

Happy New Year

Hello (and goodbye). We have had some staff turnover recently. Towards the end of last term we welcomed our new director: Steve Jones. Steve has been working for the Secondary National Strategy for the past 10 years, so many readers will have seen him in schools or on training events. Before that Steve worked as a head of science and then science adviser in Hertfordshire. Steve brings all sorts of insights into the developing world of school science which he will bring to bear on the support we offer in the future.

Chris Peel has retired and his post has been taken by Jane Nickless. Whilst we are sad to see Chris go we are delighted that Jane agreed to give up her role as our lab technician to become the technician adviser. We are also delighted that Chris will continue to deliver some training courses, just to keep his hand in, so many of you will continue to see him on technician training events.

Mary Owen has been appointed as the senior lab technician. Mary has been developing the new CLEAPSS technician training programme which is being piloted in Birmingham. She will continue with this work, at least until the end of the pilot, whilst combining it with running the CLEAPSS laboratory and supporting courses.

CLEAPSS is also seeking an assistant director. You will find information about this post below, and on our website. Talking of which, many of you will have seen and used the newly designed web site. We like how it has turned out but in addition to being more attractive, it also offers CLEAPSS the opportunity to extend our on-line support for members. Watch out for further changes over the coming year. The 2011 log-in details are on page 2 of this Bulletin.

CLEAPSS Recipe Book replaces the previous *Recipe Cards*. You should receive a paper copy (A4, because of the increased information) along with the 2011 science CD. You will also find an electronic copy on the new CD and, of course, on the website.

Membership of CLEAPSS: future issues

The newly announced government spending cuts look likely to impact heavily on all of us. Local authorities are likely to reduce significantly the services they can offer to schools free of charge. This may well include CLEAPSS membership, especially if the school has recently become an Academy or is considering such a move. At present CLEAPSS membership is paid by the employer. As schools become distanced from their former local authority, science and technology departments should question the arrangements for continued CLEAPSS membership. Membership is purchased annually by a very modest subscription and needs to be maintained for teachers and technicians to be able to access our support. Sometimes the first time a teacher or technician realises that membership has lapsed is when they call for advice to be told we can no longer help. Many local authorities also include cover from the CLEAPSS RPA (Radiation Protection Adviser) service, which schools holding radioactive sources are legally required to obtain, if not from us then from somewhere else. Some local authorities are also questioning whether they can afford to fund CLEAPSS membership. Currently, if a local authority withdraws from CLEAPSS the *local authority* schools cannot join as associate members. In addition, it remains financially advantageous for *any* school to be a CLEAPSS member through a local authority. We would encourage schools to persuade their local authority to remain in membership for the advantage of all.

Assistant Director of CLEAPSS

We are looking for an assistant director who is also an experienced chemist. The post would involve contributing to the full range of CLEAPSS activities and include: deputising for the director, developing and promoting CLEAPSS services in a fast changing educational environment, and extending our web offer. Specific responsibilities would be negotiated with the successful candidate. This is an opportunity to join the organisation at an exciting moment in its development. For further information please see the CLEAPSS website.

Ofsted's view of practical science

For those schools working in a school where there is a threat to reduce technician's hours. Ofsted recently published guidance on criteria by which a science department can achieve a judgement of outstanding for attainment:

(Pupils) "show high attainment in a full range of practical work and take the initiative in, for example, planning and carrying out their own scientific investigations.... Practical work is not confined to following instructions but uses a variety of contexts, including fieldwork, in which pupils are making decisions about investigations and ways of researching contemporary issues." The full guidance is contained in a document entitled *Science Survey Visits. Generic grade descriptors and supplementary subject-specific guidance for inspectors on making judgements during visits to schools.*

<http://ofsted.gov.uk/content/download/11205/132454/file/SC%20subject%20guidance%20final%2013-9-10.pdf>

This has clear implications for science teaching and for the support offered by skilled technicians. On that note you will see on page 2 that we have developed and embarked on a new 12-day programme of technician training.

FREE

to all member
secondary schools
& other members.

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Exploding thermometers

Even the smallest change of procedure when carrying out practical experiments can produce unwelcome incidents. An experienced teacher, when undertaking the cooling of wax practical, had always asked the class to heat test tubes containing wax and a mercury thermometer, directly over a Bunsen burner.

Recently at this school, mercury (toxic) thermometers were replaced with spirit (low hazard) ones. One pair of pupils must have heated the bottom of their test tube with a hot flame so rapidly that a small section of the wax (which has a low thermal conductivity) was heated to a temperature higher than the boiling point of the spirit in the thermometer. The spirit in the thermometer vaporised and the sudden increase in pressure shattered the thermometer and shot the hot wax over the pupils. One of them was quite badly burned.

There are two ways to heat wax, or any other low melting point solid. The test tube can be clamped in a boiling water bath on a tripod and gauze. Once melted, the tube of wax can be raised out of the water to cool by releasing and re-fixing the boss (not the clamp on the boiling tube). Alternatively, a beaker can be half-filled with boiling water from a kettle and the test tube inserted in the water. The beaker can be handled via the rim which will be cool compared to the bottom half.

We have also received a call from a school where a spirit thermometer was plunged into boiling water and exploded. We suggest these thermometers should not be plunged directly into water at 100°C

Finally, we heard of a head teacher who banned kettles in school, to stop staff making coffee. The science staff are trying to convince him that kettles are really needed for science practicals

Science project work

Examination boards increasingly require students to complete project work, particularly at post-16. Over the years we have supported members with advice on a variety of original activities, sometimes including exotic chemicals or techniques. It is encouraging to see students using their skills in interesting ways. However, teachers need to be aware that a special risk assessment is needed for any novel activity. The duty lies, as always, with the employer to ensure that a risk assessment has been carried out and is followed but, in practice, the teacher needs to check that an appropriate risk assessment is in place.

Where students are asked to produce a risk assessment themselves (using CLEAPSS Students Safety Sheets, available on the web site without logging in), the teacher must always check it before any practical work takes place. Consult a specialist colleague and/or CLEAPSS if unfamiliar activities are involved.

A level Investigative Skills Assessments (ISAs)

Recently we have received calls from several schools about difficulties preparing for some ISAs, particularly at A level. We have given such advice as we could but, because the ISAs are confidential to centres, some details are not available to us. In response to our contacting the awarding bodies, the AQA have requested that all queries are referred to their advisers. We are awaiting a reply from OCR.

We have been able to liaise very successfully with the AQA over GCSE science ISAs and have been able to offer some helpful suggestions to both the awarding body and to centres.

CLEAPSS Training for New School Science Technicians

In conjunction with Birmingham local authority, CLEAPSS is currently running a pilot of the new practical-based, assessed and accredited course *Training for School Science Technicians* for new or inexperienced technicians.

We plan to make this course available nationally after the pilot, incorporating any developments suggested by it. This would be the first time for many years that a training programme, specifically aimed at teaching the range of skills required of a competent school science technician, would be available. Watch this space for updates on its progress throughout the year.

CLEAPSS support for 2011

For 2011 the log-in details (also on the 2011 CLEAPSS science CD) are:

username: , password: .

Please make sure all science, D&T and art staff have this information. The previous log-in details will cease to be valid at the end of January 2012.

During January we are distributing the 2011 science CD and an art CD, which carries our new model risk assessments for art and design. If yours has not appeared, check whether it has found its way to the IT department. If all else fails, give us a ring. The advent of the new web site makes CD production much more difficult. 2011 may, therefore, be the final year for CD production. It could become a collector's item.

Do you have a starting pistol?

Changes were made to firearms regulations in 2007 – *The Violent Crime Reduction Act 2006 (Realistic Imitation Firearms) Regulations 2007* made it illegal to have a blank-firing gun which looks like or could be mistaken for a real gun. The regulations require blank-firing guns to not look like a real gun, and must be coloured bright orange or green or pink, etc.

If your department has an older blank firing gun used for legitimate science investigations then it may now be illegal to hold it. The crucial issues are does it look like a real gun and/or could it be converted to firing live bullets. It seems that even if such a conversion is difficult, the existence of the possibility renders it no longer legal to be held.

The only way to determine whether any blank firing gun falls within the new regulations is to have it examined, preferably by the firearms enquiry team of the local police force. This is the team to whom illegal guns must be surrendered.

CLEAPSS understands from discussion with the police that it may well have become illegal to have any blank-firing gun purchased before 2006.

The legislation on guns is very complex but has at its heart the desire to reduce crime involving real or pretend guns.

Disposal of radioactive sources



CLEAPSS always encourages schools to keep and use radioactive sources. Sometimes, the employer's Radiation Protection Adviser (RPA) may recommend the disposal of old, inappropriate or redundant radioactive material. When such advice is received, the school's RPS should arrange disposals promptly, following the procedures described in CLEAPSS guide L93, section 11.

During 2011, the Government intends to abolish various "Exemption Orders" covering the disposal of radioactive material, which have been in place for over 40 years. These exemptions are being reviewed, updated and incorporated into the new *Environment Permitting Regulations*. In some circumstances, the changed requirements may significantly increase the costs of disposal. Therefore RPSs are advised to act immediately if any disposals are pending.

Tech tip: Retort stand storage

A technician has solved his retort stand storage problems by initially converting an old cupboard as in the first picture. He fitted wooden bars across the face with 'V' shaped grooves to take the rods, with a wooden bar at the back to support the rods. When he had a lab refurbished he had wooden bars fitted between 2 cupboards with holes drilled to take the rods (second picture) which he found an improvement on the 'V' grooves .



Getting Practical (Improving Practical Work in Science Programme)



Check out the *Getting practical* web site www.gettingpractical.org.uk for some new case studies of successful practice and for dates of upcoming courses.

Also, don't forget the RSC 'LabSkills' project which provides an e-learning tool for students (and teachers) to do some preparation work ahead of chemistry classes. One USB stick of the *Labskills* resources is available free of charge to all UK state secondary schools and FE colleges. To register for your schools copy visit www.discoverlabskills.org

Re4med Tops

This company reuses old science bench tops such as those made of iroko and other hardwoods. The company will purchase benches from schools having one or more labs refurbished. Such old worktops have, in the past, found their way into the school D&T department but machining or even hand-working woods such as iroko releases dust which is known to be hazardous and in, particular, strongly allergenic. CLEAPSS no longer recommends such woods should be machined or even hand-sanded by pupils.

The company can be contacted on:

email re4medtops@gmail.com

web site - re4medtops@moonfruit.com

Tel 01271 830283

Partnerships for excellence in science and engineering



The Royal Society's Partnership Grants scheme opens on 3rd January 2011. You can apply for up to £3000 to work with scientists and engineers on creative investigations that inspire students with the excitement and wonder of cutting-edge science or engineering research. Funds are available for projects working with students aged between 5-19, as long as the project involves a UK school or college, and a practising scientist or engineer. The next round for applications closes on 25th February 2011. For more details about eligibility criteria and to find out how to apply, go to <http://royalsociety.org/partnership> Royal Society staff are happy to discuss ideas for projects, and can be reached on education@royalsociety.org or 0207 451 2554

The Art of Practical Science

The residential course for teachers is on again. 13th-15th July 2011. Look out for details and how to apply.



CLEAPSS courses

Course	January 2011	February 2011	March 2011	April 2011	May 2011
Basic skills courses for new and inexperienced technicians					
Basic Chemical & General Skills	Southampton (SLC)	Northamptonshire (SLC)	London (SLC)		
Basic Physics Skills	Southampton (SLC)	Bristol (SLC)	Essex	London (SLC)	Dartford
Biology Safety					
Chemical Safety for Technicians	London (SLC); Uxbridge	Keele	Durham (SLC); Sheffield (SLC); Bristol (SLC)		Brighton (SLC)
Technicians' Health and safety	London (SLC)	Birmingham	Caernarfon; Kingston upon Hull	Cambridgeshire	
Microbiology (for technicians with some experience)	Buckinghamshire; Uxbridge	Dartford; Essex	London (SLC); Southampton (SLC); Greater Manchester	Cheshire	Keele (SLC)
More advanced courses for those with some experience and wishing to develop their expertise					
Further Microbiology		Bristol (SLC)	London (SLC); Southampton (SLC); Greater Manchester	Wrexham	Dartford
Microscope Maintenance		Surrey		London (SLC)	Brighton (SLC)
Physics Training for Technicians	Uxbridge	Keele (SLC)	Sheffield (SLC); London (SLC)	Gloucestershire; Windsor & Maidenhead	
Practical Skills & Techniques in Chemistry	London (SLC)	Aylesbury (SLC); Hertfordshire			Bristol (SLC)
Courses for senior technicians or others with considerable experience that aspire to become a senior technician					
Electrical Inspection & Testing		Hertfordshire			Southampton (SLC)
Fume Cupboard Monitoring			Uxbridge		
Prep Room Management and H & S for Senior Technicians	Uxbridge		Dartford		
Surely it's banned/Microscale Chemistry		Essex (SLC)	Dartford		
Working with Glass	Uxbridge	Dartford)	Bristol (SLC); Plymouth; Brighton (SLC)		London (SLC); Keele (SLC)
Courses for teachers					
Basic Microbiology	Buckinghamshire; Uxbridge	Dartford; Essex	London (SLC); Southampton (SLC); Greater Manchester	Cheshire	Keele (SLC)
Further Microbiology		Bristol (SLC)	London (SLC); Southampton (SLC); Greater Manchester	Wrexham	Dartford
Selected aspects of post-16 Microbiology (twilight)					
Refresher Microbiology for KS3 and KS4 (twilight)		Essex		Cheshire	
H & S Management for Heads of Science and their Deputies			London (SLC)		
Radiation Protection Supervisors	Wirral; Bolton; Nottingham (SLC)	Bristol (SLC); Buckinghamshire; Kent; Keele (SLC)	Sheffield (SLC); London (SLC); Durham (SLC)		Cornwall; Bradford

CLEAPSS also runs courses for teachers and technicians in Design and Technology (The D&T Technician, D&T Workshop Maintenance and H & S Management in D&T) but we are only able to provide them if suitable venues can be found. If you are interested in hosting a D&T or Science course in your area please call us on 01895 251496 or e-mail science@cleapss.org.uk.