game-changing classroom technology but that is exactly what has happened.

Education technology guru Professor Stephen Heppell approached the school and local authority asking them to try out a prototype of the new Gratnells Learnometer device he had developed with the leading education business.

The discreet device sits in the classroom and measures key environmental factors proven to affect learning, including temperature, humidity, CO2, air pollution, light and sound levels. The idea is that once teachers, schools and pupils see real data on their classrooms it will motivate them to make changes that will improve learning. Real time readings can be taken by scrolling on the face of the Learnometer and historical data is available via the dashboard that is accessed on a laptop or desktop computer.

At Fingringhoe, the chosen classroom was fitted with a folding writable wall, sound absorbing technology, self-adjusting LED lighting and the latest ergonomic furniture. There is even a special wall of plants, each one owned by individual pupils, to increase oxygen levels.

Heppell says of the Fingringhoe project, "The pupils themselves could see that the pupils in the dark corner were the ones who weren't concentrating coming up to lunch. Every child, he says, now has a view about what's working well in their classroom and what needs to be improved still.

Year 6 class teacher Alex Yates explained that teachers have already used data gathered by the Learnometer to show pupils how CO2 levels in the room rise and fall over the course of a day. She says, "We've printed off some graphs and they've seen when they're not here overnight how the graphs change and they can work out when they've been out to play, for example."

Children in the class also say that using the Learnometer has greatly raised their awareness of how they are affected by their learning spaces.

Deputy headteacher Hayley Rollings, said

"Our awareness of different factors that affect learning has increased, we are all starting to have a better understanding."

Professor Heppell says that as well as data from the Learnometer, his team are collating feedback from teachers and pupils on improvements to behaviour, concentration and work rate of pupils. The subjective perceptions of teachers are important as well as the hard data, he stresses, and he hopes that other schools will adopt the Gratnells Learnometer and be inspired to make changes to their classrooms. Marginal gains, he says, are as vital in schools as they are in sport. ***"If learning was the Olympics, this is what it would look like,"*** he says.

www.gratnellslearnometer.com

CLEAPSS small print

Over the past few weeks we have had a lot of Helpline queries, but, thankfully, not all about COVID.

As schools are starting to restart their practical activities, some schools have raised some important issues that we thought are worth sharing:

1. Noise.

You may have already seen articles from Techsoft and Gratnells related to environmental monitoring. Noise has also been raised as an issue raised via ***Helpline*** queries.

This was also a topic of conversation when we were putting the final touches to the British Standard.

There is no specific set of data for noise in workshops, other than background, ambient noise levels. The reason is that when a room is constructed, the architect must ensure that the ambient levels (those over which the teacher has little or no control) must be no higher than 40Db (plus 10 for local variations) this covers all of the equipment that is not, normally, under the control of a teacher:

- Lighting
- Heating
- Ventilation
- Extraction

However, this requirement does not cover the noise levels created by the equipment that is under the control of the teacher. Where the teacher has control, the noise produced would need to be built into the risk assessment for the activity. Suitable controls should be put in place to ensure that potentially higher noise levels are not going to produce harmful effects for the teacher (employee) or others (pupils). To work out which noise levels would need to be monitored and, potentially, controlled, the employer would need to carry out noise level tests.

To do this requires a noise level measuring device (something that is calibrated, rather than an app on a smart phone). The tests would be carried out at various points around the room, as different activities are taking place. It may be that cutting thin sheet material on a band saw would create noise levels at around 65-80Db, when measured at head height of the operator. The noise level may drop considerably a few metres away from the source.

The HSE has produced a 'ready reckoner' to use, that enables operators to work out how much exposure they are suffering from noise. Appropriate controls, such as changing the task, or material, or as a last resort, wearing ear defenders, can then be put in place:

https://www.hse.gov.uk/noise/dailyexposure.pdf

Regular exposure to in excess of 87Db can result in hearing loss, so should be avoided. Peak noise levels of 140+Db can also lead to hearing loss. However, this is likely to be difficult to quantify, as these types of noise are usually sudden, such as banging two hard surfaces together or an explosion.

Where a piece of equipment is likely to create sound energy that may need to be controlled, we have identified this in the appropriate Model Risk Assessment (MRAT).

2. Allergies in food.

We have included a number of points about allergies in our food documents, particularly:

http://dt.cleapss.org.uk/Resource/Working-with-Food.aspx

http://dt.cleapss.org.uk/Resource-File/Food-Poisoning.pdf

A school asked if we could direct them to a suitable training course on working with children who present with allergies. It seems that the number of such pupils is rising, and staff may need some further training to be able to manage their food practical work.
The Food Teachers Centre (FTC) has a list of courses for teachers, which are mentioned in the FTC article earlier in this edition of Futureminds, and can be accessed via their Facebook page:

https://www.facebook.com/groups/foodteacherscentre

There are many online and face to face training offers, and, as long as schools access training through a reputable training agency, there should be little significant difference in content, as they all build their training from an agreed specification.
The British Nutrition Foundation is also a good source of training advice (https://www.nutrition.org.uk/).

Where you are concerned about pupils with allergies, you may be able to get information from your SENCO or other person with responsibility for dealing with the individual needs of pupils. They should be able to provide you with advice or put you into contact with a health expert. For conditions like allergies, you may not have this information in school, as pupil's reactions to food ingredients may change with age and may not have yet been picked up. However, in many cases the pupils and their families will already have been managing the allergy for some time, and may have suggestions that you can follow to help the pupil cope in the lessons. Having a specific 'allergy' work area would be a good idea for those with severe allergy issues, but even then, there may be airborne pathogens that may affect a pupil. In most cases good hygiene practices will be enough to manage allergy issues. However, in some cases a 'wipe down' will not be sufficient. Having separate utensils that are never cross-contaminated may be needed. For example, having pans that have never come into contact with peanuts or peanut oil, stored in a cupboard that keeps them separate from general pans.

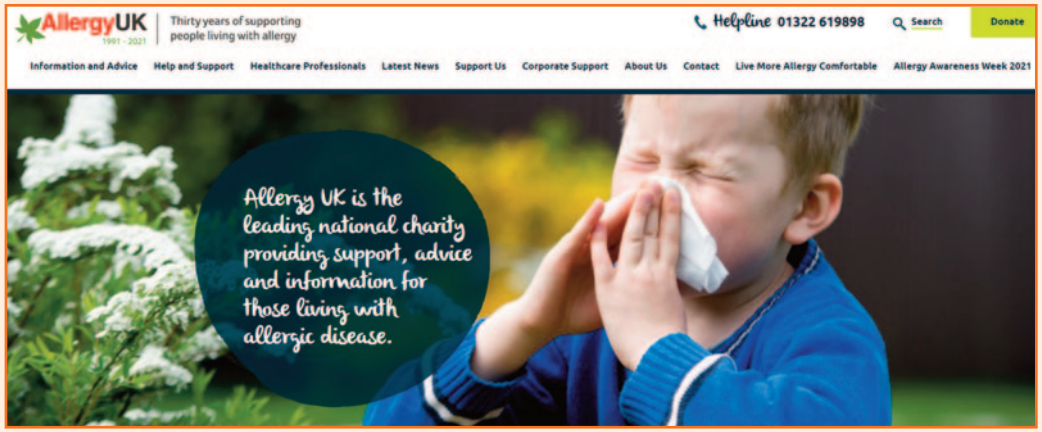
Keeping items separated from general items is difficult, but it may be possible to identify the equipment with an indelible mark. It is difficult to mark food equipment, engraving the underside of equipment is a possibility, or even using a laser cutter to engrave numbers or names. It is probably worth the food teacher or technician having a chat with the D&T technician.

Allergy UK has some really interesting data regarding allergies, and has produced a detailed breakdown of some of the major effects

https://www.allergyuk.org/assets/000/001/369/Stats_for_Website_original.pdf?1505209830

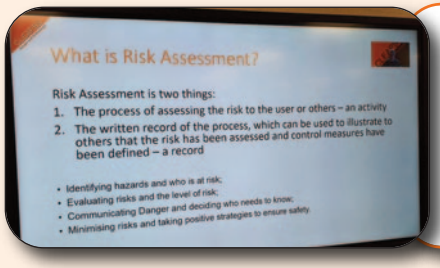
- It is estimated that between 1-10% of adults and children have a food hypersensitivity. However as many as 20% of the population experience some reactions to foods which make them believe they do have a food hypersensitivity (The Association of UK Dietitians (BDA), 2015)

- Food allergies are a cause of particular concern in young children, where the incidence of food allergy (often life threatening) is estimated to be greater in toddlers (5-8%) than in adults (1-2%) (Pawankar R, et al, 2013)



Some recent tweets

Minor updates to GL344 our guide for practical work during the pandemic.
http://dt.cleapss.org.uk/Resource-File/GL344-Guidance-on-practical-work-during-the-COVID-19-pandemic-D-T.pdf



The CLEAPSS online #HandS training is free to members, available from the website, its 5 short videos with some exercises, takes around an hour to do it all. Ideal INSET or dept time.
https://mailchi.mp/cleapss.org.uk/dt-online-course-sign-up

If you haven't seen it yet, there is an international engineering challenge in #futureminds, thanks to #uttyler get your pupils involved in designing covid engineering solutions:
http://dt.cleapss.org.uk/Resource-File/Futureminds-17-spring-2021.pdf

A new era for CLEAPSS as we start work on our new home...

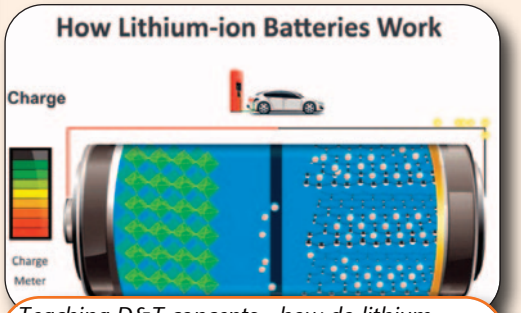
CLEAPSS D&T H&S Video 1

Dave Parry
D&T Adviser

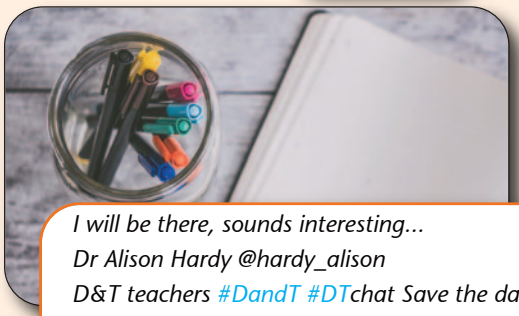
To follow up our free online H&S course for science technicians, we now have a similar course for all DT staff. Find all the details here:
https://mailchi.mp/cleapss.org.uk/dt-online-course-sign-up

uavhub.com

Get up to £3,000 from the Royal Society for an investigative STEM project:
https://royalsociety.org/grants-schemes-awards/grants/partnership-grants/?utm_source=house-list&utm_medium=email&utm_campaign=education-news



Teaching D&T concepts - how do lithium batteries work?
Science Made Simple: What Are Batteries and How Do They Work? (scitechdaily.com)



I will be there, sounds interesting...
Dr Alison Hardy @hardy_alison
D&T teachers #DandT #DTchat Save the date: Tuesday 6th July @4.30pm. Come along to our book launch for 'Redesigning D&T'. @David_Spendlove, Eddie Norman from @ldpressbooks & I will share set out some initial ideas & research, inviting you to join us in desiging D&T

Is it time to say goodbye to the gas cooker? Interesting 8m video, a good starter for food lessons:
https://www.youtube.com/watch?v=q_I8xc9hLoU

In the autumn edition of Futureminds

We will have an update on the consultation of the British Standard, and where schools will need to take note of significant changes in our guidance. There will be information from the Awarding Organisations about the summer exam season and plans for the future.

We will also have a range of articles from schools, suppliers and other agencies, if you have an idea for an article, or a suggestion for future editions, please get in touch, using the *Helpline*, or email dt@cleapss.org.uk