

Getting practical: Improving Practical work in Science Programme

Working with initial teacher training students

'Consider the reasons for carrying out a practical activity'

'Do not try and develop too many learning objectives or skills in one practical'

'Allow for creativity and modification when designing practicals in order to meet learning objectives'

'Make practicals relevant and narrow the learning outcomes'

You could be forgiven for thinking that these words have been taken from advice given by experienced teachers to anyone tackling the teaching of practical work in science. Therefore, it is encouraging to know that these 'Golden Rules' have come from a group of secondary PGCE students studying at Goldsmiths, University of London, with Tiffany Prince as their tutor.

Tiffany recently attended a 'Train the Trainer' event for the *Getting Practical – Improving Practical Work in Science* Programme and saw great merit in the key messages proposed in the professional development material. She feels that a good understanding of these principles will help turn a 'good' teacher into an 'outstanding' teacher in the eyes of Ofsted. As a result, she has taken the course back to her PGCE students and adapted it for their use.

Part I of her course closely followed the introductory materials produced for *Getting Practical* by the Centre for Science Education, based on the research by Professor Robin Millar at the University of York. Whilst the theoretical material might be more appropriate for teachers with a couple of years' experience behind them, the student teachers did value the reflective opportunities it provided. Guided conversation encouraged them to share their experiences of both 'good' and 'bad' practical sessions that they had observed or taken part in during their school placements. This promoted

discussion on how to get the most from both of these situations.

During Part II of the course, the student teachers experienced practical work from the point of view of a young person in their class. This exercise made them review what they had learned in Part I, and some found that they were redesigning the learning outcomes of the practical activity and changing its focus to make it more effective. A practical activity is most effective when it does not attempt to address too many learning outcomes at once. This simple change of mindset about why you should do a practical activity is at the heart of the *Getting Practical* programme. It was wonderful to hear the teachers discussing how a standard experiment, *Investigating heat loss from different volumes of water varies over time*, could be used more effectively as an exercise in data collecting, measuring and manipulation, than being used to purely teach the scientific concept.

The idea of 'rehearsing' a practical activity was also enthusiastically taken on by the group. By carrying out the practicals as written in the scheme of work in their school themselves, they felt better equipped to understand how the young people will approach the work and what their prior knowledge and misconceptions might be.

By using the *Getting Practical* programme as part of her PGCE course, Tiffany has found that it has given the student teachers ample opportunity to provide evidence for some of the standards that are required for Qualified Teacher Status to be achieved. In particular, the *Getting Practical* programme helps a teacher to *'understand a range of teaching strategies and how to adapt them'*; with particular emphasis on the adaptation of practical work to address more focused learning outcomes and making general schemes of work appropriate for a particular class group.

This work at Goldsmiths has demonstrated that the key messages of the *Getting Practical* programme are supporting teachers, even at this early stage of their career. Tiffany is planning to include the programme in her teaching course again next year.

The *Getting Practical* programme is open to teachers at any stage of their career in primary and secondary schools and further education colleges. Local CPD courses are being run over the 2010 spring and summer terms. To find out more about the *Getting Practical* programme, please visit www.gettingpractical.org.uk

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