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NEW PUBLICATION RELEASE

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How to Solve Maths Problems - Politeia's Primary Maths Curriculum explains how DfE's draft 'Can Do Better'

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As Ofsted's Chief inspector warns that primary pupils in some parts of the country have only a 50:50 chance of being in a good school, Politeia's next publication suggests the true picture may be even worse. In vital subjects such as mathematics far less is expected of pupils and their teachers here, than in other mathematically higher performing countries. So Professor David Burghes* shows in *Primary Problems: A First Curriculum for Mathematics*. He explains that if standards are to go up, then the emphases in the new school curriculum must be on mastering the foundations, with higher expectations all round.

That's also been the message for the Education Secretary as he consults on the draft proposals for the new maths curriculum. But what course should Michael Gove take?

Maths teaching standards must rise. Professor Burghes warns that poor attainment in maths starts at primary school. There are too few mathematically competent teachers in our primaries (many have only taken maths to GCSE level), while teacher turnover is too high. And, when it comes to what is taught, the focus is not on solid mathematical foundations, but has moved towards 'accessible' topics such as shape and space.

The Primary Curriculum must change in line with higher performing countries. Though reforming secondary maths and examination may seem an attractive option, if there is to be improvement over the longer term, it will come only by changing primary mathematics. The evidence from countries which do far better, including Finland, Japan and Singapore ('Mathematically high-performing countries' – MHPCs) bears this out. Teachers there are mathematically more competent and outperform British teachers in mathematics tests. The lessons focus on teaching the foundations and pupils must master certain key topics, year by year with a variety of teaching methods encouraged.

The DfE's draft curriculum has room for improvement. Professor Burghes turns to the DfE's new Draft National Curriculum. He welcomes some of its proposals such as early mastery of key number facts – e.g. addition and subtraction – and the greater freedom for teachers. But he wants pupils to master multiplication tables at a younger age and learn algebra and probability. Fractions, by contrast should come later. He also provides a year by year table (p. 16) of where the DfE's proposals contrast with and could emulate the three model systems.

Clear, short, foundation – see at a glance – curriculum proposed for primary maths. Professor Burghes ends with his own proposals for a maths curriculum for the primary years. He draws on the lessons of the three model systems, setting out the content of what should be mastered by each year group in a series of short paragraphs. These are illustrated with sample questions. Teachers and their parents will welcome its clarity and brevity. Ministers can be sure that Professor Burghes' format meets their wish to raise standards to the highest international levels, while ensuring maximum professional freedom for teachers.

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: A First Curriculum for Mathematics is published on Monday 3rd December 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%20Final.pdf

For the full on-line appendix, which includes and a series of illustrations from other systems, together with additional model questions and answers for Prof Burghes' new curriculum, visit:
http://www.politeia.co.uk/other/primary-mathematics-curriculum-appendices

There is additional material at www.cimt.plymouth.ac.uk/politeia/mathematics/

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