

Feature

From ancient Egypt to Europe of the early Renaissance, a new book takes a different look at maths, explaining why children learn the things they do in class. **Alix Norman** meets the author

Telling the tales of maths

“IF YOU look at contemporary mathematics, it's mostly hidden,” says Ioanna Georgiou. “It's buried deep in aspects of programming and engineering, so sophisticated that only specialists in their fields can follow. So, as teachers or parents, how do we convince our kids that studying the basic building blocks of maths – algebra, trigonometry, numbers, geometry; the very fundamentals that form the basis of the more advanced concepts – is worthwhile if you can't see its promise?”

The answer, she suggests, lies in stories of the past. A time when the maths that's now taught in school was the very latest thing, the cutting-edge of learning; an era when counting days and understanding primes affected one's survival, when knowing the properties of a triangle meant your own, self-built property would stand the test of time!

“The maths we actually use, the practical, everyday applications we teach in school, those have been around for thousands of years,” explains Ioanna. “But we're missing out on engaging our kids when we fail to make the link from the past to the present, when we fail to explain why we do certain things...”

“For a while now, I've been teaching maths to teenagers with the emphasis on the ‘whys’,” she continues. “Kids are constantly asking why and how, and sometimes the focus is placed on process and answer. But knowing why we do something is crucial to understanding, and presenting these whys in a way that's accessible – through the medium of storytelling – has always been my passion.”

An enthusiast in the history of maths, Cypriot-born Ioanna is currently Head of Maths at St James Senior Girls' School, London. She also delivers maths masterclasses to teenagers at the Royal Institution, she's a Fellow of the Institute of Mathematics and its Applications (the UK's chartered professional body for mathematicians, a learned society for mathematics), and a Public Exam Assessor. And in her spare time, the 39-year-old develops resources in collaboration with online providers, sits on the board of educational institutions, and volunteers with local organisations to promote maths to primary students through strategy and games.

She also believes in using stories to teach the whys of mathematics: creating connections and enhancing students' understanding of her subject through gripping tales and historical anecdote. It's perhaps no surprise from someone whose dissertation focused on teaching mathematics through history and



Teaching maths through history and culture: Ioanna Georgiou

culture. But still, it's an unusual approach to what most of us recall as a dry subject – plenty of x and y and little else in the way of language! Cast your mind back to

the ‘why’ – the story behind the process – says Ioanna, is just as important as the ‘what’.

Ioanna's unique approach to delivering maths has been very ef-

fective. “I've used these methods in the Royal Institution masterclasses, and found it very valuable: students react well to, for example, learning why we have 360 degrees in a circle and to finding out the

history behind the processes.” Such has been Ioanna's success that she's written a book encompassing the main points of her teaching, a fascinating jaunt through the history of maths which emphasises the whys and hows of what kids learn in the classroom.

Entitled *Mathematical Adventures!*, the book transports its readers from Ancient Egypt to Greece, and onward to India, Arabia and the Europe of the early Renaissance, providing insight into the origins of the techniques and tasks contained in a maths curriculum; giving a glimpse into how things started and evolved, and practical examples of how mathematics can help our everyday lives.

“What often is present-

ed out of context, suddenly will have context,” write the publishers, scientific and educational publishing house Tarquin. “Mathematics, like everything else, needs rooting in everyday life, in the excitement of discoveries past, in cultural shifts and past achievements. Taught without that context, there is a danger of the “why-do-we-study-this” question turning students off. Readers of this wonderful book will never be in such danger.”

Winner of the Readers Choice award at the Chalkdust Book of the Year, *Mathematical Adventures!* is an excellent resource for those children born asking ‘why?’. And at a time when there's no local access to Ioanna's UK-based masterclasses and workshops, it's a godsend: designed to give your bright little sparks all the answers they're not getting in school. Complete with fascinating stories (which appear in roughly chronological order), charming illustrations by Asuka Young, and challenging activities, it engages, explains, and clarifies just why the maths our kids learn in class is so important. And, like Ioanna's teaching, it's turning a new generation on to maths.

For more information, visit <https://www.tarquingroup.com/mathematical-adventures.html>. *Mathematical Adventures!* is available from [amazon.co.uk](https://www.amazon.co.uk), and from all good bookshops in Cyprus

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your own maths classes, and you're more likely to remember endless problem-solving exercises, rather than cohesive, memorable explanations which enhanced your mathematical understanding. And yet

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