

MATHEMATICS IN SCHOOL



From the Editor, John Berry:

The special issue of *Mathematics in School* in March was dedicated to the innovative contributions of Malcolm Swan to the teaching and learning of mathematics through the work of the Shell Centre. Many of the ideas developed by the Centre provided teachers with discussion activities to motivate and engage students in learning mathematics.

The themes of motivation and engagement continue to run through this issue of the Journal. Noelene et al. report on a small scale research project investigating the styles of working collaboratively and independently in a digital classroom. They found that the more active the students became through collaborations with other students, the more they tended to retain and understand the concepts.

One of the important ingredients in engaging learners is the nature of the tasks and how they are used. Sandie Blakesley reflects on this during a study of the aims and principles of Japanese lesson study as part of the IMPULS project during 2015. The Editors are sorry that this article has not been published sooner as it reflects many of the ingredients of new programmes of study introduced several years ago. The themes of motivation and engagement through real world problem solving also feature in Susanne Strachota's article. But many students can also be engaged through more abstract problems such as those described by Paul Stephenson and Donald Keedwell. It is easy to forget that mathematicians do not need problems set in real contexts to become immersed and fascinated by the subject! The story of Marie-Sophie Germain in the latest 'Snapshots from the History of Mathematics' from Jenny Ramsden reminds us to be alert for the enthusiastic young students of mathematics in our classes and to nurture and celebrate their passion for our subject.

The Journal is always pleased to welcome new authors and new reviewers. Chris and I are pleased to welcome several new authors for this issue of *Mathematics in School*. At the moment the Editorial team are seeking to expand the team of reviewers for the many books and articles that are submitted to Grant Macleod to review. It is not an onerous task and provides an opportunity to increase your own personal library with some of the latest publications in teaching and learning mathematics. If you are interested please write to Grant.

The Contents of the May 2018 issue are:

Title	Author(s)	Page
Raising student engagement in junior secondary mathematics	Noelene Dunn, Kumar Laxman and Mei Lai	3
Beautiful lessons. Reflections on the IMPULS programme 2015	Sandie Blakesley	11
Euclid and the primes next door	Paul Stephenson	15
Morphing clock	Phillip Todd and Hannah Kemper	16
Reasoning 'smoothly'	Susanne Strachota	18
y-Intercepts and gradients coding problem	Rachael Horsman	22
Cross number puzzles	Mike Rose	24
Sangaku 3: four accessible sangaku problems	Chris Pritchard	25
From the history of mathematics: Marie-Sophie Germain	Jenny Ramsden	28
Odd numbers and cubes	A. D. Keedwell	30
MEI Insights 2018: problem solving with technology	Tom Button and Stephen Lee	33
Questions pupils ask! Is calculus exact?	Colin Foster	36
Why maths teachers like holidays in the sun	Paul Jackson	39
Pasta and the unit circle	Sarah Ferguson	40

The following items will appear in the September issue along with many more

Titles	Author(s)
The last one standing - computational thinking	Alice Fisher
Questions Pupils Ask! What is the formula for factorial?	Colin Foster
Malcolm Swan: A tribute from American mathematics educators	Michelle Meadows & Joanne Caniglia
Sangaku and sangaku-like problems	Chris Pritchard
All roads are equal	Ed Southall
The Wittmann factoriser	Paul Stephenson