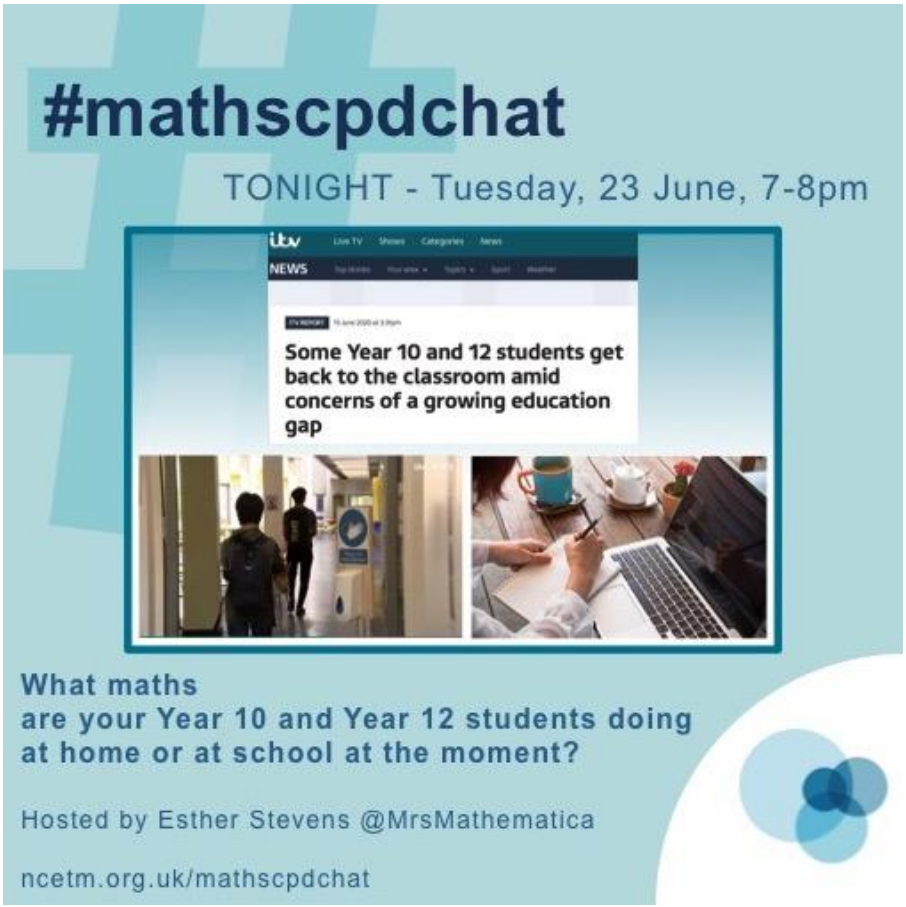
National Centre for Excellence in the Teaching of Mathematics

#mathscpdchat 23 June 2020

What maths are your Year 10 and Year 12 students doing at home or school at the moment?

Hosted by Esther Stevens

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:

maths topics being taught this term to students in Years 10 and 12 … **whether teachers are still following their normal scheme of learning (SoL)**:

- some teachers have **not deviated from their normal Y12 SoL** … 'very much business as usual, just via Zoom' … teachers set tasks online (using Firefly), each student submits their work as a PDF file, the teacher marks it and provides written and audio feedback … some teachers have **adapted their teaching 'to suit Zoom'** owing to the lack of visual cues from students (to which they normally respond during face-to-face teaching) … for example they find themselves **asking closed questions more frequently,** and more-closed questions all the time … other teachers, during online 'live-lessons', follow a policy of 'video on at all times' so that they can observe and respond to 'body-language cues';
- in online lessons some teachers are **saving for homework the 'fluency practice' that they would normally have done during lessons** … this may become a permanent change when full-time teaching in school resumes for all students;
- when some teachers are using Zoom to teach lessons online they **group students in separate breakout rooms** 'in small groups of their social circles' … they give the students a few questions or **an extended task to discuss together**, then the teacher moves about from room to room to 'sit in' and intervene when it is helpful … towards the end of the lesson the teacher brings all the students together in one Zoom room for summaries and feedback;
- some teachers have been **expanding their normal SoL** … by, for example, including UKMT challenges and Bowland Maths assessment tasks (links provided below);
- some teachers think that their **teaching has become more engaging**, and that they will not revert to their previous way of teaching … having to teach online has caused teachers to 'experiment' … has caused them to try **adopting different teaching approaches** and **using materials and manipulatives that are new to them**;
- that **'everything takes longer in online teaching'** … lesson planning 'takes twice as long' … diagrams that would take a minute to sketch on the board in a normal classroom take a lot longer to draw on PowerPoint slides … some teachers are **using a graphic tablet to speed up drawing** … other teachers use pen and paper under a camera (they use a visualiser) … other teachers use Microsoft Whiteboard software … and others use Desmos for all diagrams (links provided below);
- some teachers are **planning only the outline, and the main task, of each online lesson** … they are encouraging students to interact with each other … these teachers use a visualiser, in the way that they would normally use the blackboard in a real classroom to write and draw in response to what students do;
- that **teaching live lessons online is exhausting** … this may be because the teacher 'overthinks' the lesson content, rather than responding flexibly to what

students do and say, as they would do in normal lessons … this reminds some teachers of how, when a newly-qualified teacher, they would often 'stick to the lesson plan no matter what' … in many ways teaching online has reminded some teachers of what teaching a lesson felt like when they were newly qualified;

- some teachers are **recording their live online lessons** so that students can use them later … because Year 10 students are presently in school at different times on a rota system (e.g. a quarter of the whole cohort at a time), students who miss online 'live lessons' use the recordings of them at a later time;
- some teachers are not following their normal Y10 SoL because the students are **not coming into school in their normal maths groups** … consequently the students **have to be taught in mixed-attainment group**s, and the teaching has to be adjusted appropriately … during their in-school lessons these students who are not being taught in their normal maths groups are **unusually quiet**, as if they were all suddenly in new schools;
- rather than sticking to the SoL, some teachers are using face-to-face lessons in school to **focus on topics that they found to be difficult to teach remotely** (such as transformations) … however in their remote teaching they are trying to stay as close as possible to the SoL;

whether **students who have not been engaging at home** are now coming into school, and, if they are, whether their maths is 'noticeably rusty':

- as some teachers are only seeing students in school for one hour per week, they are finding it hard to see how 'rusty' students' maths is … that **providing each student with a mini whiteboard to use during all in-school lessons is helping some teachers to draw conclusions about the 'rustiness' of students' maths;**
- some teachers are **targeting those students who have appeared not to be engaging in maths at home** as the priority for present in-school teaching … the only students who are presently coming into school are Year 10 and 12 students who have been specifically selected as those most in need of urgent help … no other students will be asked to come into school this term;
- for some teachers the sole **aim of in-school teaching has so far been to help every student regain any confidence that they might have lost during the school closures**, rather than judging or testing them … these teachers are 'sticking to a pastoral focus' (that is, re-establishing relationships and reminding students to ask for help) during the first few weeks of in-school lessons … this initially gentle approach is **resulting in a 'big increase' in completion of online tasks** when the students are back at home … hoping that, by adopting this approach, students who have done nothing at home will restart now;

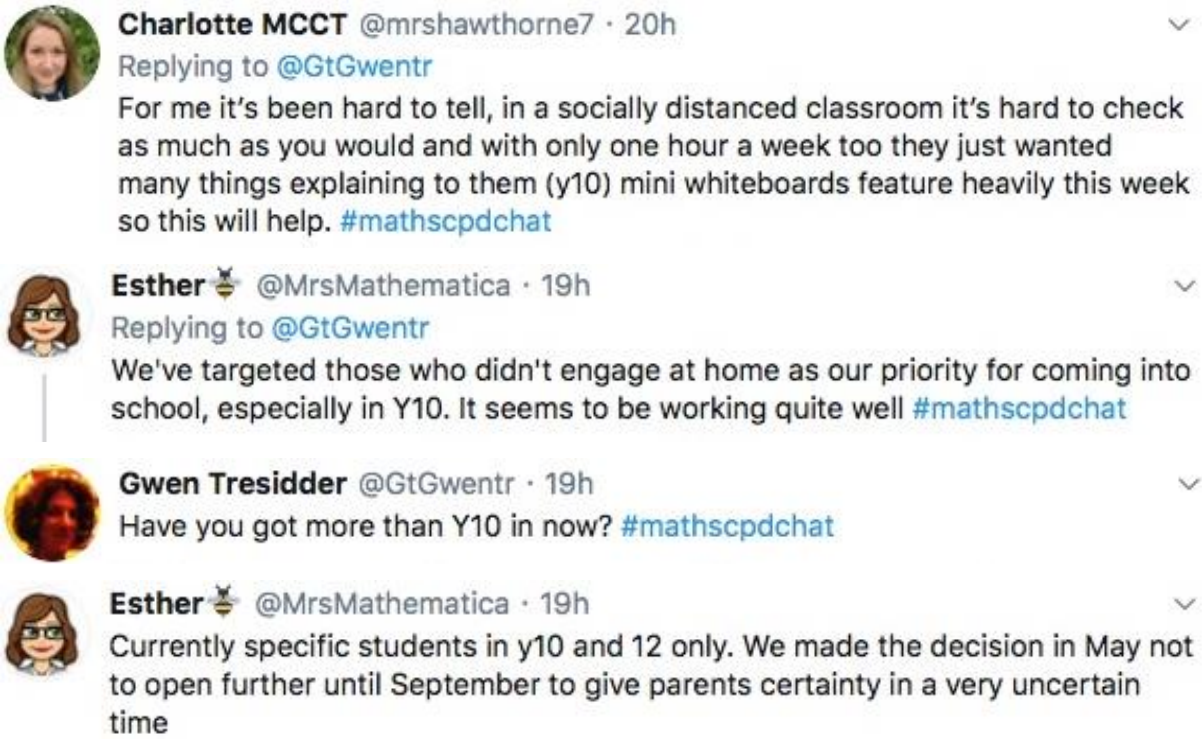
the mathematics on which teachers intend to focus with Y10/12 students during the remaining weeks of this term:

- some teachers will move away from their Y10 SoL to **spend the rest of this term on consolidation of work done at the start of Year 10** … consequently these teachers have been revising their Y11 SoL;
- some teachers will **focus during the rest of this term on topics that they particularly like teaching** … for example, teachers will focus on … vectors and vector geometry in Y10 … partial fractions with Y12, and Argand diagrams with Y12 Further Maths students … use of radians, and sequences and series.

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 how teachers are supporting Year 10 and 12 students during the first few weeks of their being back in school for a short time each week. The conversation was generated by this tweet from Gwen Tresidder:

and included these from Charlotte MCCT, Esther Stevens and Gwen Tresidder:



these from Deb Friis, MrHawesMaths, Charlotte MCCT, Director of Maths and Amanda Harrison:

Deb Friis @runningstitch · Jun 23

I had y10 today... we did Pythagoras - completely mixed groups, they have 1 two hr lesson. Based on @mrbartonmaths Expect Reflect Check Explain and something I wrote a couple of weeks ago classteaching.wordpress.com/2020/06/03/bac.. Worked really well for a mixed group, they got confidence back

Deb Friis @runningstitch · 20h

Replying to @GtGwentr

Also teaching y10 today was about regaining confidence, inspiring them to do some work, not judging or testing them. I want them to leave feeling things are manageable, and hopefully if they've done nothing they will now start! #mathscpdchat

MrHawesMaths @HawesMaths · 20h

This pastoral element is so undervalued. Plays a massive part. #mathscpdchat

Charlotte MCCT @mrshawthorne7 · 19h

A few people last week on #mathscpdchat mentioned that their face to face time had a pastoral focus instead of academic some for the first week only some the whole time. I wonder if a more pastoral focus would re-engage them to learn online more for the last few weeks?

Director of Maths @DirectorMaths · 19h

We had a pastoral focus for our face to face sessions last week and have seen a big increase in completion of online work this week. I think just re-establishing relationships and reminding them to ask for help did wonders! #mathscpdchat

Amanda Harrison @harrisonmaths · 20h

Replying to @runningstitch and @GtGwentr

I taught today and exactly this. Confidence building, making them feel great and helping them to make links. Great day!

and these from MrHawesMaths, Mrs Kilty, and Director of Maths

MrHawesMaths @HawesMaths · 20h

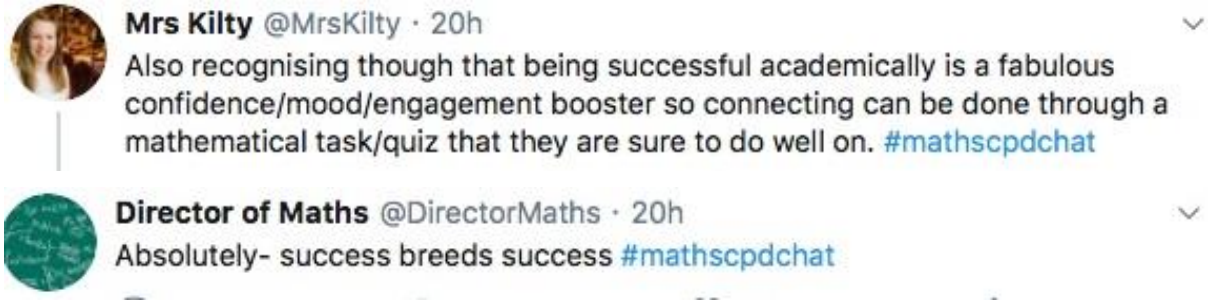
Replying to @mrshawthorne7 @runningstitch and @GtGwentr

When I first started. The first ten mins of the first few lessons were just chats about anything and everything. Plus they could chat to each other etc. After two weeks we were more focussed on the delivery #mathscpdchat

Mrs Kilty @MrsKilty · 20h

Replying to @mrshawthorne7 @HawesMaths and 2 others

Engagement and connecting is so important online or face-to-face. Keeping the spirit and culture of the school going & recognising we're living through a crazy time. It's so lovely just to hear their voices #mathscpdchat



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

Among the links shared were:

UKMT Team Maths Challenge which is a competition giving students an opportunity to tackle a variety of engaging mathematical tasks while developing teamwork and communication skills. It was shared by MrHawesMaths

Bowland Maths assessment tasks which is a collection of over thirty interesting tasks designed to help teachers assess the mathematical achievements and progress of students in Key Stage 3. It was shared by MrHawesMaths

Back to Teaching Year 10 this Summer which is a recent blog by Deb Friis in which she explains carefully the principles that support the ways in which she plans to teach Year 10 students effectively in school at the present time. It was shared by Deb Friis

Microsoft Whiteboard which is a digital 'canvas' which pupils and their teacher can share, and on which they can all write and draw either together in the same space or on their own 'canvases'. It was shared by Esther Stevens

A Graphic Pen which is a website from which you can buy a graphic pen and a pen tablet. Some teachers are using these for drawing and writing during online lessons, in the same way that they would write and draw on the blackboard in a normal classroom. It was shared by Esther Stevens

Firefly Platform which is a digital platform (founded by two GCSE students, Joe Mathewson and Simon Hay) which is used by some schools in order to enable students, teachers and parents to interact and share information. It was shared by MrHawesMaths

Underground Mathematics which is a valuable website where you will find unusually rich resources for teaching and learning A level Mathematics. It was shared by Mary Pardoe

Free ATM Resources which is where you will find a wide range of interesting free resources from the Association of Teachers of Mathematics. All these materials can support and enhance the teaching and learning of mathematics, and together they address the learning of pupils of all school ages. For example *The Proving Ground – an introduction to mathematical proof* might be used with students in Key Stages 3, 4 and 5, and *Preparing for GCSE problem solving* is designed specifically to support students in Key Stage 4. It was shared by Mary Pardoe