

## #mathscpdchat 11 June 2019

**Pupils' mathematics learning during the first half term of Year 7: what are your plans for next term?**

Hosted by [Sharon Malley](#)

*This is a brief summary of the discussion – to see all the tweets, follow the hashtag **#mathscpdchat** in Twitter*



Some of the areas where discussion focussed were:

- **primary and secondary schools developing shared understandings of curriculum, teaching and learning** ... Key Stage 2/3 transition strategies to minimise post-KS2 test (SATs) 'drop-off' ... secondary teachers teaching 'transition lessons' to pupils in primary schools at the end of Year 6 ... transition tasks/explorations started in Year 6 and continued in Year 7;
- establishing desirable **classroom behaviour, a supportive classroom atmosphere, and effective mathematical-thinking habits** ... focussing on mathematical priorities once a 'culture of effective learning' has been established;

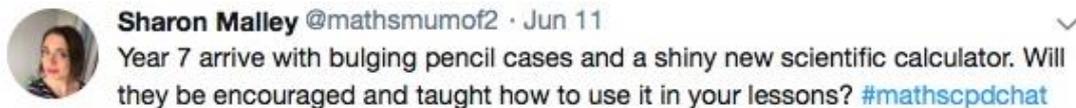
- **assessing the real strengths and weaknesses of pupils at the start of Year 7 ...** information available to secondary schools about pupils entering Year 7 ... whether (or not) to base judgements about the strengths and weaknesses of pupils in Year 7 on KS2 test (SATs) performance data ... comparing the responses to particular KS2-test-items of pupils in different primary schools, and drawing conclusions about teaching priorities (for example, the pupils from one school might show particular competence when working with fractions, while those from another school show greater understanding of algebraic ideas) ... being surprised by pupils' results in UKMT challenges when compared with own judgements based on classroom observation and summative assessments;
- **checking and strengthening pupils' fluent mastery of simple number facts and operations ...** the particular operations and understandings that teachers expect pupils to be able to apply fluently at the start of Year 7 ... what the indications are that a pupil has, or has not, acquired adequate number-fluency (for example that she does or doesn't recall multiplication facts fluently or that he does or doesn't use understanding of place-value to work fluently with decimals);
- pupils **using mathematical language and symbols correctly** ... for example, using '=' to represent 'is equal to' rather than 'makes';
- guarding against the **deterioration of pupils' mental skills** once they reach secondary school;
- whether it is more effective to teach Year 7 in '**mixed-ability**' groups, or to '**set**' them according to judgements (based on what?) about the mathematics that currently they know and can do;
- creating Year 7 '**catch-up**' groups, to which, from time-to-time, pupils may be allocated or from which they may be removed as a consequence of teachers' observation-based judgements;
- planning for Year 7 pupils to **experience success and enjoyment in their lessons** ... by providing open-ended challenges that exploit pupils' curiosity ... by using low threshold, high ceiling tasks ... for example using NRICH problems, puzzles and explorations (link provided below) ... using the problem-solving app 'SUMAZE 2' from MEI (link provided below);
- trying to engage/encourage all pupils by giving '**reward points**' to pupils who progress in any way from any unique starting-point;
- **strengthening pupils' number-fluency in re-visits to recently addressed topics** ... devising 'date-based' tasks (tasks involving only the numbers that appear in the conventional representation of 'today's date', such as 25-12-19) ... pupils getting used to using 'not-nice' numbers ... noticing features of the date that can prompt

explorations (for example the date 14-5-19 prompted a search for other date-representations in which 'day + month = year');

- **pupils extending the range of numbers** that they can work with confidently ... for example using  $19 + 6 = 25$  to evaluate  $0.19 + 0.06$ ;
- pupils learning, right from the start of Year 7, how to **use a calculator efficiently and effectively** ... using MEI's 'Calculator Crunch' (link provided below);
- **teaching algebra topics early in Year 7** ... teachers learning from *Quantities and algebraic expressions* in *Key Ideas in Teaching Mathematics* (link provided below) ... that early mastery of some algebra enables pupils to apply it across topics ... pupils experiencing a 'new challenge' that is different to Year 6 experiences;
- teachers basing their own **Year 7 'Schemes-of-Work'** on on-line published schemes ... teachers **designing lessons 'from scratch'** ... teachers **working collaboratively** with reference to published resources.

In what follows, click on any screenshot-of-a-tweet to go to that actual tweet on Twitter.

This is part of a 'conversation' of tweets, about supporting pupils in using scientific calculators efficiently and effectively right from the start of Year 7. The conversation was generated by this tweet from [Sharon Malley](#):



including these from [Sharon Malley](#), [Blastmaths](#) and [Shyam Ganatra](#):





**Shyam Ganatra** @ShyamGanatra4 · Jun 11

Replying to @mathsmumof2

I initially did this with KS4 classes, only to realise how we assume this knowledge for students, I agree this is a great idea right from year 7, why not teach students how to square numbers on a calculator after teaching square numbers @mathscpdchat

these from [Sharon Malley](#), and [Rachel Helme](#):



**Sharon Malley** @mathsmumof2 · Jun 11

I also feel a little sad for them if they arrive excited and ready to use a scientific calculator and then are not shown how to. It's a missed opportunity



**Rachel Helme** 🎓🔥🔥🔥 @HelmeRachel · Jun 11

Replying to @blastmaths @mathsmumof2

Good for checking if a number is prime too ..... but I guess that's obvious 😊



**Sharon Malley** @mathsmumof2 · Jun 11

I demonstrated it's use with a question that I think was, 2018 is a sum of two primes, one is between 400 and 500 what are they?

and these from [Gerry McNally](#), [Mary Pardoe](#) and [Sharon Malley](#):



**Gerry McNally** @mcnally\_gerry · Jun 11

I encourage my learners to try to obtain answers without a calculator (where appropriate) then to use one to check their answers. (This works both ways, of course - we need a check on the reasonableness of the electronic answer!)



**Mary Pardoe** @PardoeMary · Jun 11

Replying to @blastmaths @mathsmumof2

Have you seen the MEI CALCULATOR CRUNCH? #mathscpdchat  
[mei.org.uk/Primary-KS2-3-...](http://mei.org.uk/Primary-KS2-3-...)

The screenshot shows the MEI Mathematics Education Innovation website. The header includes the MEI logo and navigation links: Home, About Us, Contact, Teachers, Students, Universities, Employers, and News and Events. Below the header is a banner image of a woman thinking, with the text "Supporting teachers through a range of professional development opportunities." Below the banner is a breadcrumb trail: Home > Teachers > Primary > KS2-3 Transition. The main heading is "KS2-3 Transition" followed by a large graphic for "CALCULATOR CRUNCH" featuring a calculator icon. Below the graphic is the text "The MEI Calculator Crunch... it's fun and it's free!" and a short description: "To help Year 6s get 'calculator-ready' and provide extra practice for Year 7s, we're running a fun and free summer challenge – the Calculator Crunch."



**Sharon Malley** @mathsmumof2 · Jun 11

Primary colleagues are you taking part in @MEIMaths #CalculatorCrunch as part of your transition activities? What maths have you been doing post-SATs?

(to read the discussion-sequence generated by any tweet look at the 'replies' to that tweet)

Among the links shared were:

[Secondary accountability measures](#) which is a Department for Education guide for secondary schools (March 2019) which includes notes about the information that is available to secondary schools about their Year 7 pupils. It was shared by [Sharon Malley](#)

[Calculator Crunch](#), a free 2019 summer challenge from [MEI](#) consisting of engaging questions published each school day 10-20 June 2019. It was shared by [Mary Pardoe](#)

[Sumaze 2](#) which is an application from MEI (Mathematics Education Innovation) where mathematics is learnt, problem-solving skills are developed and fun is had! It was shared by [Mary Pardoe](#)

[NRICH](#) which is a source of many effective and fascinating mathematical tasks and explorations, together with much valuable advice about learning and teaching mathematics! It was shared by [Mary Pardoe](#)

[Improving Mathematics in Key Stages 2 and 3](#) which are eight recommendations from the Education Endowment Foundation intended to improve outcomes in maths for 7-14 year-olds. It was shared by [Sharon Malley](#)

[Key Ideas in Teaching Mathematics](#) by Anne Watson, Keith Jones and Dave Pratt. It is research-based guidance about teaching key ideas in the mathematics curriculum to 9-to-19-year-olds. It was shared by [Mary Pardoe](#)

[Key ideas in teaching mathematics website](#) which takes each of the 'key ideas' in the mathematics curriculum and provides research-based guidance about teaching these ideas to 9-to-19-year-olds. It was shared by [Mary Pardoe](#)

[Quantities and algebraic expressions](#) which is a theme page of the *Key ideas in teaching mathematics website*, which has links to relevant online activities and resources. It was shared by [Mary Pardoe](#)

[Adventures in Mastery 2: Writing a Scheme of Work](#) which is a blog by Jemma Sherwood in which she describes the process that produced her scheme of work, and which shares the working draft of the scheme itself. It was shared by [Sharon Malley](#)

[Teaching Mathematics At Secondary Level](#) by Anthony D Gardiner. It is a free-to-download document which offers a broad view of secondary mathematics, clarifying crucial features of elementary mathematics and how it is learned ... features that all teachers need to consider before deciding 'how to teach'. It was shared by [Mary Pardoe](#)

[Teaching Mathematics At Secondary Level](#) by Anthony D Gardiner. This is an attractive permanent book version of the *Mathematical manifesto* described above. It was shared by [Mary Pardoe](#)

[How to Enhance Your Mathematics Subject Knowledge: Number and Algebra for Secondary Teachers](#) by Jemma Sherwood which explores a broad range of the trickiest concepts and misconceptions in the number and algebra topics of secondary maths. It was shared by [Sharon Malley](#)

[Visible Maths](#) : *Using representations and structure to enhance mathematics teaching in schools* by Peter Mattock. It was shared by [Sharon Malley](#)

[White Rose Maths Schemes of Learning](#) which are schemes of learning developed by teachers in the White Rose Maths team. It was shared by [Cat](#)

[Virtual Black Casio Calculator](#) which is an online interactive virtual calculator suitable for class demonstration purposes. It was shared by [Srirat Arthur](#)

[The Calculator Guide](#) which is a website 'designed to help you make the most of your calculator'. It was shared by [The Calculator Guide](#)