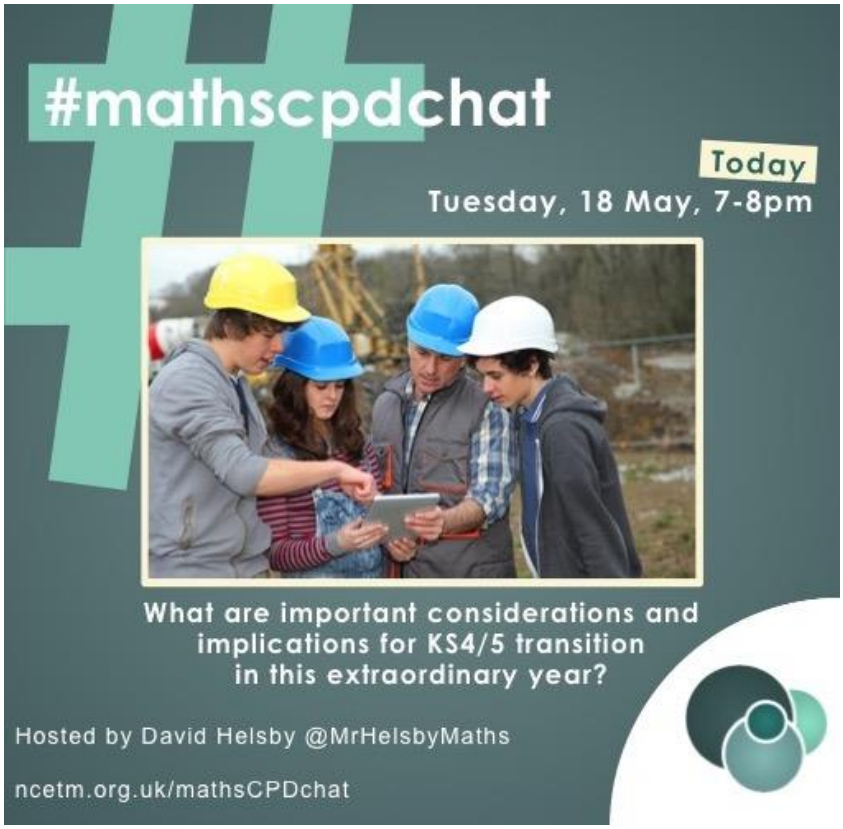
#mathscpdchat 18 May 2021

What are important considerations and implications for KS4/5 transition in this extraordinary year?
Hosted by David Helsby

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



Among the links shared during the discussion were:

Underground Mathematics which is a website developed by the University of Cambridge (funded by a grant from the Department for Education) which contains rich resources for teaching A level mathematics. The resources help students build firm foundations for mathematical understanding by connecting ideas and developing techniques. It was shared by David Helsby, mrsouthernmaths and Anne Watson

Getting Maths Back On Track In Years 10 to 13 which is a linked introduction on the NCETM website to tailored support for teachers and students provided by the Advanced Mathematics Support Programme (AMSP). It was shared by David Helsby

Teddy bear which is a package of problems from Underground Mathematics. It is a low-threshold, high-ceiling activity where learners are 'simply' invited to match some circles on a graph with their equations. Students have opportunities to see mathematical relationships and variation of properties, and so they can be encouraged to share and discuss their 'seeings' with each other. It was shared by David Helsby

Transition to A level Mathematics resources: Essential Skills which are resources from the AMSP that are designed to help students make the transition from GCSE to AS and A level Mathematics. It was shared by Karen Brockway

Active A level Mathematics which is a collection of ideas from Susan Wall for use in the A level mathematics classroom. The tasks (with teacher notes) are designed to engage students, generate discussion between them, and deepen understanding. It was shared by mrsouthernmaths

Risps (Rich Starting Points for A Level Mathematics) which is a collection of forty open-ended investigative activities for the A level Pure Mathematics classroom designed by Jonny Griffiths. It was shared by Megan Davies

Core Maths Summer Festival 2021 which is the programme for AMSP's Core Maths Summer Festival that starts on 8 June 2021. It was shared by Mary Pardoe

Getting Started with Core Maths which is a very, very rich, extensive and wide-ranging collection, created by Catherine Van Saarloos, of resources such as descriptions of, and links to, free PD, Desmos classroom activities, support for planning, specifications, and many other things. It was shared by Mary Pardoe

Parallel which a website created by Dr Simon Singh on which students can sign up to receive a set of interesting maths challenges every week. They go 'beyond school maths: mystery and history, activities and oddities, puzzles and problem'. It was shared by Colleen Young

Free videos to assist the transition from GCSE to A level Maths which are videos from Pearson that focus on activities which help students master key skills needed in both AS and A level Mathematics. It was shared by Helen Scott

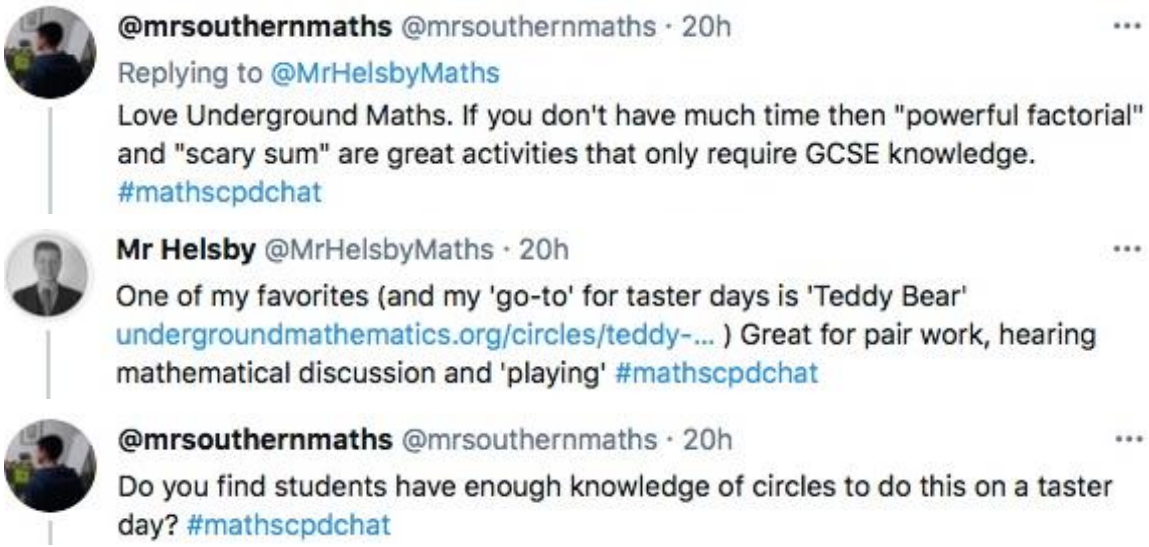
Head Start to A-level Maths which is a CGP book that 'recaps all the crucial topics students will need to remember from GCSE' when they start on an AS or A level Maths course. It was shared by Heather Massey

Upwards from GCSE which is an original website made last year by Miss Cowley for her Y11 leavers. Each section is designed to recap learning at GCSE level about the aspect of doing mathematics that is the name of that section. For example, one section is named 'Seeing Solutions' another is 'Finding your Roots' and another is 'Loving your Curves'! It was shared by Miss Cowley

The screenshots below, of chains of tweets posted during the chat, show linked conversations about tasks that are suitable to use in A level 'taster' sessions for Y11 students, and tasks that students can work on themselves at home in preparation for starting A level courses in September. **Click on any of these screenshots-of-a-tweet to go to that actual tweet on Twitter.**

The conversations were generated by this tweet from David Helsby:

and included these from @mrsouthernmaths and David Helsby:



Mr Helsby @MrHelsbyMaths · 20h

Some of them aren't 100% secure in circles (and gives them chance to think about how much work they will have to put in!)- but there is always opportunity to substitute and also eliminate some options (and link to pythagoras/ transformations!)

these from David Helsby and Megan Davies:

Mr Helsby @MrHelsbyMaths · 21h

Love love love RISPS!! Brackets out, brackets out is a great one! My (current!) favourite is 'Two repeats'.
What's your favourite 'starting' RISP? **#mathscpdchat**

> **Megan Davies** @MDaviesteaching · 21h
> Replying to @MrHelsbyMaths
> 'Normally' we have a session on the sixth form transition day. I've found a risp like brackets out brackets in works well #mathscpdchat

Megan Davies @MDaviesteaching · May 18

Replying to @MrHelsbyMaths

The arithmetic simultaneous equations is one of my favourites in year 12 (and GCSE), love the proof element! #mathscpdchat

Mr Helsby @MrHelsbyMaths · 21h

Whilst we're sharing CPD opportunities for KS4/5 transition (A-level, further and core maths), here are some interesting and valuable opportunities and resources offered by the @NCETM
ncetm.org.uk/features/getti.. **#mathscpdchat**

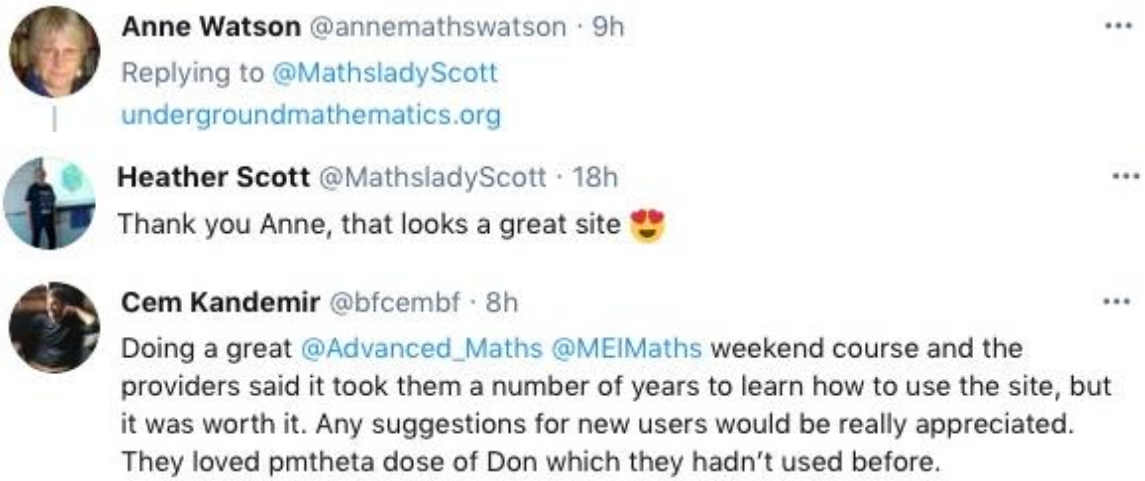
> Getting maths back on track in Years 10 to 13
> Tailored support for teachers and students from the Advanced Mathematics Support Programme
> ncetm.org.uk

these from Heather Scott, David Helsby and Sam Barker:

Heather Scott @MathsladyScott · May 18

#mathscpdchat I need advice re what to suggest to the students who are signed up to A level for September but who will be leaving school next week? Something they can do for themselves to keep their mathematical minds in shape🤔

these from Anne Watson, Heather Scott and Cem Kandemir:

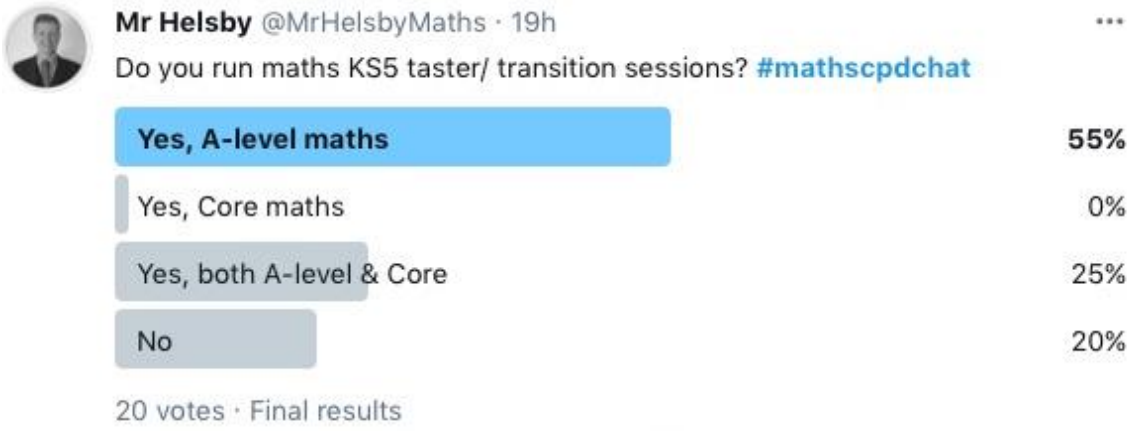


these from Heather Massey and Heather Scott:

and these from [Miss Cowley], [Heather Scott] and [David Helsby]:

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

At the start of the chat the host tweeted this poll …



… and invited teachers to describe any such sessions that they run, including the resources that they use, but there were no immediate responses, so **the host asked teachers to indicate the kinds of experience they planned to provide for students in their very first A level maths lesson:**

- it is important to some teachers that, whatever students do in their first lesson, they **work together in a way that allows the teacher to observe them in order to form first impressions of how individual students think and of what they know** … any task that is set is **a collaborative task 'that gets them talking to each other about maths and me listening'**;
- some **other teachers set a short 'test'** addressing 'really basic stuff – factorising, simple equations, indices' … the intended message is 'if you can't do this you really need to question your choice of course' … at least one teacher has not found that this year's Y12 students had any 'huge issues with lack of prior knowledge' owing to the impact of 'lockdown' during their Y11 … support sessions are provided for students who demonstrate weakness in a few specific areas … in some schools where they start with 'a short prior knowledge test' students are 'told (at the end of Y11) that a test is coming, and given a topic list' indicating the mathematics that will be tested in their first Y12 lesson;
- some teachers **launch students immediately 'into something fairly meaty but stand alone to find out who has problem solving skills and show them something new'** … for example 'sequences and series or logs have both been successful in the past' … one teacher starts with a lesson on radians … another teacher starts with 'lots of indices and surds work or coordinate geometry';
- as **'a fun ice-breaker' in the first A level lesson**, at least one teacher 'shows three (mathematical) statements, one of which is a lie … class guesses which one is a lie';

as there had been no immediate replies to the host's question following his poll, he again invited teachers to describe briefly the A level taster sessions that they provide in Y11, including the teachers' 'go-to resources' for such sessions … in addition to the

responses shown in the tweets reproduced above, discussion centred on declarations that:

- many teachers use one of **Susan Wall's Active A level Mathematics tasks and starting-points**, and **Jonny Griffiths' Risps (Rich Starting Points for A level Mathematics)** … (links provided above) … the host commented that 'the structures she (Susan Wall) uses are so **useful in allowing students to think deeply**, might even be worth doing as a department';
- at least one teacher's focus for taster sessions is **the exploration of equations of circles** … 'then spend a while drawing faces in graphing software';

the host commented that it will be interesting to see whether, and if so how, the fact that students will not have taken GCSE exams in the normal way will make an impact on 'the mathematical 'stamina' and recall of some students':

a teacher requested advice about 'what to suggest to the students who are signed up to A level for September but who will be leaving school next week' … most of the replies to her tweet are shown in the screenshots above:

- her tweet also generated a brief discussion about YouTube videos that Darren Carter has made in the past for Y11 students who are moving on to A level maths in Y12;

the host asked how teachers deal with potential differences in the previous mathematical experiences of students who come together from different schools into the same class:

- a sixth form college teacher commented that 'I can't say I've ever been able to tell which students came from which schools. Perhaps I am just unobservant';

although discussion throughout the chat focussed on issues related to students who will be taking A level courses in Y12, some contributors tweeted links to substantial information about teaching Core Maths courses, particularly when it is for the first time … the links are provided above.