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Problem Solved? Maths Curriculum on right track says Politeia's new study... But earlier learning for multiplication tables, algebra and probability would put our pupils on par with high standard countries.

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The new Maths Curriculum will be published later this year, ready for schools to start in 2014. Ministers, now finalising their draft proposals, want the standards in mathematics expected of pupils in this country to equal those expected elsewhere.

Will the new curriculum succeed? Politeia's new study, *Primary Problems for the New Curriculum: Tougher Maths, Better Teachers*, analyses the draft curriculum. Its author, Prof David Burghes, welcomes the emphasis on basic academic knowledge and congratulates ministers on such emphasis. But, to aspire to the standards expected in some of the mathematically high performing countries, the final curriculum should be more demanding.

Drawing on the experience of Japan, Finland and Singapore, Professor Burghes explains how, with certain modifications, the new curriculum could be more demanding, more aspirational and more rewarding. In particular, multiplication tables should be mastered earlier than proposed. Greater emphasis should be given to the development of logical and mathematical thinking. Algebra and Probability should also be introduced earlier, given their fundamental importance today both to understanding mathematics and applying it.

In an accessible year-by-year analysis, he shows which topics should be included earlier and which might be better left until later.

Better teaching Improvements in mathematical attainment will depend on having enough primary teachers with high standard of mathematics. While welcoming the recruitment of more graduate mathematicians to the profession, he suggests that many current teachers will want to improve mathematical knowledge as well as professional skills. He suggests that:

Current teachers could be encouraged to take A and AS level mathematics examinations. Teachers could also work with local teaching schools, enhancing pedagogy through the use of Japanese style lesson study and with input from the increasing number of expert teachers being trained in Primary Mathematics. Greater use of new technology should also be considered.

He warns that:

Without a significant enhancement of mathematics teaching in UK primary schools, difficulties in and obstacles to secondary and tertiary mathematics will continue, with implications for the economic well being of the country.

Simple Changes, Better Maths Without strong foundations in mathematics at primary level, efforts in secondary and tertiary stages will merely be 'fire-fighting', with pupils ill-prepared to compete with their peers from countries with higher standards. The proposals for the new curriculum are a step in the right direction but they could be tougher. With the simple, but central, changes, outlined here the proposed scheme will give pupils an even better start in their mathematical life.

David Burghes is Professor of Mathematics Teaching at the University of Plymouth and Director of the Centre for Innovation in Mathematics Teaching (CIMT). He has contributed to Politeia's *Comparing Standards* series, including *Teaching Matters: The Recruitment, Employment and Retention of Teachers* and *Academic and Vocational: 16-19 year olds*.

Primary Problems for the New Curriculum: Tougher Maths, Better Teachers is published by Politeia, 33 Catherine Place, London, SW1E 6DY. Hard copies are available to journalists on request.

An e version is available at www.politeia.co.uk/sites/default/files/files/Burghes%202013%20FINAL.pdf

Press Enquiries to Politeia Press Office via press@politeia.co.uk. Tel. 0207 7995034 or 07415 540669 or out of hours 07780 723085.

Enquires to David Burghes: 0175 258 5346 (work) or 07899 066829 (mobile) or email david.burghes@plymouth.ac.uk or to the Curriculum Series Editor Dr Sheila Lawlor at Politeia.