

CLEAPSS

**For
teachers
and
technicians**

Practical support for Science & Technology

Practical science training for teachers

CLEAPSS is once again offering three days of hands-on training in practical science for new(ish) science teachers. The training takes place on 14 – 16 July at CLEAPSS, Brunel University. The cost, including accommodation, food, *etc.* is £380. The programme covers many practicals that you would love to do but may not have tried, including chemistry demos, microbiology, radioactivity, gas preparation, dissection and many more. Those who have attended in the past two years agree this is a great opportunity for all new science teachers. Places are limited so contact us as soon as you can.

For more details or to apply contact Alison Goff at CLEAPSS, Tel: 01895 251496; Email: alison.goff@cleapss.org.uk

Director of CLEAPSS

The present Director retires in April 2011 and CLEAPSS is looking for his successor. The recruitment process will take place during the summer term so that the director designate can overlap with the current director. Details of the position, the job description remuneration *etc.* will be posted on the CLEAPSS website (www.cleapss.org.uk) and advertised in the TES in June. The appointment process is being managed by the CLEAPSS Governing Body but anyone interested can contact Phil Bunyan on 01895 251496 for an informal chat about the job.

Beyond science lessons

Of the handful of serious accidents reported to the CLEAPSS Helpline, a disproportionate number happen during open evenings or special situations such as end-of-term activities, primary–secondary liaisons or science clubs. These opportunities can, if properly planned, showcase your department and inspire budding scientists. However, risk assessments for these activities need to take account of the ‘out-of-the-ordinary’ situation, in addition to any points that apply in normal lessons.

When planning these activities you should ask:

- what is the purpose of the activity? Is it just for show? If so, there are plenty of safe and very impressive activities available. Why do the thermit reaction in a primary school when the children could explore the chromatography of coloured sweets or observe the behaviour of maggots in a choice chamber;
- does it genuinely enhance understanding of science? Children entering secondary school often lose interest when they find out that science isn’t all about whizz-bang demonstrations. Think ahead. Many spectacular activities have a real role in the proper place in the curriculum, and making sure students experience them at the right time can contribute hugely to their progress and pleasure in science;
- do you know the audience? It’s unlikely that you can ask all visitors to parents’ evenings whether they have a pacemaker before using a Van de Graaff generator;
- is all the equipment you need available? The school hall is unlikely to be suitable for an activity that needs heat, eye wash facilities, or a spills kit;
- can all the equipment and materials be prepared, transported and cleared up safely? If you need technical help, have you given the technicians plenty of time to organise this? There are transport restrictions for hazardous chemicals and they have storage and handling requirements that cannot always easily be met; and
- do you have an appropriate risk assessment?

See Guidance leaflets PS58 *Open evenings*, and PS71, *Primary/secondary liaison in science*, for a more comprehensive list of points and further references. The newly-revised ASE publication *Safe and exciting science* includes a section on training for such events. If you are considering a novel activity, call CLEAPSS on 01895 251496 for detailed guidance.

Concerns about newly built labs and other new publications

We have recently produced guidance leaflets illustrating our concerns about problems associated with newly built or refurbished science suites (PS 91) and D&T facilities (PS 92). If you are planning or building new teaching and preparation

rooms you may find these useful. Other new publications include: PS87 *Bees and beekeeping in schools*, PS89 *Measuring anaerobic respiration in yeast*, PS90 *Making and recording risk assessments in school science* and E262 *Storage of chemicals used in D&T*. These publications are available on the CLEAPSS website at www.cleapss.org.uk

During an open evening a teacher was demonstrating fun things with solid carbon dioxide. While his back was turned a visiting child put a piece into a bottle and screwed on the cap. As it evaporated the bottle exploded.

FREE

to all member secondary schools & other members.

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Penicillin allergy and using discs in microbiology

This type of allergy is not mentioned in any CLEAPSS materials because, to date, it has not been a significant issue in school science, a view confirmed by direct questioning of participants on our popular microbiology course. We believe that, generally, using penicillin discs to investigate the effects of antibiotics on microorganisms poses no threat even to people who are allergic to penicillin. This is because there is no possibility of contact between individuals and a penicillin disc as long as the activity is done in the way we describe.

One incident was reported to us where a penicillin-allergic student was deliberately contaminated with a penicillin disc by another student. This was probably a consequence of a failure to recognise the severity of the allergic response.

To avoid it happening, our advice is:

- be aware of any students who are allergic to penicillin;
- handle penicillin discs with forceps and stress the need to avoid direct contact between penicillin discs and the skin of any allergic students. Warn all students about this so that they both understand it and take steps to avoid it happening;
- also stress that without direct skin contact there is generally no risk to allergic students from penicillin discs. However, no students should be forced to handle penicillin discs, even with tweezers, if they become unduly concerned about their allergy.

There is no need to avoid this particular practical activity, even if there are allergic students in the class. The overall educational benefit outweighs the risks, which are in any event easily controlled.

A new set of 4 leaflets (PS88) entitled *How Science Works and microbiology* will be published in May 2010.

A frostbite incident

We all know it has been a very cold winter, but getting frostbite is something else. A teacher suffered frostbite while using a carbon dioxide cylinder to make dry ice. It appears the cold liquid squirted onto her hand because of an ill-fitting connection between the cylinder and the dry ice maker. The teacher assumed the Kevlar gloves she was wearing would protect her, but being a loose weave the liquid passed through. She received a painful 'burn' on the



hand, which later caused pain into her arms and shoulder. Luckily the pain went after a day or so. Kevlar gloves are suitable for handling sharp objects, not cold substances at $-76\text{ }^{\circ}\text{C}$. In section 11.2 of the *Handbook* we suggest wearing gauntlet-style leather gloves and eye protection.

If this type of incident happens ensure the individual is in a warm room and put their hand (in this case) in tepid, but not hot water, while waiting for the ambulance to arrive. Medical attention is essential.

Hazardous waste collection

Many hazardous waste carriers employ knowledgeable staff. However, we recently heard of a hazardous waste collection vehicle driver who had very restricted knowledge of school chemistry. He offered the science department all sorts of incorrect advice about chemical storage. If there is any doubt about what you are being told contact CLEAPSS for advice on 01895 251496.

Radiant heater fire hazard

Electrosound has issued an urgent warning about some of its recently-produced radiant heaters. The paint is likely to catch fire when the heater is first switched on. This warning applies only to heaters with red-painted protective cowls, manufactured between September 2009 and February 2010. These were available from Electrosound, Rapid, SciChem, Timstar and Sci-Mart. Full information about the safety modification required is available from Electrosound.

www.electrosound.co.uk



Getting Practical

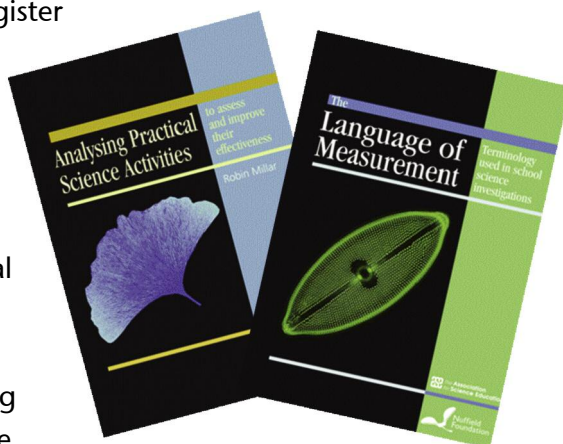
(Improving Practical Work in Science Programme)



Local, free, continuing professional development (CPD) courses are now underway across England as part of the *Getting Practical* programme. There is still time to see where courses are available near you and to register your interest in attending. The training is designed to help science teachers, technicians and teaching assistants improve the effectiveness of their practical science teaching. By considering their current teaching practice and making small changes, guided by the *Getting Practical* staging tool,

teachers can increase the engagement of their learners in activities while also ensuring it is a worthwhile learning experience. To find out more and register your interest,

contact Kirstie Hampson, Tel: 01707 283000; Email: kirstiehampson@ase.org.uk More information about the course is also available at www.gettingpractical.org.uk



Getting Practical is also supporting two new books; *The language of measurement – terminology used in school science investigations* and *Analysing practical science activities* by Robin Millar. Both books offer excellent support for the teaching of practical science. More information, including excerpts from the books, is available at www.gettingpractical.org.uk

Getting Practical – Improving Practical Work in Science Programme is funded by DCSF with coordinating partners ASE, CLEAPSS, national network of SLCs, CSE at Sheffield Hallam University and contributing partners the SSAT, IOP, Society of Biology, RSC, Gatsby SEP, National STEM Centre and the University of York with support from SCORE, the Royal Society, Gatsby SAPS, the National Strategies, LSIS, the Wellcome Trust, the Nuffield Foundation and the YSC at the RI. The independent evaluators are the IOE at the University of London.

Can you help?

*We used to have a burette but it got broken.
When six arrived from LabAid we burst into song and danced.*

That was part of a typical letter from a school in Africa. Many UK schools are being re-built, re-furnished or re-equipped, but some of the old equipment may still be serviceable. LabAid takes this equipment, checks it and packs it up to send to schools overseas. Has your school got anything useful? Pipettes, conical flasks, beakers, lenses, curved mirrors, slotted masses, ripple tanks, dissection kits – in fact any of the things used (or once used) in school science. LabAid also needs volunteers to help collect, sort, check and store equipment. It is especially looking for teachers and technicians who are part-time or about to retire, who can help for a few hours a week. LabAid is currently based in Amersham (Bucks) but is keen to set up other centres around the country, so offers of work space or storage space would be very welcome. What about your kitchen, prep room, shed or garage?

Contact Alan Welch; Tel: 01494 726861;
Email: labaidtrust@labaid.org

Free Discover LabSkills resource available from May 2010

Getting Practical is supporting a new chemistry resource to support and enhance practical science. *LabSkills* provides an excellent opportunity for KS 4 and post-16 students to familiarise themselves with commonly used laboratory procedures before they make mistakes in the lab. This can build students' confidence in their practical work and focus them during practical sessions. This leads to a more effective practical learning experience. The resources are stored on a USB stick and will be available free of charge to each secondary school and FE college through the *Getting Practical* programme from May 2010. More information will be available on the *Getting Practical* website (www.gettingpractical.org.uk) in the resources section from April.



(*Discover Chemistry* is a joint venture between the RSC and Pfizer Ltd. The ASE is also supporting the resources through the *Getting Practical* programme.)

A successful cluster of courses for technicians

Following a request from an overseas member, CLEAPSS ran a series of four courses on consecutive days in Uxbridge during January. It was the first time we had done this and it was a great success. The courses were advertised to all technicians and in particular to those overseas. Individuals could enrol for one, two, three, or all four courses and many overseas technicians did all four. The evaluations were encouraging and we have received some very positive emails from overseas. It was particularly pleasing to witness the exchange of ideas between technicians from different countries and sharing concerns, and information on working environments and conditions. Technicians came from Bermuda and all over Europe. We are considering repeating the courses so keep an eye on the website (www.cleapss.org.uk) and future *Bulletins*.

ASE National Technicians Conference (1st July and/or 2nd July 2010)

The conference will take place at the National Science Learning Centre, York and will be delivered as a partnership between the ASE and the National Science Learning Centre. During the conference there will be a range of lectures and optional workshops including: what's new in the curriculum, the getting practical project, demonstration lectures and much more.

Don't miss out on this CPD and networking opportunity. To book now and secure your place visit www.slcs.ac.uk/national/nae09182

Science Additional Specialist Programme – Physics and Chemistry

This new course, sponsored by the Training and Development Agency (TDA), enables teachers without a physics or chemistry degree, or a secondary initial teacher training specialism in physics or chemistry, to teach these subjects more effectively. The course is available at 10 centres throughout England (mainly Science Learning Centres). The structure and length are flexible and reflect the needs of the individual participants, combining face-to-face tuition with in-school development. It runs for up to 40 days, spread over an intensive summer start and into the following academic year. Academic accreditation is at honours level, with the option of taking some masters level credits. The course is free and the TDA will fund supply cover for participating schools. The TDA says that teachers meeting eligibility criteria and achieving appropriate credits on the course will receive a £5000 incentive on completion. For more information visit www.tda.gov.uk/teachers/continuingprofessionaldevelopment/science_cpd.aspx

CLEAPSS Courses

Course	April	May	June	July	September	October
Basic Chemical & General Skills	Gloucestershire; London (SLC)		Kent (SLC)			
Basic Physics Skills	London (SLC)	Thames Ditton				
Making Simple Science Equipment			London (SLC); Bristol (SLC); Devon			
Microscope Maintenance	London (SLC); Norwich		Bristol (SLC); Dartford	Somerset	London (SLC)	Bristol (SLC)
Running a Prep Room	Kirklees					
Working with Glass		London (SLC); Chester	Bexley	Keighley		Cumbria
Chemical Safety for Technicians	Jersey	London (SLC); West Sussex; Durham (SLC)	Somerset; Thameside			
Practical Skills & Techniques in Chemistry	Jersey	Bristol (SLC); Thames Ditton; London (SLC)	Telford; Durham (SLC); Bexley			Greater Manchester
Fume Cupboard Monitoring	Dartford		Uxbridge (CLEAPSS)			
Biology Safety	Southampton (SLC)		Dartford			
Microbiology	London (SLC)	Wirral; Southampton (SLC)	Bristol (SLC); Coventry		London (SLC); West Sussex	
Basic Microbiology (New)			Pontefract	Buckinghamshire		
Further Microbiology (New)			Pontefract			
Physics Training for Technicians			Kirklees; Southampton (SLC); Lincolnshire	Buckinghamshire; Brent	London (SLC)	
Electrical Inspection & Testing		East Midlands (SLC); Dartford; Southampton (SLC); Hertfordshire; Greenwich	London (SLC); Sutton			
*Radiation Protection Supervisors	Birmingham; Sheffield (SLC)	Suffolk; Keele (SLC); Peterborough; London (SLC); Leicestershire (SLC)	Devon		London (SLC)	Norwich
Health and Safety for Technicians		Bingley; London (SLC)	Bristol		Gloucestershire; Devon	
*Health and Safety Management	Surrey		Herefordshire; Suffolk			
*Health and Safety in Practical Science					Barking & Dagenham	
*Safe and Exciting Classroom Chemistry			Flintshire			
*Surely it's banned/Microscale Chemistry	Dartford	Yorkshire (SLC)				
The D&T Technician	Norwich	Norwich		Bexley	Powys	
D&T Workshop Maintenance	Hull	Hull		Bexley		
*H and S Management in D&T	Norfolk	Norfolk				
*Art of Practical Science				Uxbridge (CLEAPSS)		

* Denotes courses primarily for teachers.

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