Make Britain Count: everyone can be a winner in the numbers game

Think you’re rubbish at maths? Think again – without arithmetic, everyday life would defeat us. With a little confidence the world of figures is at your fingertips, says Sue Nelson.

By Sue Nelson

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The Daily Telegraph’s admirable Make Britain Count campaign is seeking to highlight the crisis in numeracy skills and find ways to improve them. I believe that at least some of these problems are easily solved. Because the British can count; it’s our growing lack of confidence that is the issue. The good news is that new psychological tricks may be enough to open up the world of numbers to millions.

Mathematics is perceived as “hard” – impossible to master unless you have the “right” sort of brain. Maths, like playing chess at a high level, has a geeky, cerebral image that can be intimidating. But the reality is that we do maths all the time; modern life would be impossible without it.

Our brains are constantly at work adding and subtracting, dividing and multiplying. Visit any town on market day and stallholders use mental arithmetic fast enough to rival Carol Vorderman. Shoppers evaluate supermarket offers and bargain-hunters rapidly calculate the potential savings on a 25 per cent discount.

“People often underestimate their own mathematical ability,” says Rachel Greenhalgh, the director of the UK Mathematics Trust. “The number of times you hear someone say ‘I’m dreadful at maths’ is remarkable. You don’t hear people say ‘I’m no good at reading’. I don’t know where this attitude came from, but it seems to have been around for generations,” she adds.

Marcus du Sautoy, a professor of mathematics at Oxford University, agrees. “One of the problems we face is this badge of honour of admitting you’re bad at maths. We’re all mathematical at heart, because to navigate the world we live in, we have to judge risk and be numerate.”
The first stage is to gauge our own ability and start from there. Most people can tackle a Sunday roast, which involves a complex series of timing calculations and coordination. Those raised in the pre-decimal and pre-metric era have a head start. The duodecimal generation is used to using denominators of 20, 12, 10, six, four, three and two.

Even luckier are those born between about 1956 and 1967, whose schooling will have been in both systems and will have experienced decimal and pre-decimal currencies during childhood. Numerically bilingual, they know their height in inches and in centimetres, and are generally comfortable with changing ounces and pounds in old recipe books to grams and kilograms.

But for those who have never seen a one-pound note, maths can’t be left at the school gate.

“So many jobs now require confidence with numbers,” says du Sautoy. “Every nurse who is giving out medicine in a hospital – if they don’t have a sense of the numbers behind the medication, just dropping a decimal place or a zero could have tragic consequences.”

Leisure activities, too, can be filled with maths. “Bridge uses patterns and sequences, probabilities and certainty, and works with unknown numbers and basic algebra,” says Matt Betts from the English Bridge Union. It created a “starter” Minibridge game four years ago, which has now been introduced to 150 primary schools. “We’ve connected bridge to the national curriculum and it has been shown to help children in their maths and English,” says Betts.

The classroom plays a pivotal role in the nation’s attitude to maths. The fact that we’ve not got it right led Loughborough University to set up the Eureka Centre for Mathematical Confidence, to help students with severe number-phobia.

“This might be due to a learning difference such as dyslexia or dyscalculia, or it might be caused by a poor mathematical experience at school,” explains Professor Tony Croft, from the university’s Mathematics Education Centre.

It is not only the British who struggle. Americans, too, have lost confidence around numbers that earlier generations took for granted.

“Math anxiety has become an epidemic in our society,” says Joseph Furner, of Florida Atlantic University and the author of numerous books on the subject. He says teachers – and parents – need to be more active. “Society as a whole has an obligation to see that all children are confident in their ability to do mathematics in a world that has become so competitive.”

Furner uses psychological approaches to improve confidence, including anxiety management, counselling and support groups.

He says parental attitudes are vital. My experience as a parent suggests this is true. After discovering that I didn’t understand what my son meant by a “numberline”, I requested a maths lesson for parents at his primary school. The resulting session was a revelation, giving parents the confidence to help a child stuck on their homework.
A similar experience prompted Rob Eastaway to write Maths for Mums and Dads. “In maths you have to be prepared to have a go,” says Eastaway, who is also the director of Maths Inspiration, a programme for teenagers. “It’s much easier to do that if you know that nobody is going to laugh at or criticise you for getting it wrong.” He agrees that we are not as innumerate as we think. “We gave Key Stage Two questions [aimed at ages 7-11] to parents, and found that mums and dads dreaded the paper but achieved high scores, although they really fretted about the two or three questions that they found too taxing.”

Being numerate doesn’t necessarily make you a mathematician, of course, but accepting that most of us can, and do, perform maths in all walks of life will reduce the instinctive anxiety around numbers.

“What isn’t often recognised is that a lot of being good at maths is about psychology and confidence,” says Prof du Sautoy.

Research in 2009 on the development of maths capabilities and confidence in primary school found that children’s self-confidence is predicted most strongly not only by actual competence, but also by sex (girls are less confident).

The UK Mathematics Trust helps to build confidence by organising Maths Olympiads and team challenges for more than 600,000 secondary pupils. These include maths relays, summer schools and mathematical days out. Teachers report that these events have inspired pupils to study maths at a higher level.

“The kind of maths that goes into all the technology we love and rely on is not about numeracy,” du Sautoy says. “The fact that Google works so effectively to find a website is a beautiful piece of mathematics involving matrices. The fact that our credit cards are protected when we buy things on online is all about prime numbers.”

But, for most of us, the essential skills of numeracy are enough – and we are surprisingly good at them. So we must be active about spreading the word, taking responsibility and being proud about our mathematical capabilities. “It’s about empowerment,” insists Prof du Sautoy, “and making sure that you are not disenfranchised because you don’t understand the language which is in the heart of the modern world.”