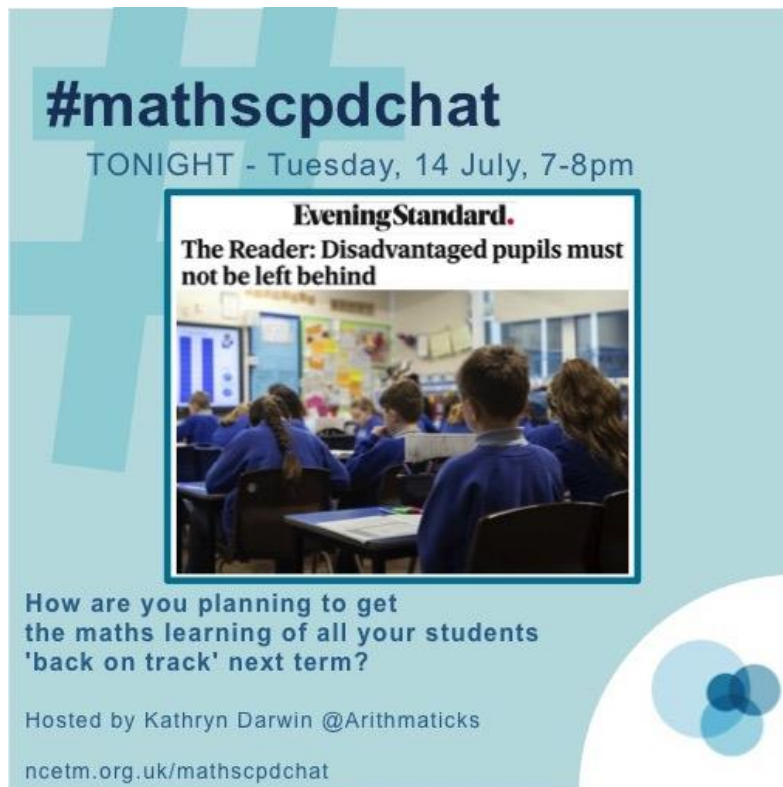


## #mathscpdchat 14 July 2020

How are you planning to get the maths learning of all your students 'back on track' next term?


Hosted by [Kathryn Darwin](#)

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



**#mathscpdchat**  
TONIGHT - Tuesday, 14 July, 7-8pm

**EveningStandard.**  
**The Reader: Disadvantaged pupils must not be left behind**



How are you planning to get the maths learning of all your students 'back on track' next term?

Hosted by Kathryn Darwin @Arithmatics  
[ncetm.org.uk/mathscpdchat](http://ncetm.org.uk/mathscpdchat)

Some of the areas where discussion focused were:

how teachers anticipate that classroom and pupil-group arrangements for teaching maths will be next term:

- **rows of individual desks with all pupils facing the teacher who stays at the front** ... whether, and if so, how it will be possible for pupils to interact/collaborate

with each other in such arrangements ... that paired discussion may be possible ... that it is the easiest arrangement in which to 'embed good classroom behaviour and check what pupils are doing';

- **teaching maths in 'random rooms all around the school'** ... teachers move to rooms in which pupils stay all the time ... pupils will be in the same seat in the same room for every lesson ... each year group will be allocated a different part of the school buildings ... maths rooms are not seen as subject-specific rooms because 'maths does not need practical space or special equipment' (?) ... some teachers do not yet know where they will keep teaching materials and personal items ... some schools are providing a personal locker for each teacher ... some teachers believe that they will get used to teaching in different rooms;
- **teaching all Key Stage 3 pupils in mixed-attainment form tutor groups for the first time** ... some teachers are concerned that their Scheme of Learning (SoL) is not 'geared up' for mixed-attainment teaching ... some teachers would prefer to have pupils in each year grouped in 'one top set with the rest mixed-attainment' ... other teachers feel that mixed-attainment teaching will offer 'good opportunities' ... that the challenge for subject leaders is to see that 'everything is in place' for mixed-attainment teaching in September, and to listen to other teachers' concerns, so that all teachers quickly gain confidence ... some teachers will temporarily be teaching mixed-attainment groups in lessons that will each last for two hours ... whether, once they have got used to teaching maths to pupils in mixed-attainment groups, they will ever want to return to a 'setted' group structure;
- some secondary schools will have **only half of all the pupils in school at one time**, probably for one week at a time ... teachers will follow the normal time-table, **live-streaming (using Microsoft Teams) all lessons to the pupils who are at home**, thus enabling teachers to 'teach as normal, without having to repeat each lesson' ... **using in-school 'staff days'** to help build the confidence in using Teams for those teachers who are not yet experienced users of it;
- whether, as a consequence of seeing **recent media references to 'recovery curricula'**, teachers have changed, or are planning to change their Schemes of Learning ... some teachers are trying not to plan 'too far ahead' until they have met pupils in school, and in case they receive further official guidance;
- some subject leaders are **not wanting to convey to other teachers or to pupils the message that maths curricula at the start of next term will be 'recovery curricula'**, because that would imply that damage has been done ... aiming instead to give-out positive messages, for example by telling pupils that the teaching will 'bring together what they have learnt at home', filling in gaps as necessary, all the

time focusing on achievement and high expectations ... that it will be important to use language that motivates rather than discourages pupils (for example, say 'revisit to strengthen' rather than 'repair learning', 'develop the learning' rather than 'cover ground', 'challenge ourselves' rather than 'speed up') ... helping pupils to develop positive attitudes;

- **concentrating on 'responsive teaching' rather than thinking about a 'recovery curriculum'** ... 'responsive teaching' requires teachers to 'know what good practice is' ... that **'getting the right CPD'** for every maths teacher will be the focus of some subject leaders;
- in some schools **Year 13 students will 'have an assessment** to see what we need to look at with them' ... aiming to **embed calculator use more effectively within A level** teaching and learning;
- **planning to address misconceptions and gaps 'as we normally do'** ... allowing a bit more time where what we are teaching relies on understandings that were supposed to have been gained during home-learning ... choosing/designing tasks carefully (for example using variation very carefully in a set of questions in order to achieve a very specific learning aim) may enable teachers 'to get back some of the lost time';
- not starting the term with anything that depends on what was supposed to have been learnt during lockdown ... wanting to **start off with all students feeling successful** ... waiting until three or four weeks into the term before doing any 'reteaching';
- in some schools the **KS3 Scheme of Learning has always started with consolidation of KS2 learning**, so there will be no need to change anything this year;
- teachers who are concerned that there **may not be time to address adequately all the Foundation-tier GCSE content** are changing the usual order in which topics are addressed ... for example, moving trigonometry, simultaneous equations and reverse percentages to the end of the course;

#### **how teachers might identify 'gaps' in learning without changing their Schemes of Learning:**

- **picking the 'right' tasks** ... for example tasks in which different students can reveal different depths of understandings and knowledge ... checking pre-requisites for new learning using diagnostic questioning;
- during in-school lessons making lots of use of **mini-whiteboards** ... using the **'eyes closed, hands up'** strategy;
- using **'Plickers'** as a way of enabling students to reveal misconceptions and show what they do know (link provided below);

- challenging the students who appear to have understood something to **create their own questions** involving it, while the teacher works on that same idea with those who are struggling;
- **avoiding trying to teach the same thing over and over again in the same way ...** looking creatively for new strategies, materials and representations;
- teachers are wondering how they can **'celebrate' the work of students who learnt** during lockdown **without 'putting down' other students** who (through no fault of their own) did not;
- using Teams chat during in-school lessons so that **students can ask the teacher questions without revealing their lack of understanding to other students ...** this can help 'really shy' students to make progress ... removing the stigma of 'being stuck' ... **establishing an atmosphere in which question asking by students is valued**;
- teachers **sharing classroom experiences**, such as errors that students are making, and **planning together in the light of them ...** thus supporting inexperienced teachers;

#### **teachers' priorities in how they intend to act next term:**

- **re-establishing normal routines** as quickly as possible, and facilitating a smooth start for all pupils;
- **working to build success** for students and other teachers ... giving lots of attention to pupils who missed out on online learning;
- **establishing and maintaining effective ways of communicating** with pupils and teachers;
- that adjusting to 'bubbles' and other whole-school arrangements may be hard ... **endeavouring to teach effectively under the constraints**, for example while having to teach only from the front and not being able to circulate around the classroom;
- **introducing mixed-attainment teaching throughout Key Stage 3 ...** providing opportunities for teachers to work together on planning lessons and teaching-approaches;
- looking forward to putting into practice **what was learned during lockdown through reading and taking-part in online PD sessions**;

#### **how teachers plan to check 'pre-requisites for learning':**

- some teachers will be drawing on the new **DfE guidance that prioritises the essential building blocks of the primary maths curriculum** (link provided below);

- pupils **using mini-whiteboards to show their responses to questions and challenges** ... making homemade mini-whiteboards using laminated A4 paper secured on the backs of pupils' exercise books;
- using pupils' responses to/on **'entry and exit' tickets** in planning 'how/where to start the teaching of a unit of work';
- using open ended questions ... **comparing alternative ways of solving problems** ... pupils trying to convince each other that their reasoning is valid;

#### **how teachers plan to help pupils make good use of all their time in school:**

- setting **'Fermi Questions'** for pupils to think about during 'dead time' in school, for example while they are waiting for the teacher to get to their classroom to start a lesson (link provided below):

#### **how planning for the start of the new school year is different this year**

- that **planning two-hour lessons for pupils in mixed-attainment groups** will be very different to lesson planning in the past;
- focusing more deliberately than ever before on **planning for pupils' deep understanding**;
- some teachers believe that 'planning by teaching episode' is even more important this year, but that **sticking to pre-determined timescales may not be possible** ... that they intend to move through the SoL at the pace of the pupils, rather than at a pre-set pace;
- some secondary departments have **already together prepared 'ready-to-go lessons for every topic' that individual teachers can adjust for their classes** ... that in the planning of these lessons they have focused on 'content and purposeful independent practice';

#### **how teachers plan to support colleagues in interpreting 'responsive teaching' and in making that term apply to what they do in the classroom:**

- some maths subject leaders are hoping for time in September to work with non-specialist maths teachers ... they are **preparing resources such as banks of carefully planned examples, questions and tasks**, thus giving inexperienced teachers more time to spend reading about maths teaching;
- using dedicated CPD time in school to work on the **creation of diagnostic questions, and how they can be used effectively**;
- **collaborating** ... sharing experiences ... discussing what has worked well and what hasn't ... remaining positive ... constantly looking for new 'methods that are backed up by research findings';

#### **aspects of teachers' learning during lockdown that they intend to 'take into the classroom' in September:**

- that learning maths results from **'hands-on' experiences** to a greater extent than we appreciated before lockdown;
- **using Desmos to present, and work on, class tasks**, having during lockdown become much more confident in using that software;
- that effective home learning can be achieved **in different ways**;
- how **Teams** can be used effectively by teachers and pupils to facilitate maths learning;
- **knowing how to make explanatory videos** and make them available to pupils via Google Classroom;
- that there are **many ways of getting feedback from pupils without moving from the board** at the front of the class ... e.g. by using mini-whiteboards;
- the importance of **good communication** with colleagues and pupils;
- how students and teachers can **use online virtual manipulatives** to boost pupils' engagement and facilitate their learning ... that products of pupils' work with virtual manipulatives can be saved and shared;
- from September onwards some teachers intend to provide extra support to Year 11 students who are struggling using the online ways of teaching with which they developed expertise during lockdown;

**teachers' greatest concerns when anticipating the start of the 2020/21 school year in September:**

- that **not having my own maths classroom** will make it harder to teach well;
- that having **two-hour lessons will result in pupils missing a great deal of learning** when they miss just one lesson;
- that as a result of focusing too much on 'pupils' lost learning time', some teachers may **lower their expectations of pupils**;
- that some teachers may **not provide sufficient opportunities for differentiation in their mixed-attainment teaching**;
- that it may be **hard to give effective feedback to individual pupils** when having to **teach entirely from the front of the classroom**;
- that **maintaining good classroom behaviour may be harder** when teaching from the front;
- that it **may not be possible to identify all the students' learning gaps**;
- that pupils' **attendance** will be poor;
- that 'I don't yet know how to **lead maths department meetings well**';

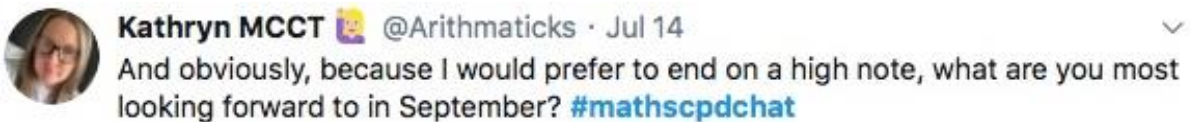
**what maths teachers are most looking forward to in September:**

- getting back into a **normal routine** ... teaching **proper lessons** again;

- **being with pupils and colleagues** ... seeing pupils enjoying doing maths;
- starting to **build the maths department** that best represents what I regard as good practice and **facilitates the aspirations of all those who teach in it**;
- starting on my new **Mastery Specialist role** within my Maths Hub;
- being in a classroom ... **experiencing special moments** such as when a pupil understands something challenging and 'feels like they can conquer the world';
- seeing and hearing 'all the wonderful and sometimes perplexing conjectures that pupils make'.

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 about what teachers are looking forward to when the new term starts in September. The conversation was generated by this tweet from [Kathryn Darwin](#):




and included these from [Simon Ball](#), [Megan Davies](#) and [Mr Alhassan maths](#):




these from [Jonny](#), [Miss Hope](#) and [Vicki Parker](#):







 **MissHope** @MissHop10166977 · 5h  
Replying to @Arithmaticks  
Seeing my students. The teaching is going to be very strange having to stay in my box at the front. Taking our maths team from strength to strength. :)

 **Vicki Parker** @VickiBrown86 · Jul 14  
Replying to @Arithmaticks  
Getting back to school - been shielding since March. Also taking up my new Mastery Specialist position with my Maths hub! 😊

and these from [Jenna Sanderson](#), [Sam Brace](#) and [Megan Davies](#):

 **Jenna Sanderson** @MissJennaMaths · Jul 14  
Replying to @Arithmaticks  
Being in a classroom and seeing that moment when a pupil masters something challenging and then feels like they can conquer the world!

 **Sam Brace** @EmBraceMaths · Jul 14  
Replying to @Arithmaticks  
Seeing and hearing all the wonderful and sometimes perplexing conjectures the students make :)  
[#mathscpdchat](#)

 **Megan Davies** @MDaviesteaching · Jul 14  
Since lockdown I have loved taking part in these chats, it has been so nice to hear from other maths teachers! Lovely to finish this evening by hearing what people are looking forward to about September and so many people saying the pupils! [#mathscpdchat](#)

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

Among the links shared were:

[Ready-to-progress criteria](#) which is part of an overview of [Mathematics Guidance for Key Stages 1 and 2, Non-statutory guidance for the national curriculum in England, June 2020](#), from the Department for Education. It was shared by [Martyn Yeo](#)

[Fermi Questions](#) which is a collection of questions compiled by John Dabell. Fermi Questions, which are named after the Nobel Prize winning physicist Enrico Fermi, challenge pupils to use estimation, common sense and numerical reasoning to work out quantities that are difficult or impossible to measure. It was shared by [Miss Ward-Gow](#)

[Plickers](#) which is an unusual and effective way to collect multiple-choice responses from students. It was shared by [Beckneedsadonut](#)



[Making the most of the new NCETM secondary mastery materials](#) which is an interesting podcast discussion between Carol Knights, Pete Griffin, Steve Lomax and Gwen Tresidder. They explain how the NCETM Secondary Mastery Materials can help departments and teachers develop their maths pedagogy to teach for deep and connected understanding. It was shared by [Mary Pardoe](#)

[ATM Publications](#) which is where you can see all the various interesting books published by the Association of Teachers of Mathematics. It was shared by [Mary Pardoe](#)

[CPD Videos -Teacher Development Resources](#) which is a new collection of fascinating short ten-minute videos from the Association of Teachers of Mathematics that are designed to support teachers at all stages of their career. It was shared by [Mary Pardoe](#)

[Teaching Mathematics at Secondary Level](#) which is a useful book by Tony Gardiner that offers deep insights into the nature of mathematics teaching and learning. It was shared by [Mary Pardoe](#)