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## **Maths symbols are a foreign language**

Your article 'What's wrong with maths?' (TES June 2) asks important questions about the way that *written* mathematics is taught to young children.

Abstract mathematical symbols such as '+' and '=' and written 'sums' can be as problematic for young learners as the beginnings of writing and as 'foreign' to them as writing a language in an unknown alphabet or script. It has been known for many years that 'written' mathematics causes difficulties for young children, yet this important aspect of the curriculum is still barely addressed. Of course number games and practical mathematics (e.g. with blocks, sand, water and games) provide valuable mathematical experiences, but they are not *directly* related to children's understanding of *written* mathematics.

Our research has shown that children learn about written mathematics through using their own 'written' symbols and exploring calculations through their own *mathematical graphics*. This is inclusive maths that builds deep levels of understanding of the abstract written language of mathematics and establishes strong foundations for the mathematics they will meet as they move through Primary school.

Curriculum guidance for the Foundation stage and Numeracy Strategy advocate 'building on' young children's early marks and encouraging children to explore their own written methods, and Ofsted has identified a lack of opportunities for children to explore their own ways of calculating as a 'barrier to creativity'.

However, our recent research with almost 250 teachers and practitioners from Nursery to Year 1 showed that there is considerable confusion about the official guidance on the beginnings of teaching 'written' mathematics. Current research in Children's Centres ('The Cambridge Project', 2005 – 07) highlights the tensions that exist in the teaching of mathematics, particularly in developing children's early marks. One nursery teacher explained that there is a 'no-man's land' between very early mark-making and standard written mathematics.

There is a dearth of guidance on how teachers might begin to support the beginnings of 'written' mathematics and no examples of children's own mathematical graphics are included in official documents. Another problem is that neither the Foundation stage document nor the Numeracy Strategy show the development of children's mathematical graphics, something that would be invaluable in supporting adults' understanding and assessment.

The question is not 'what's *wrong* with maths?', but 'how can we make the beginnings of written mathematics *right* for young children?'

Supporting children's own mathematical graphics could offer a solution to this important question and establish confidence, enjoyment and understanding in mathematics from an early age.

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