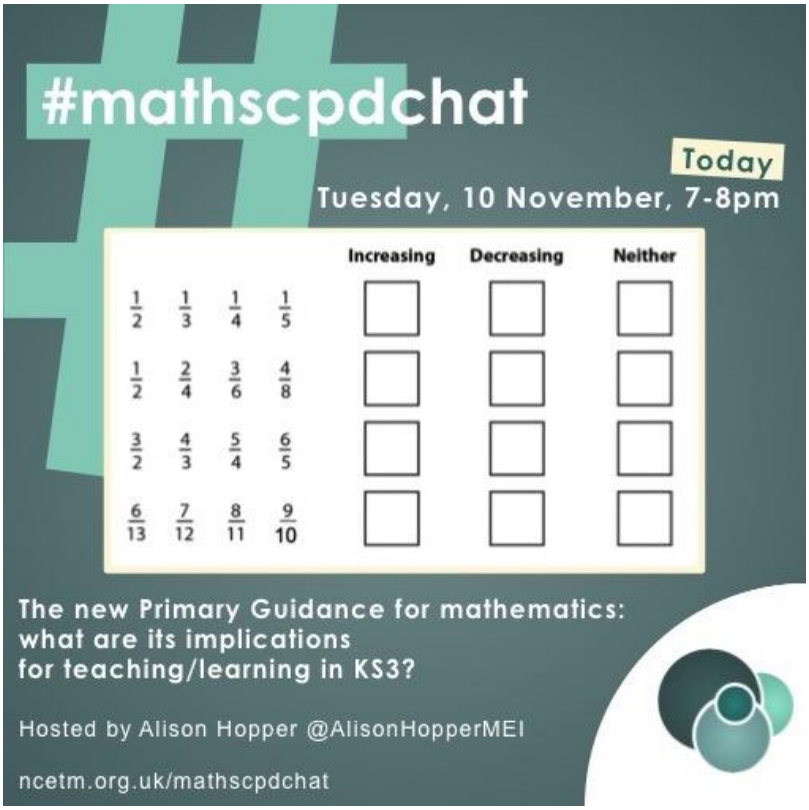
#mathscpdchat 10 November 2020

The new Primary Guidance for mathematics: what are its implications for teaching/learning in KS3?
Hosted by Alison Hopper

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 focused were:

how primary and secondary teachers are using the recently-published Primary Guidance (for mathematics) documents and materials:

- that **these guidance materials illuminate priorities in the primary mathematics curriculum** by summarising core knowledge and understanding, clarifying coherence (links and relationships between items of the curriculum) and progression within it, and providing criteria for making judgements about when pupils are ready to progress;

- that the materials are **'really useful from a secondary point of view**' … they help secondary teachers 'know the prior knowledge' that pupils should bring with them into KS3 … the materials have helped some secondary teachers create 'intervention packages' to support KS3 pupils who demonstrate low prior attainment in mathematics … secondary maths team leaders are 'drip feeding' the guiding 'messages' in the materials to their team members in order to help those teachers 'pin point' gaps in pupils' knowledge and understanding;
- whether primary teachers are **using the guidance materials 'as an assessment tool' or 'as a planning tool'** … that the materials can help them prioritise when planning, focussing on what matters most … whether teachers are sharing some of the guidance with parents;
- that the materials are helping teachers focus on **exactly what 'high expectations' in the learning of the maths they are teaching are 'expectations' of**, and on **how best to support pupils who are struggling**;
- that **page 9 of the guidance gives the *Ready-to-Progress Criteria*** … these criteria can support teachers' work that aims specifically to enable smooth and effective transition from KS2 to that in KS3;

the nature, aims and content of the maths teaching and learning that secondary teachers are assuming to have happened during Year 6, and on which they are therefore trying to build during Year 7:

- among contributors' **anecdotes and examples from their recent teaching** was that, when encountering comparative and composite bar charts for the first time, a Y7 pupil said **'Wow, it's bar charts but all grown up';**
- that building in Year 7 on pupils' prior **learning about place value** 'is always a hit', particularly when they think about and discuss very large named-numbers such as 'a googol' or 'a quadrillion' … using calculators to play with very small and very large numbers … looking at SI unit prefixes (such as kilo, mega, giga, … milli, micro, pico, …);
- that in the Primary Guidance the following **four aspects of place value are identified as important ideas to be developed and mastered** … the relationship between adjacent place value units … standard and non-standard partitioning (e.g. seeing 5,342 as 5,000 + 300 + 40 + 2 and/or as 4,000 + 1,342) … place value in the linear number system (e.g. being able to place 5,342 on a number line) … common partitions of place value units (eg 1,000 = 500 + 500 = 250 + 250 + 250 + 250 = 200 + 200 + 200 + 200 + 200 etc.);
- that pupils **using calculators in Y7 to aid them in focussing on numerical ideas** (rather than just on numerical procedures) is 'one of the most joyous experiences' in Y7 maths teaching … 'using calculators has also enabled students who may not be as confident numerically' to reveal the good quality of their thinking and reasoning (for

example when they were experimenting with the powers and roots functions on their calculators);

- during Year 7 some teachers are **building on pupils' previously acquired fluency in applying numerical operations** by 'moving relatively quickly on to algebra as generalised number' … using bar models and algebra tiles to aid such progression;
- **building on pupils' previously acquired understandings related to multiplying by 10, 100, …**, by, for example, moving on to understanding and using (operating with) powers of ten, including negative powers, in preparation for working with numbers expressed in standard form;
- as a result of getting to know what is in the Primary Guidance some **Y7 teachers have made changes in their long- and medium-term planning** … for example by prioritising 'properties of number and proportionality';

how primary teachers are using the Primary Guidance materials:

- some are using them to **create 'rigorous assessments' applied frequently** in order to check that pupils are 'keeping up' … seeing where the 'ready to progress' criteria fit into teachers previously-planned schemes;
- at least one primary teacher is **absorbing and internalising the guidance by using it over time** … the materials are not being regarded as 'pick-up-and-go' materials:

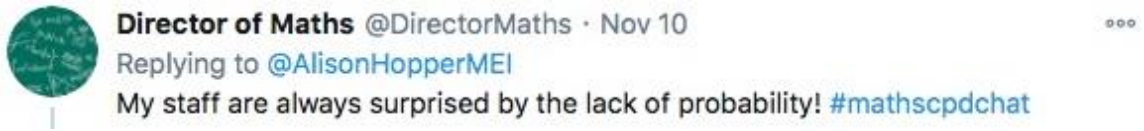
***ready-to-progress criteria* that teachers might have expected to be included, but that are not included:**

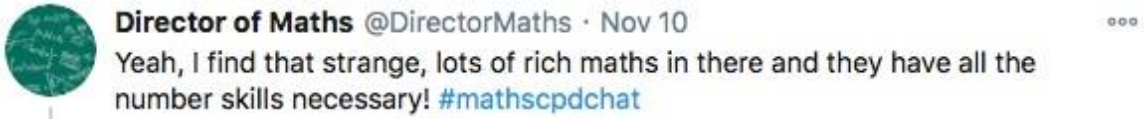
- some **secondary teachers were surprised that no aspects of learning about probability are included** … that all the prior learning necessary for pupils to start to understand the mathematics of probability in KS3 is included in KS2 learning … that it is possible that if KS2 pupils were introduced to procedures/relationships involved in the maths of probability they would see them 'as isolated facts';
- **some aspects of the National Curriculum for maths are not explicitly mentioned in the *ready-to-progress criteria* (RTP criteria)** … for example negative numbers are not included in any of the criteria … the *ready-to-progress criteria* are not statutory … some primary teachers are not surprised that not every aspect of the National Curriculum is mentioned in the RTP criteria because they see these criteria as 'key concepts for development' and are using them as reminders when looking-for/developing strategies to help pupils deepen their understanding of those key ideas;
- **the RTP criteria can remind both primary and secondary teachers of those aspects of number that 'unlock' other mathematical ideas** … they can help them teach in a way that builds solid foundations for later mathematics learning … for example one teacher mentioned that when key numerical understandings have been achieved during Key Stages 1 and 2, those pupils do not usually later struggle to grasp concepts that are essential for understanding statistics and measures.

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

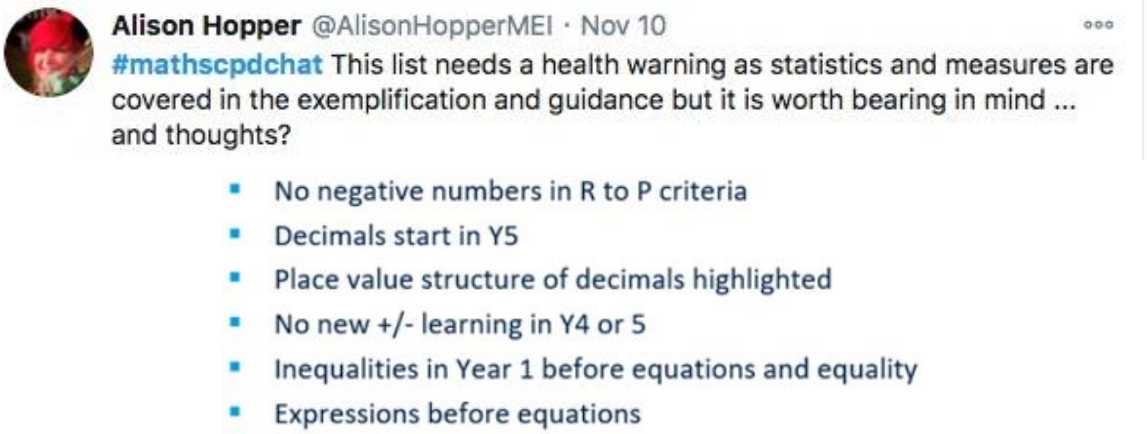
This is a part of a conversation in which secondary and primary teachers discuss with the host, Alison Hopper, reasons why some aspects of maths are not mentioned in the primary *ready-to-progress* criteria, and some implications of that fact for their teaching. The conversation was generated by this tweet from Alison Hopper:

and included these from Gemma Scott and Alison Hopper:





these from Alison Hopper and Lisa:



Alison Hopper @AlisonHopperMEI · Nov 10
I have to own up to the list. I might re-work in a new tweet. There are some aspects of the national curriculum which are not explicitly mentioned in in the ready to progress criteria #mathscpdchat

Lisa @Elsie2110 · Nov 10
It wasn't a criticism just wasn't sure of the point! And I'm not surprised there are aspects not mentioned in RtP - I see RtP as the key concepts for development in maths. I'm using it to deepen understanding of those aspects, not as a bible.

Alison Hopper @AlisonHopperMEI · Nov 10
Thanks for clarifying! I like your description of how you are using the criteria. My image was a slide from a presentation and I was concerned that, out of context, it wasn't clear, #mathscpdchat

Lisa @Elsie2110 · Nov 10
I think in primary we don't pay enough attention to aspects of number that 'unlock' other parts of maths. Hard to explain in a tweet, but think RtP heightens non-specialists' awareness of this & models of how to teach which have long lasting applications.

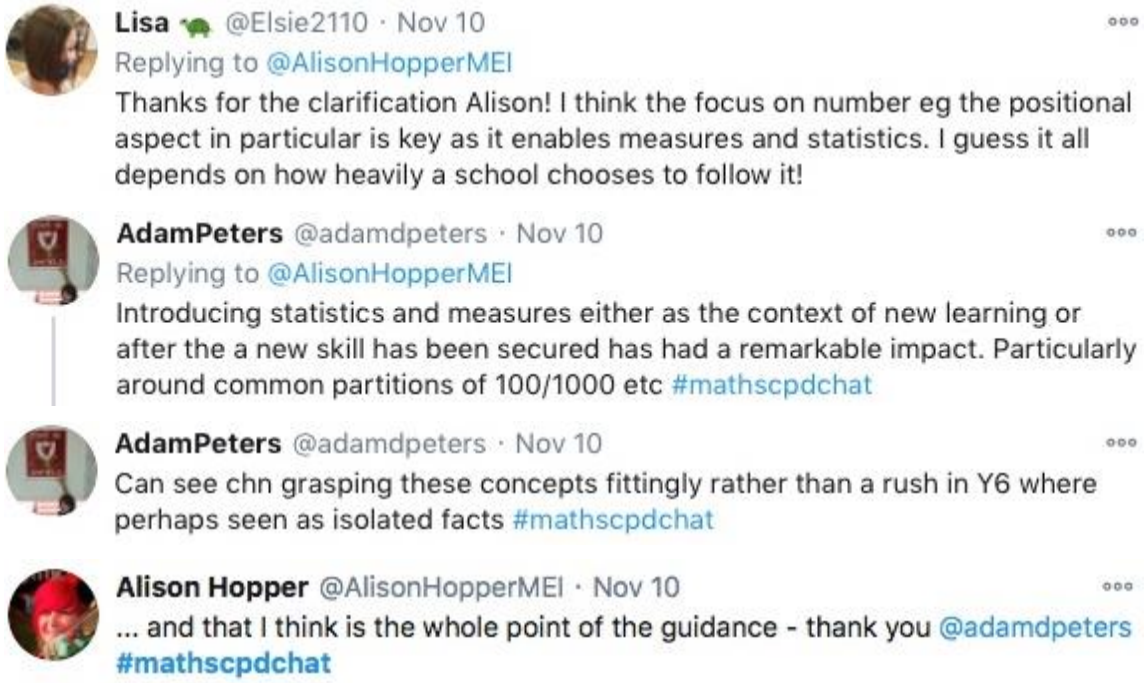
Alison Hopper @AlisonHopperMEI · Nov 10
I think you have put it very well in a tweet. I think this also makes it powerful in supporting transition. Have you been involved in transition work? We are going to make use of these materials in the #Y58Continuity Work Groups this year. #mathscpdchat

and these from Alison Hopper, Lisa and Adam Peters

Alison Hopper @AlisonHopperMEI · Nov 10
Update on this tweet. Statistics and measures do not have their own criteria but are mentioned in the guidance and examples. Negative numbers are not mentioned at all in the KS2 criteria BUT the criteria are not statutory #mathscpdchat

> **Alison Hopper** @AlisonHopperMEI · Nov 10
> #mathscpdchat This list needs a health warning as statistics and measures are covered in the exemplification and guidance but it is worth bearing in mind ... and thoughts?

- No negative numbers in R to P criteria
- Decimals start in Y5
- Place value structure of decimals highlighted
- No new +/- learning in Y4 or 5
- Inequalities in Year 1 before equations and equality
- Expressions before equations



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

Among the links shared were:

Training Materials for DFE Mathematics Guidance which are ready-to-use PowerPoint materials from the NCETM. They take you step-by-step through the new Primary Mathematics Guidance produced by the DfE in July 2020 called *Teaching mathematics in primary schools*. It was shared by Alison Hopper

Shaping the Year 7 Curriculum: Building on Year 6 which are materials from the NCETM. They are designed to help you run a session to help KS3 teachers and maths departments start to understand the implications for Year 7 of the guidance produced by the DfE in July 2020 called *Teaching mathematics in primary schools*. It was shared by Alison Hopper

Planning to Teach Secondary Maths which are NCETM videos recorded by experienced teachers. They offer advice and ideas for colleagues, especially less experienced colleagues such as NQTs or non-maths specialists and TAs/tutors teaching small groups. It was shared by Alison Hopper

Mathematical Prompts for Deeper Thinking Videos which are NCETM videos showing a teacher working with small groups of students from her Year 8 class. Each video is accompanied by a set of PowerPoint slides. It was shared by Alison Hopper

Calculator Crunch which are lesson plans and activities from MEI for Year 6 and 7 pupils. They are designed to help pupils enjoy becoming familiar with using a calculator. It was shared by Alison Hopper

Primary Lesson Plans: Get Calculating which are lesson plans from MEI. They are designed to focus on key aspects of the maths curriculum for Year 6 pupils, whilst also providing an opportunity for them to become familiar with using a calculator. It was shared by Alison Hopper

Year 7 Catch Up - Meet Them Where They're At which is a recent blog by Gemma Scott. It contains advice and suggestions for ways of helping Year 7 pupils whose present maths attainment has been damaged recover 'lost ground'. The advice is related closely to the *ready-to-progress* criteria in the Primary Guidance. It was shared by Gemma Scott

One Googol Zeroes which is a PDF document about two very large numbers. It was shared by Henri Picciotto

The Daydreamer which is a 1994 children's novel by Ian McEwan. It was shared by Alison Hopper