

Key debates:

- The importance of fluency, reasoning and problem solving
- The role of investigative and group work
- The understanding of 'mastery'
- Setting vs mixed-ability

Who should I follow on Twitter?

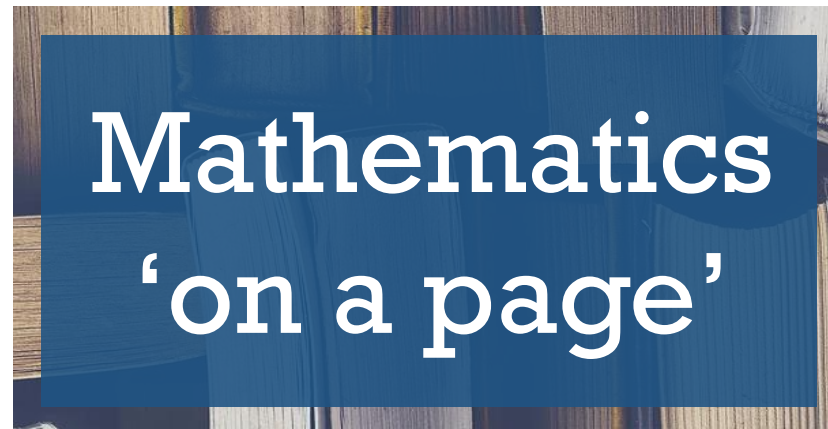


There are many fantastic maths teachers to follow on Twitter and lots of them blog as well. Here are a few I find useful:

Weekly maths CPD chat - @mathscpdchat
Cambridge Mathematics - @CambridgeMaths
Association of Teachers of Mathematics – @ATMMathematics
Mathematical Association - @Mathematical_A
NRICH maths - @nrichmaths
Plus Magazine - @plusmathsorg
Desmos.com - @Desmos
Mark McCourt - @EmathsUK
Jo Morgan - @mathsjem
Ed Southall - @solvemymaths
Craig Barton - @mrbartonmaths
JustMaths - @Just_Maths
Danielle Bartram - @MissBsResources
Colleen Young - @ColleenYoung
Chris Smith - @aap03102
Clarissa Grandi - @c0mplexnumber
Catriona Shearer - @Cshearer41
Catherine van Saarloos - @CoreMathsCat
Advanced Mathematics Support Programme – @Advanced_Maths



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On The Blogosphere

Resourceaholic is Jo Morgan's collection of useful resources, websites and much more. The blog draws together resources Jo has made, her reviews and 'take-aways' from conferences and her series of Maths Gems. Gems are published a couple of times each month and consist of 5 sites or resources that Jo has found via Twitter. <https://www.resourceaholic.com>

Don Steward has vast experience as a CPD leader and author. His blog collects his resources and gives suggested ways of using them. Don's ideas are interesting, relevant, engaging and, crucially, get to the heart of the mathematics. <https://donsteward.blogspot.com>

Craig Barton is the TES maths lead and a best-selling author. His blog includes links to the websites based on chapters and ideas from his book and is likely to be of interest to those who have found the book helpful. There are also links here to Craig's popular podcast series, where he interviews influential maths educators. <http://www.mrbartonmaths.com/blog>

Dan Meyer devised what he calls 'Three-Act Maths Lessons', where he used film very effectively to introduce problems in a way that grabs the attention. He now works for Desmos, the online graphing software. <https://blog.mrmeyer.com>

Mathematics, Learning and Technology is the title of Colleen Young's blog. The blog includes links to other sites as well as Colleen's own ideas. This is a treasure-trove of materials. <https://colleenyoung.wordpress.com>

What should I read?

It is important that all teachers have good subject knowledge. In mathematics teaching we make a distinction between knowing how to do the maths and what some authors refer to as Pedagogic Content Knowledge, the knowledge required to teach the mathematics. *How to enhance your mathematics subject knowledge: Number and algebra* is by Jemma Sherwood and explores: representing and working with numbers; multiplicative thinking (a key and difficult mathematical idea); expressions, equations and graphs; and patterns and proof. Ed Southall's intriguingly-titled *Yes, but why?* picks out interesting pieces of mathematics from across the curriculum and explains not only how but also why they work. It will also introduce you to lots of other interesting pieces of mathematical vocabulary ('vesica piscis?').

An important theme in maths education at present is 'mastery' and the NCETM has made this a focus of the work of the Maths Hubs. While it is clearly important for pupils to achieve fluency in calculations there is little shared understanding of what mastery actually means. Mark McCourt's *Teaching for Mastery* takes Mark's expertise in mathematics education and combines this with his knowledge of the key thinkers behind mastery. The NCETM's version of mastery makes significant use of representations (such as Cuisenaire rods and algebra tiles) to help children to understand mathematical concepts. Peter Mattock's book *Visible Maths* is therefore particularly useful because it explores how representations and structure can be used to enhance understanding.

That not everyone agrees with Craig Barton's book *How I wish I'd taught maths* is shown by the anecdote Craig tells about how he has been described as 'the most dangerous maths teacher in the country'. Here he collects a number of things he has learned from research and from conversations with experts and explains them clearly.

The Mathematical Association (MA) and the Association for Teachers of Mathematics (ATM) both have a wealth of publications to support mathematics teaching and mathematics teachers. ATM offers free membership to trainee maths teachers (see their website <https://www.atm.org.uk>).