

Practical work

A-level changes affect practical assessments

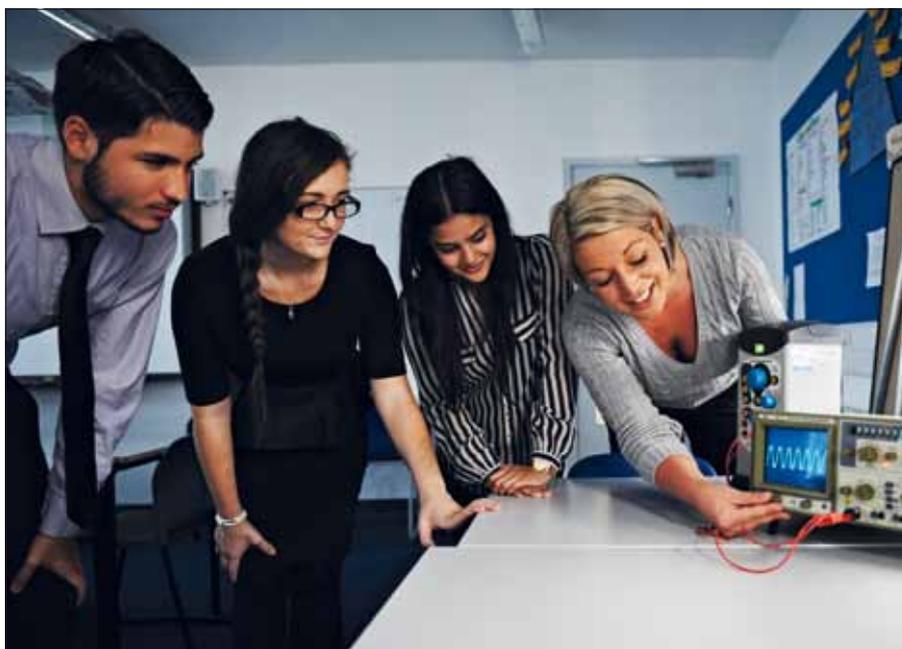
A-level physics will be different from this September. The most notable changes are to the ways in which practical work will be assessed and reported. And, thus, the ways in which it is employed during the course.

There are two components to the assessment of practical work:

- Questions in the written exams: these will count towards the final grade and provide the only differentiation on practical work; they will be designed to give an advantage to students who have had a thorough exposure to practical activities during the course.
- An endorsement of laboratory techniques: this will be reported separately from the main grade (as a pass/fail). The requirement is that students complete at least 12 practical tasks over the two years. The tasks have to cover a range of skills that have been specified by Ofqual; teachers will have to ensure (and confirm) that students have mastered those skills.

Both of these approaches are new and it remains to be seen whether they are successful in developing the desired fluency with practical techniques and procedural knowledge. However, it is certainly the case that there is more flexibility. And these changes may even represent an opportunity to change the emphasis of practical work by moving practical sessions away from assessment and towards educational benefit. In some schemes, it may be possible for you to make the assessment almost invisible. Even the word “assess” may be too strong for what is required in the laboratory (although there is still some discussion about how rigorous the teacher observations need to be).

We hope that it should be possible for teachers to develop a sequence of activities that genuinely support the development of practical skills. At a convenient point in that sequence, they can observe the students to confirm that they have acquired those skills.



City of London academy students develop their understanding of science through practical work.

Depending on your choice of exam board, you can choose the tasks that you use, when you use them and when you make observations that count towards the practical endorsement. So, for example, one of the required techniques is to be able to “design, construct and check circuits using DC power supplies, cells, and a range of circuit components”. Rather than throwing students into a laboratory-based controlled assessment (at a time determined by the exam system), you will now be able to develop their competence at setting up simple circuits with a number of practical tasks. When the time is right, you can observe the students to satisfy yourself that they have mastered the required techniques. Or, at least, that is how we hope it will work.

The awarding organisations are providing guidance and, in most cases, a pack of teacher and student notes for 12 activities.

However, you should not feel restricted to that small set. And no-one wants to see the pack being used as a kind of assessment pack – comprising 12 mini ISAs with vast matrices of check lists. There are plenty of additional activities from a multitude of sources that will support the development of the required skills and some of them can even be used to “assess” those skills. For some examples, please try the Institute’s sites: practicalphysics.org and tap.iop.org. And, of course, join discussions on talkphysics.org.

Look out for a follow-on article in September about using logbooks in a constructive way.

For more information: on Ofqual guidelines, visit tinyurl.com/n5a247r, or join an IOP email discussion group to share ideas at tinyurl.com/kk4qzwm.

Teacher blog

The first time I taught...

Physics teaching involves lots of experiments and that is why we love it. But, especially in the early years, it is not just the pupils who are carrying out experiments: teachers are constantly trying to find what does – and what does not – work in the classroom.

Our new series called “The first time I taught...” celebrates this process. Established physics teachers reflect on their first lessons and share how their teaching has developed since. Some experiences

“Trying to illustrate the electrostatic effect using teenagers’ hair is a doomed undertaking. Copious amounts of hairspray and/or styling product (both the boys and the girls) will render any sort of electrostatic charge impossible”

may sound all too familiar, some will inspire you, and others are just hilarious. Whether you are new to teaching, or have been teaching for years, they are a great read.

For more information: visit www.iopblog.org/tag/firsttime or search “first time” at www.talkphysics.org. Have an experience you would like to share? Contact Caroline Davis (caroline.davis@iop.org) with your idea – we pay £100 for published articles.