The Cuisenaire product finder  Paul Stephenson

Readers delighted by the simplicity of the method of multiplication shown in MT203 (Foster, 2007) may be interested in a Gattegno-inspired variant. Each set of intersections in the representation Colin Foster describes corresponds to a ‘window’ pane in the method known by that or similar names (‘lattice’/‘gelosia’/...). This may be as old as place value itself and, if so, goes back to the Ancient Hindus. In ‘line multiplication’ each individual product is modelled as a rectangle of points, whereas in the lattice method, as it has come down to us via the Arabs and later European texts, each product is shown as a written number. However, in both cases the position of the number in the ‘lattice’ dictates its place value. What Gattegno does is to use the multiplication square as a ‘ready reckoner’ and code the place value of each individual product by its colour. The colour arises from the overlap of tinted acetates – the process of colour subtraction (using that word to mean the physical, not the mathematical, operation, of course). The picture to the right shows the Cuisenaire Product Finder set to multiply 973 by 682.

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Reference

Notes
2 The Product Finder was issued by The Cuisenaire Company of America, Inc, in 1983. It is no longer in their catalogue but an internet search may turn up second-hand copies. An alternative is for you – or, better still, your pupils – to make them. The tints need not correspond to those of the original acetates but should be chosen to produce distinct colours when overlaid.

Misunderstanding of fractions!  Caroline Rickard

Having just spent an hour with a Y5 class investigating their understanding of various aspects of fractions (including ratio), I wanted to share some of my observations. Not because they necessarily illustrate particular insight, nor to offer fantastic solutions, but rather because they serve as useful reminders of what children find hard. The questions were taken from an article ‘Drawing on a theoretical model to study students’ understandings of fractions’ (Charalambous and Pitta-Pantazi, 2007) but were presented in a random order rather than grouped as in the original article. I gave the questions initially as a test, asking the children to have a go at them on their own, not worrying about bypassing any they couldn’t do. After about 20 minutes I collected these in and gave out fresh sheets of the same questions, but this time to pairs of children. I asked them to talk together about the questions they had tried and to be prepared to report back on:

- any questions they had answered in the same way and were sure were right;
- any questions answered differently and which they had been unable to resolve.

The following questions proved the most controversial! This first question was attributed to Noelting (1978; in Charalambous and Pitta-Pantazi, 2007) and states:

John and Mary are preparing orange juice for their party. Presented below are the recipes they used. What recipe will make the juice most ‘orangey’?

John’s recipe: Two cups of concentrate juice – five cups of water
Mary’s recipe: Four cups of concentrate juice – eight cups of water.

The two girls who chose to talk about this question chose it because they were sure they were right, and indeed they were, giving some sound reasoning.
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