

# ASK THE EXPERT: TEACHING CHEMISTRY

LEONARD WINNING HAS SOME FOCUSED ADVICE FOR TWO TEACHERS WHO ARE PASSIONATE ABOUT THEIR SUBJECT...

Q

I took up a new position this year, teaching chemistry in an inner-city comprehensive school.

It's struggling in terms of results, morale is low amongst pupils and staff alike, and there is very little budget to spare. Lab equipment is basic, to say the least, and every request of mine for new resources has been so far met with an apologetic 'maybe next year'. Are there any low/no-cost ways I can improve these young people's experience of studying chemistry, and perhaps spark some enthusiasm for STEM subjects generally?

A

There's no doubt that practical work is one of the most engaging parts of studying Chemistry, but doing it on a tight budget can be tricky. One way of reducing costs is to perform experiments as demonstrations rather than class activities. These work best when you can involve the students, so get volunteers to carry out parts of the procedure whenever possible. If you are keen to go for whole-class activities, then it's worth thinking about different approaches. For example, flame tests (usually carried out using nichrome wire) can be done with splints soaked in solutions of the test chemicals. Alternatively, the cost of procedures can be cut by performing them at microscale. Other possibilities to explore are experiments that involve cheap everyday materials, e.g. making glue from milk, vinegar and baking soda. *Learn Chemistry* from the Royal Society of Chemistry and *Practical Chemistry* from the Nuffield Foundation are both excellent online sources of ideas. CLEAPSS are extremely helpful, so call them if you want advice on experiments or using microscale techniques (don't forget to risk assess experiments from the web before using them in school). If practicals aren't possible, and you have data-projection in your room, then you could explore some of the excellent videos on the web e.g. *Learn Chemistry* has a collection of experiment videos and *Periodic Table of Videos* (University of Nottingham) are interesting and entertaining.

Q

I love my job teaching science at KS3 and 4; but lately I've found myself thinking back more and more often to my earlier academic life, and missing the thrill of research and discovery that characterised my work at that time. I'd like to take up some form of study by way of CPD, as well as personal fulfilment – I already have a Masters in chemistry, so what course or courses would be most suitable for me to pursue alongside my full-time teaching commitments, and in order to progress my career?

A

It can be difficult to juggle study with teaching so you should first consider how much time (and money) you are prepared to commit to your study. Having a masters in Chemistry, you've already demonstrated that you take your subject seriously; I think most employers would be impressed that you have the drive and organisation to pursue your own studies in parallel with full time teaching, so subject choice is probably not too crucial – choose something you'll enjoy!

If what you are missing is the science, then something allied to Chemistry might be a good choice – Biochemistry, Pharmacology, Nanotechnology etc. Alternatively, you could pursue something education-related, although you may find it frustratingly subjective after scientific research. Many institutions offer either masters-level education courses or postgraduate certificate qualifications on a part-time basis. Investigate what institutions close to where you live or work have to offer: they will probably be keen to enrol you!

As a start, perhaps have a look at the Open University's short courses, one of the cheapest and most flexible things on offer. Doing one of these would give you an idea of how well combining study with teaching will work for you. If you want to plunge in deeper, then a second undergraduate degree might be a possibility. Whilst the OU has dominated the market for quite some time, other universities are waking up to the possibilities of mature part-time study, some of which is entirely web-based. A little web research will soon reveal the range of courses open to you.

## ABOUT THE AUTHOR



Leonard Winning MChem, DPhil, MRSC is Head of Chemistry at Kingston Grammar School and a member of the Royal Society of Chemistry's Dr ChemNet team, which answers students' Chemistry questions on the student section of MyRSC, the RSC's web forum. [lwinning@kgs.org.uk](mailto:lwinning@kgs.org.uk)

