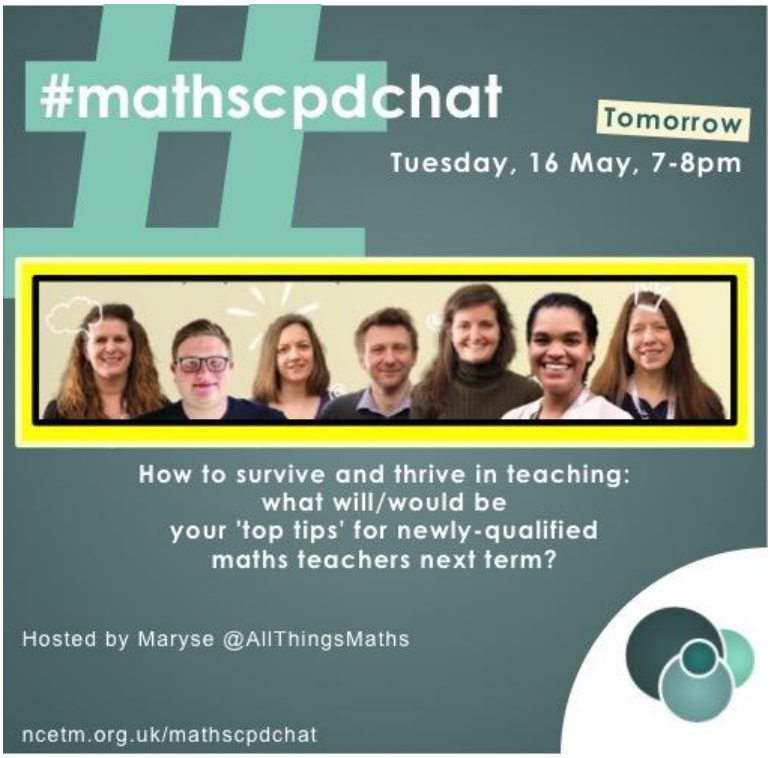
#mathscpdchat 16 May 2023

How to survive and thrive in teaching:
what will/would be your 'top tips'
for newly-qualified maths teachers next term?
Hosted by Maryse

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



The links shared during this discussion were:

Secondary Subject Knowledge Audit which is a resource on the NCETM website. Because it is intended to be used to assess confidence in teaching the content of the KS3 maths curriculum, it will be particularly useful for teachers in training and those new to the profession or the subject. It was shared by Maryse

Secondary Mastery Professional Development which are materials and guidance on the NCETM website that are provided to support the confident teaching of mathematics for mastery. It was shared by Maryse

Checkpoints which are diagnostic maths activities on the NCETM website. These attractive materials are designed to help teachers develop their assessment of students' prior learning for KS3. It was shared by Maryse

Maths Hubs which is the website of the Maths Hubs Programme. This Programme, coordinated by the NCETM, brings together mathematics education professionals in a collaborative national network of 40 hubs. Each hub is led by an outstanding school or college to develop and spread excellent practice for the benefit of all pupils and students. It was shared by Maryse

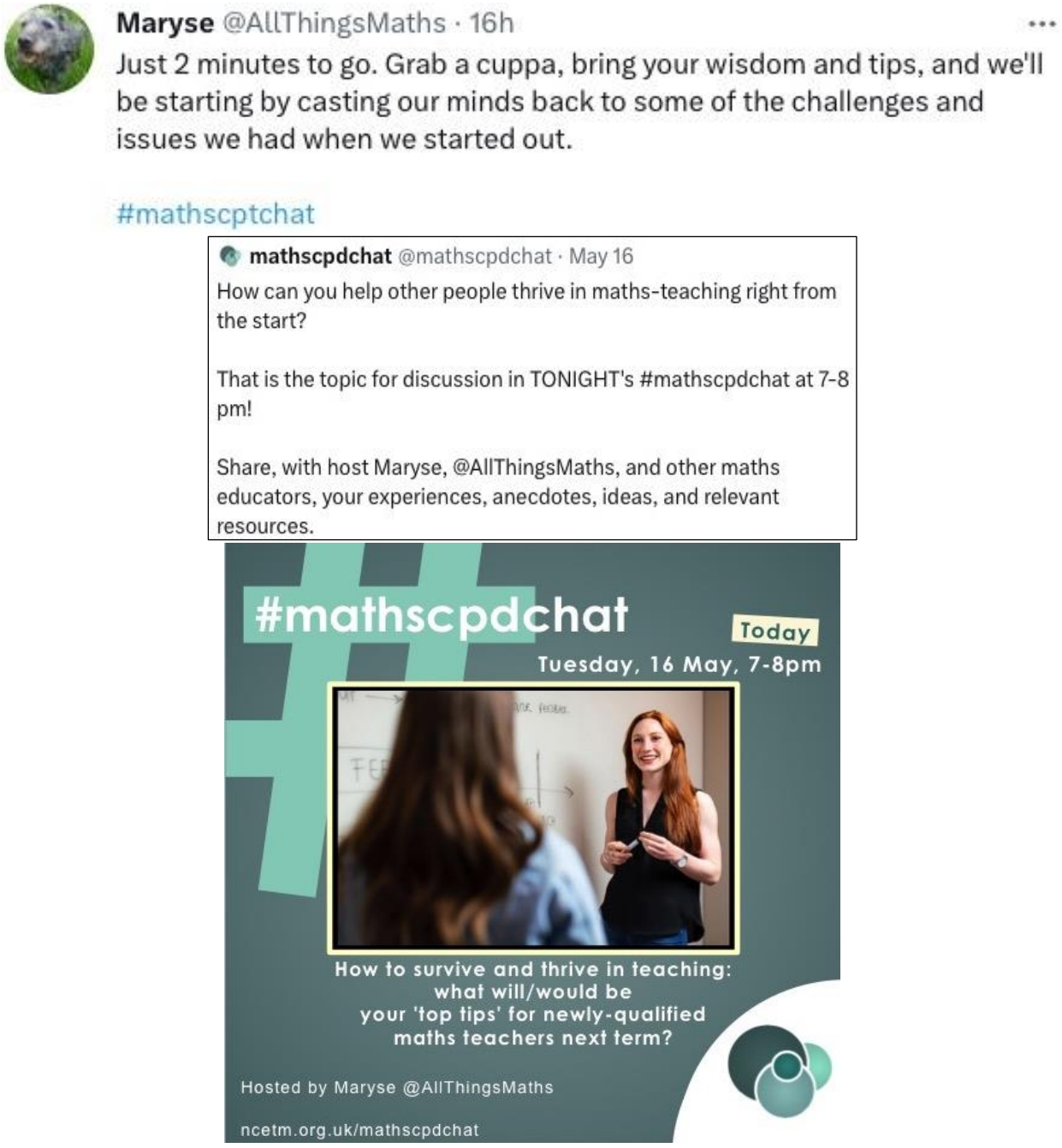
Don Steward's blogspot which is a website containing effective materials for teaching mathematics to 10 to 18 year-old students. The materials were collected, trialled, and very often adapted and extended, by the late Don Steward. It was shared by Maryse

Project Mathematics Update: Expressing Generality which is a free-to-download PDF version of a booklet which was prepared for The Open University's Centre for Mathematics Education by John Mason. It contains an articulation by John of what he means by a 'conjecturing atmosphere' in the mathematics classroom. It was shared by Mary Pardoe

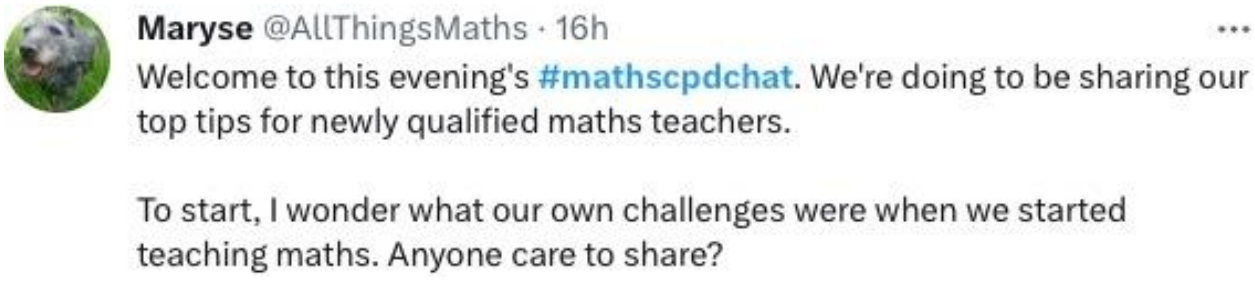
A Gattegno Anthology which is an e-book from the ATM. It is a collection of the writings of Caleb Gattegno (1911-1988) who was the inventor of geoboards and populariser of Cuisenaire® rods and number charts. It includes his explanations of why he believes it is so important for teachers of mathematics to observe closely and individually how their students learn, and how much they themselves always benefit from doing so. It was shared by Mary Pardoe

An illustrated summary of the discussions in this #mathsCPDchat follows.

The host tweeted this reminder a few minutes before the discussion began …

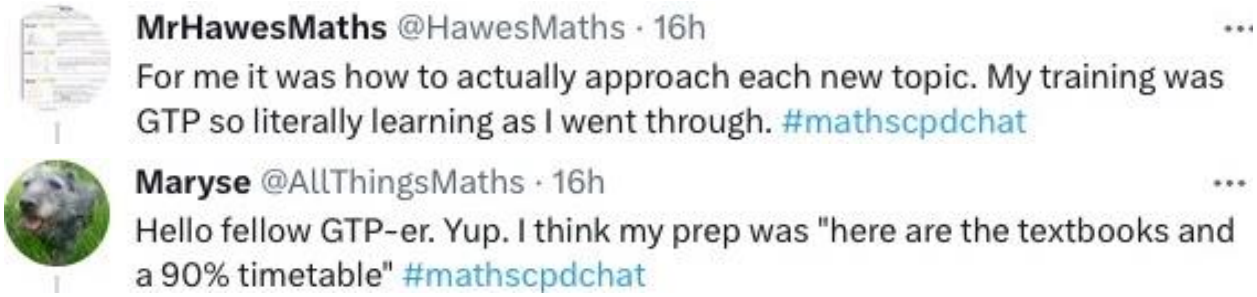


… and then opened the chat with her first main question …

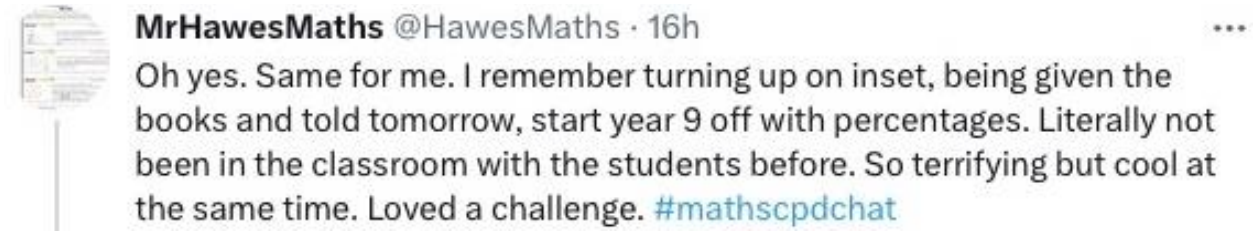


… which she followed with a reply of her own and a further question:

The host's request for people to identify and share what they had found to be most challenging when they were newly-qualified maths teachers prompted the following reply, which generated a discussion about experiences that contributed to early professional development:



(The Graduate Teacher Programme (GTP) was a scheme that existed in the UK and ran for the last time in the 2012/13 academic year. It is described briefly in the paragraph below.)



Jenny Hill-Parker @JennyHillParker · 16h

Wow. That must have been nerve-wracking! #mathscpdchat

MrHawesMaths @HawesMaths · 16h

Oh it was but after a couple of weeks, it was the norm. Plus you had gotten to know the students and were on your way with planning etc.

Maryse @AllThingsMaths · 16h

I had literally no development at all. I felt I missed out on some bits and pieces so I went back and started an MEd to fill some gaps.

Maryse @AllThingsMaths · 15h

Sink or swim, eh? I think it made me the teacher I am today. I'm not sure if that's a good thing or not though ;)

Maryse @AllThingsMaths · 16h

What did you do to learn how to approach topics? I appreciate this could be a HUGE question!

#mathscpdchat

MrHawesMaths @HawesMaths · 16h

Lots and lots of observations. Not just in maths but other subjects to see how teachers engaged with students and how I could utilise what I had seen in my own practice #mathscpdchat

Maryse @AllThingsMaths · 16h

Yes! Observations for sure. Subject specific were useful for the maths. I also liked seeing students in other subjects to see what tips I could pick up on.

#mathscpdchat

MrHawesMaths @HawesMaths · 16h

It has been a crucial part of my development. #mathscpdchat

Mary Pardoe @PardoeMary · 16h

Being-in other maths teachers' lessons was part of mine also. Another crucial part of my development was prompted by these observations/advice from John Mason ... you can download 'Expressing Generality' (which this extract is from) here: open.edu/openlearncreat. #mathscpdchat

referred to as you work), and

Some brief remarks about what is meant by a *conjecturing atmosphere* may be appropriate before you begin. A conjecturing atmosphere is a supportive atmosphere in which making judgements about your own behaviour, or that of others, is not appropriate. Rather, a conjecturing atmosphere is fostered by simply noticing the manner and content of contributions and responses to others, and modifying that behaviour when appropriate. It is based on the explicit premise that you learn much more from trying to express ideas that are still fuzzy and half-formed, than you do from telling someone things about which you are confident. By expressing ideas, in words, gestures, pictures and writing, they can be looked at, worked on and modified, whereas if they stay inside your head they may just go round and round. Bear in mind that even though, perhaps because, you are uncertain, others can also learn from your struggle.

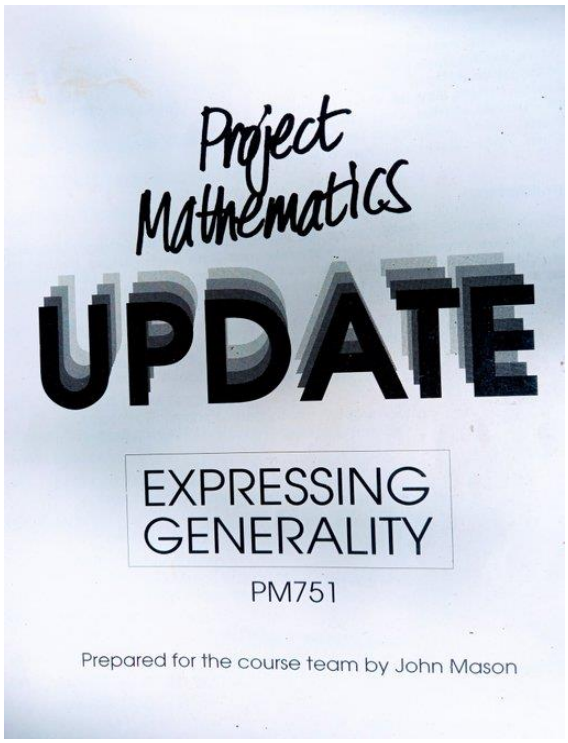
The essence of working in a conjecturing atmosphere is therefore listening to and accepting what others say as a conjecture which is intended to be modified. Consequently, it is well worth noticing how you go about:

- developing and using a vocabulary which fosters conjecturing, (e.g. use words such as 'I suggest that . . .' or 'Perhaps . . .' rather than 'No!' or 'That's right!').
- listening to others and being listened to.

Mary Pardoe @PardoeMary · 16h

... trying to establish this kind of 'classroom atmosphere' ...
#mathscpdchat

This viewpoint suggests that it is crucial to establish a conjecturing atmosphere in the mathematics classroom. It takes time to convince and to be convinced. First of all, people need support and encouragement to express to others what they are seeing, for these 'seeings' are *conjectures* which may need modification, and it is often in the act of expressing that people begin to see things slightly differently, and want to change their minds. Gradually, the conjectures become more convincing. At first one tries to convince oneself often by using other people as listeners. Later it is a matter of trying to convince them.



Maryse @AllThingsMaths · 16h

I need to get through to the other side of GCSEs but then I do need to get into some classrooms and do a bit of self reflection, as well as magpie-ing ideas.

Maryse @AllThingsMaths · 16h

One thing I've done this year is to record some of my explanations and discussions and share them with colleagues, not as exemplar but as a discussion starting point. I wish I'd done more of this for self reflection at the start of my career.

#mathscpdchat

In addition to the reply that started the conversation above, Maryse's question …

To start, I wonder what our own challenges were when we started teaching maths. Anyone care to share?

… prompted another reply, which was the first of a pair of tweets:

Jenna Sanderson @MissJennaMaths · 15h

I over thought everything as an NQT....do I do some notes before this example, do I do another example on this, should I do this before that...quickly realised a lot of those decisions need to be made in the lesson and a lot of them don't have one right answer

Maryse @AllThingsMaths · 15h

Yes to this! And you've triggered another challenge I had. I found it difficult to respond in the lessons sometimes. Those strategies weren't at my fingertips.

To the host's further question above …

What other challenges do our new maths teachers face?

… there were three more responses, two as the first of a pair of tweets, and one as a single comment. This pair …

Common Sense Maths @CSMathsTeacher · 15h

I would say before worrying about the maths get good routines sorted in the classroom.

Insist on "Yes sir" or "Yes miss" for the register. Establishes a bit of respect and potentially difficult students can be identified as they often put this to the test.

Common Sense Maths @CSMathsTeacher · 14h

Focus your time on your lessons and modelling.

Quality modelling is more important than most of the other stuff put together. (Other than behaviour management).

How do I make a quadratic equation make sense to a 13 year old who would rather be anywhere else?

… these two …

Joanne Green @MsJoanneGreen · 17h

@AllThingsMaths **#mathscpdchat** Hello! Gosh, where to start, lol! Get a school diary. Even if someone else is organising your lessons for you, such as which class, where, and when, you need to be able to keep track of the topics delivered and which slide you got to or how minutes.

Maryse @AllThingsMaths · 17h

Organisation is definitely an important part of teaching (says I, a very disorganised person!)

#mathscpdchat

… and this:

Joanne Green @MsJoanneGreen · 18h

@AllThingsMaths **#mathscpdchat** Use a seating plan in the classroom to identify who the wonderful emerging young adults are. These are the people you began your teaching career for - they are like film fans: they will adore you professionally as much as you will them.

Maryse's second main question …

Maryse @AllThingsMaths · 17h

Reflecting on some of our own challenges, or maybe those we've seen others face, what are the areas of the job that we think maths ECTs may need support with?

#mathscpdchat

… generated one comment and two short threads. This 'interchange' …

Maryse @AllThingsMaths · 17h

I think subject knowledge in one area to reflect on. It isn't just about doing the maths, it's about being able to explain it, to link it, to have other strategies when students don't understand it. Any tips in this situation?

#mathscpdchat

Mary Pardoe @PardoeMary · 17h

Agreed ... but also, in my experience, finding ways to boost confidence is important. #mathscpdchat

Maryse @AllThingsMaths · 17h

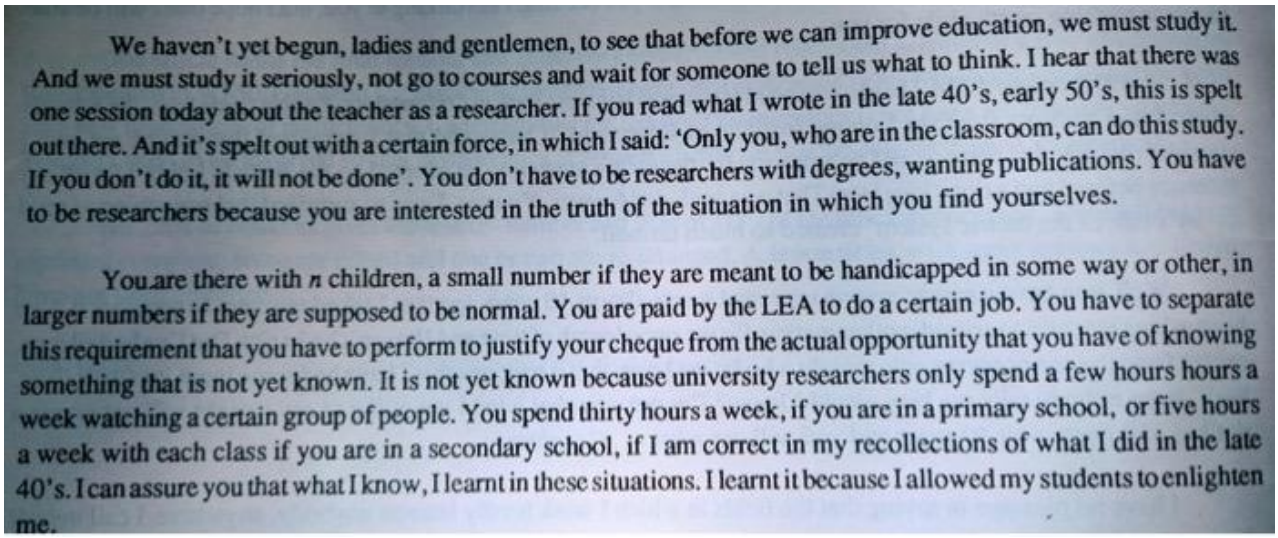
Definitely - in both staff and students?

#mathscpdchat

… this comment …

Mary Pardoe @PardoeMary · 17h

An area that they may not be thinking about is ... learning to allow their pupils to enlighten THEM about learning mathematics! This extract is from 'A Gattegno Anthology, available fro @ATMMathematics here: atm.org.uk/Shop/A-Gattegn... #mathscpdchat



We haven't yet begun, ladies and gentlemen, to see that before we can improve education, we must study it. And we must study it seriously, not go to courses and wait for someone to tell us what to think. I hear that there was one session today about the teacher as a researcher. If you read what I wrote in the late 40's, early 50's, this is spelt out there. And it's spelt out with a certain force, in which I said: 'Only you, who are in the classroom, can do this study. If you don't do it, it will not be done'. You don't have to be researchers with degrees, wanting publications. You have to be researchers because you are interested in the truth of the situation in which you find yourselves.

You are there with *n* children, a small number if they are meant to be handicapped in some way or other, in larger numbers if they are supposed to be normal. You are paid by the LEA to do a certain job. You have to separate this requirement that you have to perform to justify your cheque from the actual opportunity that you have of knowing something that is not yet known. It is not yet known because university researchers only spend a few hours hours a week watching a certain group of people. You spend thirty hours a week, if you are in a primary school, or five hours a week with each class if you are in a secondary school, if I am correct in my recollections of what I did in the late 40's. I can assure you that what I know, I learnt in these situations. I learnt it because I allowed my students to enlighten me.

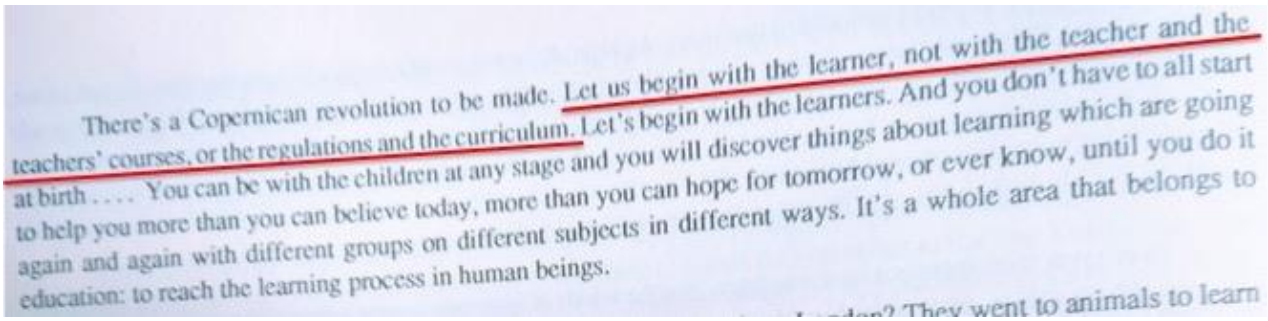
… and these thoughts:

MrHawesMaths @HawesMaths · 17h

When I first started,I would find myself going over how I might teach it,refine it then teach it and refine again for the nexttime.It takes time and sometimes you have to say to yourself. 'It won't always be perfect' if you can accept that, great #mathscpdchat

Mary Pardoe @PardoeMary · 17h

Yes ... it takes time ... and concentrate on the LEARNERS and 'you will discover things about learning which are going to help you more than you can believe' from Caleb Gattegno again ... here: atm.org.uk/Shop/A-Gattegn... #mathscpdchat



There's a Copernican revolution to be made. Let us begin with the learner, not with the teacher and the teachers' courses, or the regulations and the curriculum. Let's begin with the learners. And you don't have to all start at birth .... You can be with the children at any stage and you will discover things about learning which are going to help you more than you can believe today, more than you can hope for tomorrow, or ever know, until you do it again and again with different groups on different subjects in different ways. It's a whole area that belongs to education: to reach the learning process in human beings.

... They went to animals to learn

Maryse followed her third main question …

Maryse @AllThingsMaths · 18h

What resources are available for ECTs to develop their subject knowledge, and by this I mean teaching rather than just knowing how to do the questions.

#mathscpdchat

… by providing links (which are at the top of this summary) to some resources …

Maryse @AllThingsMaths · 18h

The subject knowledge audit is one resource available on the @NCETM
ncetm.org.uk/classroom-reso...
#mathscpdchat

ncetm.org.uk
Secondary Subject Knowledge Audit
Assess your confidence in teaching the content of the KS3 maths curriculum

Maryse @AllThingsMaths · 18h

Mastery has moved forward too. ECTs would have covered this in training but there may still be gaps. Any "go-to"resources for mastery in mathematics?
#mathscpdchat

Maryse @AllThingsMaths · 18h
Another resource available to all is here:
ncetm.org.uk/teaching-for-m..

#mathscpdchat

ncetm.org.uk
Secondary Mastery Professional Development
Materials that will assist you in your professional development and support you in teaching for ...

… and there was this report:

Jenna Sanderson @MissJennaMaths · 18h
A few from our department are loving courses by AMSP #mathscpdchat

Maryse @AllThingsMaths · 18h
Brilliant shout out. I've shared them and hoping to jump in on some training soon.

#mathscpdchat

The host's next (fourth) main question …

Maryse @AllThingsMaths · 19h
What other challenges did we face when we started in the classroom? And are there any suggestions for how to overcome them?

#mathscpdchat

… proved to be an opportunity to discuss, briefly, pupil-behaviour issues:

Maryse @AllThingsMaths · 19h
Besides subject generic support with behaviour, I spent a lot of time on trying to find out the "why we do this" and interesting applications of the maths. Any suggestions of people to follow or go-to sites for support with this?
#mathscpdchat

MrHawesMaths @HawesMaths · 19h
Behaviour was a strong area. Luckily when I started out we had a great deputy who ran CPD for newbies on setting a standard and maintaining it.
#mathscpdchat

Maryse @AllThingsMaths · 18h

Behaviour is such a tricky area. After over 20 years I'm having to really work to manage behaviour this year. It gets easier in some ways but can still be a challenge.

#mathscpdchat

Jenny Hill-Parker @JennyHillParker · 18h

Do you have centralised detentions? #mathscpdchat

Maryse @AllThingsMaths · 18h

Yup, although I like to see the students if I can to talk through. It's thrown up some interesting situations this year, including safe guarding. #mathscpdchat

MrHawesMaths @HawesMaths · 18h

I haven't seen detentions for at least a decade. I moved from state to independent and that seemed to disappear. Similar issues but no centralisation. #mathscpdchat

In response to the next main question, …

Maryse @AllThingsMaths · 19h

I used to spend HOURS reinventing the wheel. I see value in developing questions & activities, but not everything from scratch when there's super stuff out there. If you're stuck for resources, or you need to ask a questions, who do you ask, which sites do you use?
#mathscpdchat

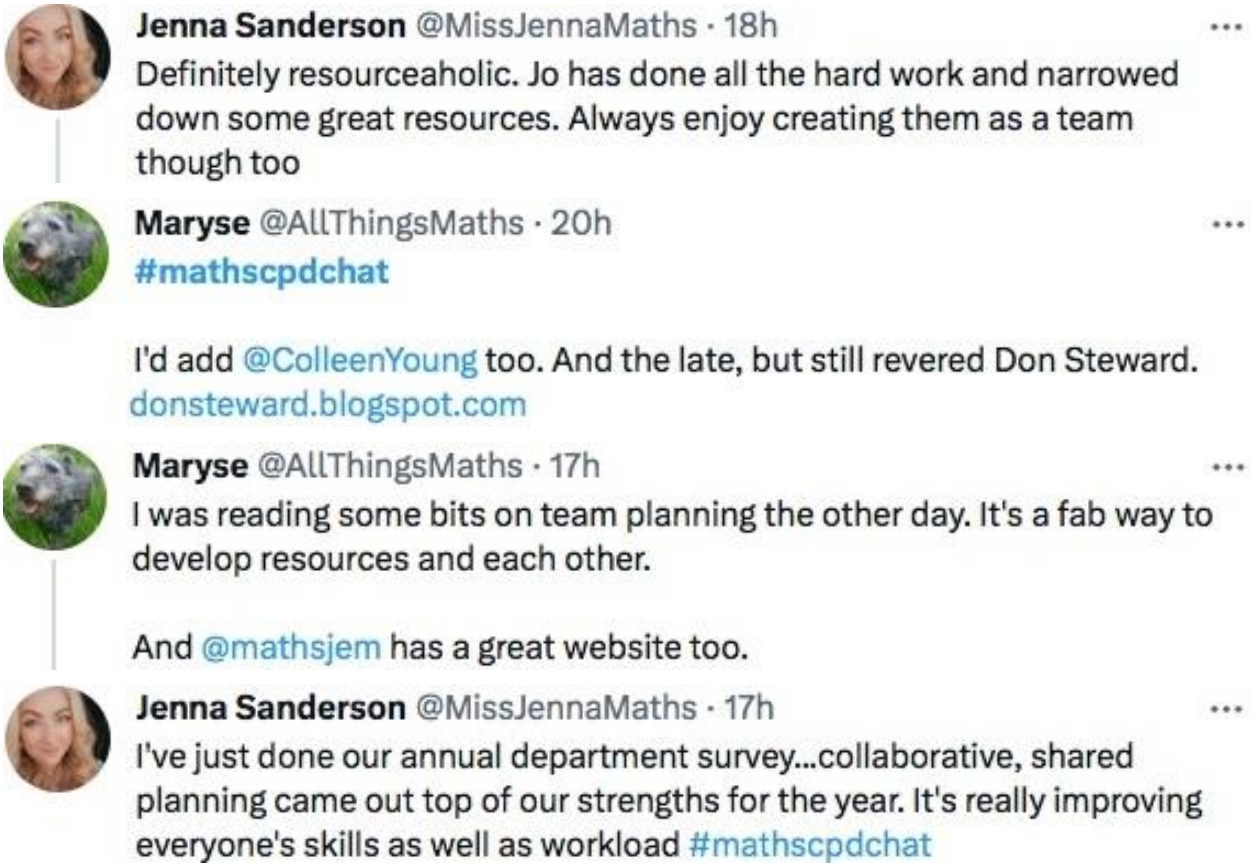
… after this suggestion from the host had been posted …

Maryse @AllThingsMaths · 19h

ncetm.org.uk/classroom-reso.. is one resource I've been dipping into this year, from the @NCETM

ncetm.org.uk
Checkpoints
Information about diagnostic maths activities to help teachers assess understanding and lay ...

… benefits of working together to create resources, and plan, were discussed:



In another conversation prompted by Maryse's fifth question, the desirability of being able to find and create material that can be used flexibly was discussed:

MrStirlingMaths @MrStirlingMaths · 1h

And because I'm maths often the quickest way of creating those resources is handwriting them, because of how much of a pain it is to write maths on a computer.

MrHawesMaths @HawesMaths · 19h

I always used to stress myself with delivering all areas of the sow and heading down a deep dark whole. Trying to pull everyone along. Quickly realised that I needed to adapt my teaching to benefit the students instead of plugging away. #mathscpdchat

Maryse @AllThingsMaths · 19h

Yes to this. I found it very difficult to move on, although mastery has helped with this. I developed a wonderfully detailed spreadsheet of what we'd done, and each student's attainment so I could go back and fill in the gaps in learning.

#mathscpdchat

The other responses to Maryse's (fifth) question …

If you're stuck for resources, or you need to ask questions, who do you ask, which sites do you use?

… after she had mentioned one of the many teachers who share their created resources freely …

Maryse @AllThingsMaths · 19h

A few go-to people who have helped with maths, and resources.

@Whitehughes for the KS5 bits and pieces.

… were statements identifying contributors' main 'go-to' resources. Screenshots of those tweets follow, including this …

MrsSmithMaths @SarahJa25765973 · 18h

Corbettmaths 5 a day for starters (especially good with a group of mine that thrive on routine). (Also use corbettmaths primary 5 a day and chop off the bit that says primary for a nurture group) #mathscpdchat

Maryse @AllThingsMaths · 17h

Yes! Love it for the routine. Maths Box is good for this too.

… this …

Karen Peoples @mrspeoplesmaths · 17h

Don Steward. I could spend forever creating something and it wouldn't be a patch on anything he did. #mathscpdchat

Maryse @AllThingsMaths · 17h

Amen to this.

I've put his site with #mathscpdchat so it'll be shared in the summary.

(It is!)

… these …

MrHawesMaths @HawesMaths · 19h

My go tos are @DrFrostMaths @draustinmaths @Corbettmaths @mathsbox1 @StudyMaths when used with OneNote planning is a dream #mathscpdchat

Maryse @AllThingsMaths · 19h

Yes to all of these!

Sam @samantha_maths · 18h

Most of the above. Plus mathspad.

I also use increasingly difficult questions a fair bit for starters.

Mrs Q @whereisyourbook · 18h

Mathspad, goteachmaths, Dr Frost, white rose, Corbett Maths, pixi maths, mathsbox

Maths @MathsRSmith · 19h

@goteachmaths Well worth the subscription!

Maryse @AllThingsMaths · 17h

@nathanday314 has some nice stuff too.

… these comments (two of which are possibly rather surprising or provoking) …

Common Sense Maths @CSMathsTeacher · 19h

@Corbettmaths @mathsgenie @mathsbox1

I honestly think you could teach the full GCSE just using these three sites.

Maryse @AllThingsMaths · 19h

I've been hammering them out in the run up to exams, but also for filling the gaps for students, for extending others, and for students who've missed lessons.

Common Sense Maths @CSMathsTeacher · 18h

Corbett structures just about all the content in a way that I find easy to deliver.

Practice Questions PDF for my examples and then the students work through the Textbook Activities.

Much better than the resources our Trust has bought in which overcomplicate everything.

… and this:

Matt Man @mr_man_maths · 19h

I would also turn to @Just_Maths and also @PixiMaths.
Not forgetting @mathsbox1 for starters! #mathscpdchat

PixiMaths @PixiMaths · 19h

Thank you ❤

Matt Man @mr_man_maths · 16h

You're welcome Danielle. Hope things are well with you?

To the sixth main question …

Maryse @AllThingsMaths · 19h

So far this evening in #mathscpdchat, we've considered what some of the challenges ECTs in maths face, and some places and people where you can get support, suggestions and answers from.

Any other tips for ECTs in maths?

… there were no replies. But the next question …

Maryse @AllThingsMaths · 19h

What do you think maths ECTs should be focusing on in their first term? Any tips?

E.g. I used to do every question before a lesson, but I was also OK to say to students that I'd need to get back to them on something.

#mathscpdchat

… was answered with two different kinds of advice from two maths teachers:

Matt Man @mr_man_maths · 19h

Building relationships with the students and set a good routine.
#mathscpdchat

Maryse @AllThingsMaths · 19h

I'd recommend venturing outside the maths department when you can too. I don't like to overburden new teachers, but going to support a football match, or supporting Duke of Edinburgh, can have a positive impact in the classroom.

#mathscpdchat

:

There were no replies to Maryse's eighth question …

Maryse @AllThingsMaths · 20h

Another area I had to work on at the start (and throughout) is problem solving. Making sure I didn't get sucked into just delivering skills. ANy resources out there for problem solving in maths?

#mathscpdchat

… but her ninth question …

Maryse @AllThingsMaths · 20h

Is there anything you did as a new maths teacher that you reflect upon now and wish you hadn't, or had done it differently?

#mathscpdchat

… prompted the sharing of memories, and some conversations about them. Marking was discussed briefly …

Maryse @AllThingsMaths · 20h

@dare_richard care to chip in with marking? ;)

Richard Dare CTeach @dare_richard · 20h

Thank you, Maryse. Yes, I definitely spent too much time marking, which would have been better spent on planning.
Also, I used to allow questions at any point in a lesson which meant any explanations I gave could lose coherence or get sidetracked. Now I will ask students to...

Richard Dare CTeach @dare_richard · 20h

...defer their questions until they've seen a whole explanation or model from me first.

Maryse @AllThingsMaths · 20h

YES!

Sometimes I'll also say to them that I'll explain it in more than one way, and just wait until after that happens.

Also, I feel there is often a need for them to get it straight away, but actually it's fine for it to take a while.

#mathscpdchat

Richard Dare CTeach @dare_richard · 20h

That's a good one!

… as was teachers' self-confidence:

Jenna Sanderson @MissJennaMaths · 20h

Taking things personally every time a lesson didn't go perfectly. Nobody walks in as a natural perfect teacher. So easy to be overly self critical at the beginning. #mathscpdchat

Mary Pardoe @PardoeMary · 20h

Yes ... and to think that everyone else's maths lessons must be much 'better' than yours ... that's one reason why it's helpful to get into (share/support-in) as many maths lessons of other teachers as possible. #mathscpdchat

Maryse @AllThingsMaths · 20h

and throughout. I still drive home pulling some of my days apart. #mathscpdchat

Mathematical vocabulary, and depth of students' understanding, were mentioned …

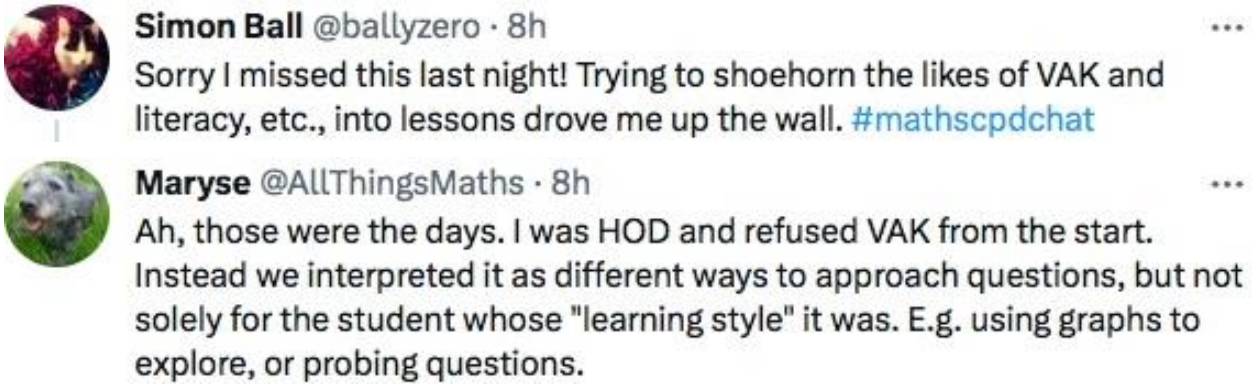
Niche Wood @Mr_N_Wood · 8h

Initual failure to understand the importance of vocabulary T&L.

Eg not using 'numerator / denominator' persistently & accepting 'top number' and 'bottom number' in pupil oracy contributions uncritically.

Teaching surface level understanding over depth.

… as were 'learning styles':

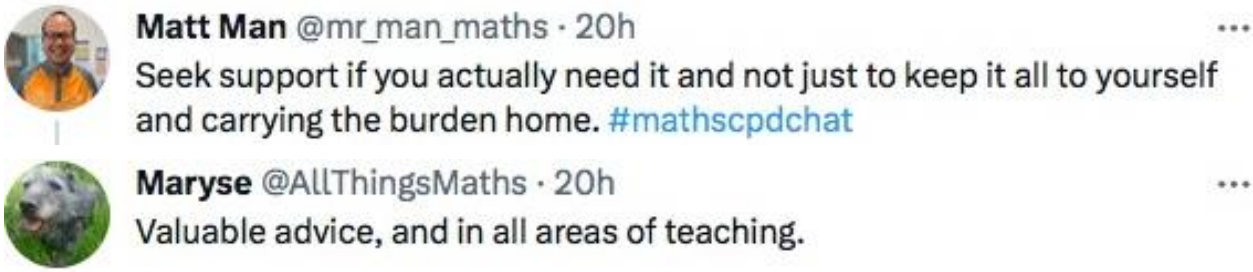


[Sometimes teachers have been urged to interact with their pupils according to the assumption that all learners have a 'preferred' learning style (a mode or means by which they learn most efficiently). Those 'learning styles' are named Visual, Auditory, and Kinaesthetic (VAK). They correspond respectively to learning by seeing/using sight, learning by hearing/using sound, and learning by feeling-or-moving/using touch.]

Maryse's ninth main question …

Is there anything you did as a new maths teacher that you reflect upon now and wish you hadn't, or had done it differently?

… also prompted some discussion about mentoring …



Maryse @AllThingsMaths · 20h

This is something I reflected on prior to hosting tonight, and I was going to ask about mentors. Not all staff have subject specific mentors so it's an idea to build your support network with all aspects in mind.

#mathscpdchat

Matt Man @mr_man_maths · 20h

Replying to @AllThingsMaths

Yes, a buddy to work with! Doesn't have to be in Maths, could be someone that you can work well with. When I was an NQT, I worked really well with a colleague from RE and still contact her every now and again. #mathscpdchat

… and these brief (enigmatic) comments:

Melissa D @Dean_of_math · 14h

So many things. Points based competitions— leaderboards posted. Sigh.

Mano le Scruff @trustanthony · 9h

Card sorts.
Scissors and glue ANYTHING.

Maryse's last (tenth) main question …

Maryse @AllThingsMaths · 20h

ncetm.org.uk/maths-hubs/

Have you found your local maths hub and do you know what they offer?

#mathscpdchat

ncetm.org.uk
Maths Hubs

… was followed by her closing messages:


Maryse @AllThingsMaths · 20h
We've reached 8pm so a massive thank you to everyone who has contributed to #mathscpdchat this evening. Lots of tips to welcome in our new ECTs to our wonderful subject and profession.
Maryse @AllThingsMaths · 20h
I've loved mentoring PGCE students this year and it's been great development for me as well, so a recommendation for that for anyone who hasn't done it yet.
#mathscpdchat
Maryse @AllThingsMaths · 20h
My general take away from this evening is:
use resources already there, but adapt to student needs
build your and their confidence
ask if you need support and get that network around you
And keep the passion for maths there!