

The London MathFest by Chris Olley

On five separate dates and in 21 different locations towards the end of January, Londoners out for their normal shopping trip encountered something a bit unusual. In their favourite shopping centre, instead of the telephone companies and the handy kitchen gadget stalls, they found a stand offering mathematics. Not the usual brand, of course: no endless sums and columns of red ink crosses of a half remembered past. Instead an assortment of sixth formers, PGCE students, teachers and advisors wearing the cute maths year 2000 arithmakid logo, were there to show them mathematical braiding, how to solve the soma cube, walking in the line of a motion detector to match a distance time graph and a whole host more.

Now, on the face of it, when the average shopper realised what was going on, you would have expected them to give this the sort of wide berth reserved for people with clip boards, but no, in they went, the anxieties of that past memory cast aside. There was a range of motivations. Parents, who wanted to find new ways of interesting their kids in what they know to be an important subject at school. Young people themselves, intrigued by the puzzles and sometimes eager to show off their mathematical skills, often spent a long time going round all of the activities. Happily, adults were just as interested in the activities for their own sake and would spend surprisingly long periods poring over the tower of Hanoi or desperately trying to solve the Konigsberg bridge problem.

Now everyone knows the deep groan of resentment when the teacher brings out the homework sheet at the end of the lesson, yet our visitors went round collecting them. The most popular sheet explained the old finger maths method for doing your multiplication tables from 6 to 10. Others gave the opportunity to look more deeply at the problem in the comfort of your own living room with a web site address to get you on-line. One activity showed off the Braille alphabet and had a couple of sentences to translate. But the interesting thing from a mathematical viewpoint is why did Braille use a 3 by 2 layout? There were materials to explore all of the different arrangements, but not enough time to look for patterns. The homework sheet gave the opportunity to look more systematically at the arrangements and develop a pattern to ensure that you had found them all.

The events offered a range of engaging activities that clearly proved attractive to a general public audience. Each activity had a staff member who was both maths literate and had some background in pedagogy. One of our aims was to engage visitors in mathematics and move them forward in their problem solving skills. Again, you may have thought that the average Saturday shopper would be having none of it and quickly get themselves inside Sainsbury's, in fact no. One of the posters said 'fold a piece of paper in half fifteen times, win £1000'. Now, we all know that it's impossible and a small number of experts came to tell us that everyone knows: well, they don't. This proved to be one of the most popular activities – the piles of A3 paper folded 5 or 6 times had to be continuously cleared. After failing with the A3 sheet, the helper would theatrically pull a piece of A1 flip chart paper from under the

table and hand it over. Right, thought the visitor now I can do it! They generally gave up after 7 or 8 folds. Now, you would expect them to be quite annoyed at this moment and walk off, but instead they were intrigued and quite prepared for the helper to show them, with the aid of a calculator, how the folded piece would be roughly 3 metres thick when you had done the 15th fold. They would take the explanatory work sheet and thank us.

It is a great experience for all involved in mathematics education to see how readily people take to our subject. We often feel the need to be apologetic about how dry and forbidding it can sometimes seem. But all over London, people of every possible social and community group, quite by choice, stopped to do some maths instead getting on with their shopping on a cold day in January.

Chris Olley
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