

#mathscpdchat 6 September 2022

What support for your maths teaching will be most helpful this term, and where will you look for it or find it?

Hosted by [Kathryn Darwin](#)

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



The graphic features a large green hashtag symbol in the background. The text '#mathscpdchat' is written in white on a dark green background. To the right, a yellow box contains the word 'Today'. Below this, the date and time 'Tuesday, 6 September, 7-8pm' are written in white. In the center is an illustration of a diverse group of people sitting around a table, engaged in a discussion. Below the illustration, the question 'What support for your maths teaching will be most helpful this term, and where will you look for it or find it?' is written in white. At the bottom, it says 'Hosted by Kathryn Darwin @Arithmaticks' and 'ncetm.org.uk/mathscpdchat'. The NCETM logo is in the bottom right corner.

#mathscpdchat Today
Tuesday, 6 September, 7-8pm

What support for your maths teaching will be most helpful this term, and where will you look for it or find it?

Hosted by Kathryn Darwin @Arithmaticks
ncetm.org.uk/mathscpdchat

The links shared during this discussion were:

[We Can Work It Out 1](#) which is a photocopiable book from the ATM containing 20 sets of group problem-solving cards to challenge and develop reasoning in the classroom. It was shared by [Rebecca Atherfold](#)

[WEBMATHS](#) which is a website containing links to maths resources, collected into (presently twenty-one) categories, one of which is 'Teaching and Learning CPD'. It was shared by [webmathscouk](#)

[What is a Work Group?](#) which is the part of the NCETM website where you can find out what a Work Group (the model of professional and school development used in many Maths Hubs projects) is, and how Work Groups are organised and run. It was shared by [Mary Pardoe](#)

[Association of Teachers of Mathematics \(ATM\)](#) which was established in 1952, to encourage the teaching and learning of mathematics by relating more closely to the needs of the learner. It offers many continuing professional development opportunities and resources. It was shared by [Mary Pardoe](#)

[Mathematical Association \(MA\)](#) which was the first teachers' subject association to be formed in England, in 1871, as the 'Association for the Improvement of Geometrical Teaching'. It exists to support and promote confidence and enjoyment in mathematics for all, and offers many continuing professional development opportunities and materials. It was shared by [Mary Pardoe](#)

[MEI](#) is a charity committed to improving lives through advances in maths education. It offers many continuing professional development opportunities, materials and other resources. It was shared by [Mary Pardoe](#)

[Mathematics Teachers Working and Learning Through Collaboration](#) which is a paper describing research findings of a survey carried out by experienced mathematics educators at the request of ICME-13 organisers. It was shared by [Mary Pardoe](#)

A full illustrated summary of the discussions in this #mathsCPDchat follows.

The host opened the discussion with these tweets:



Kathryn MCCT @Arithmaticks · Sep 6

...

Gooooooooooooo evening everyone and welcome to the first [#MathsCPDChat](#) of the year!

Let's kick things off by figuring out where we are all at in the 'back to school' cycle!

How long have you been back...?



95 votes · Final results



Kathryn MCCT @Arithmaticks · 13h

As always, the only rule is to use [#MathsCPDChat](#) in your replies or anything you want us to include in the discussion!



The opening tweets above were followed by Kathryn's first question, prompting more replies than any of her other, later, questions. The (linked-to-Twitter) screenshots below show all the replies to the first question, and the discussions that they generated. Those discussions focussed on how teachers might develop their practice, by, for example, looking at: how they help students ask themselves questions that support problem-solving, giving/receiving feedback to/from the whole class (including when students use individual mini-whiteboards), building relationships with students, developing effective strategies for when students use 1-2-1 devices, and enabling the CPD of colleagues by working together within a department or school.

In the following part of the summary only (showing all the discussions that were in response to the first question), you can **click on any screenshot-of-a-tweet to go to that actual tweet on Twitter**. This was the first question from [Kathryn Darwin](#):



Kathryn MCCT @Arithmaticks · 13h

Now we've all had a long summer to relax and maybe reflect a little, I wondered... what are your priorities for the year? What are you going to make the focus of your development in 2022/23? [#MathsCPDChat](#)



In this conversation, between [Rebecca Atherfold](#), and [Kathryn Darwin](#) (with a link provided by [Mary Pardoe](#) and a question from [Joanne Green](#)) the focus was on ways of modifying/changing some aspects of a teacher's practice and, consequently, of her students' learning habits/approaches ...



Rebecca Atherfold @becatherfold · 13h

Replying to @Arithmaticks

I want to get rid of the some of the habits I picked up as a consequence of covid and try to make these routine for my students (from @EducEndowFoundn) #MathsCPDChat



Kathryn MCCT @Arithmaticks · 13h

Ooh a lovely bit of metacognition there! How are you going to develop it? Also we HAVE to know what the bad habits are! #MathsCPDChat



Rebecca Atherfold @becatherfold · 16h

Replying to @Arithmaticks and @EducEndowFoundn

Re the metacog - going to explicitly discuss these qs with students next week. Our SoL starts with four ops so got lots of previous 'word problem' exam questions (I teach FE resit) for them to practise the process with in pairs. Love to hear others experiences #mathscpdchat



Rebecca Atherfold @becatherfold · 13h

🍷 ? But sticking with the work based habits.... More PowerPoint than I would normally use (we had some students accessing the lessons online all year), zero group work, hardly any physical items apart from maths sets. A complete reversal from how I normally teach #mathscpdchat



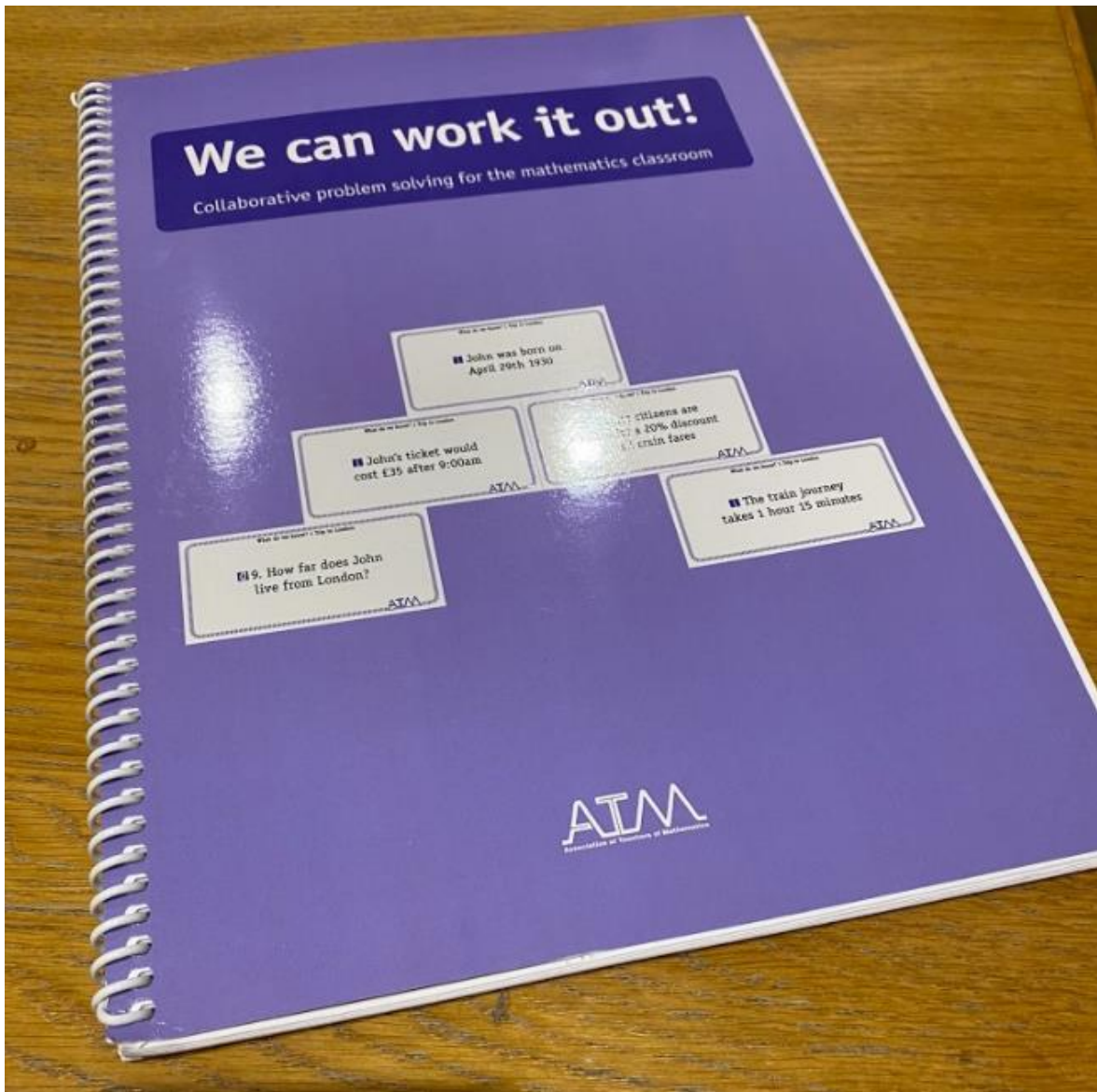
Kathryn MCCT @Arithmatics · 13h

Wow! Lots of little things then - which are you going to tackle first and how?
[#MathsCPDChat](#)



Rebecca Atherfold @becatherfold · 13h

PowerPoint to show images - whiteboard/visualiser for the rest. Went straight in with an activity from this ace book today [#mathscpdchat](#)



Mary Pardoe @PardoeMary · 13h

atm.org.uk/Shop/We-Can-Wo...
[#mathscpdchat](#)

(link provided above)



Kathryn MCCT @Arithmaticks · 13h

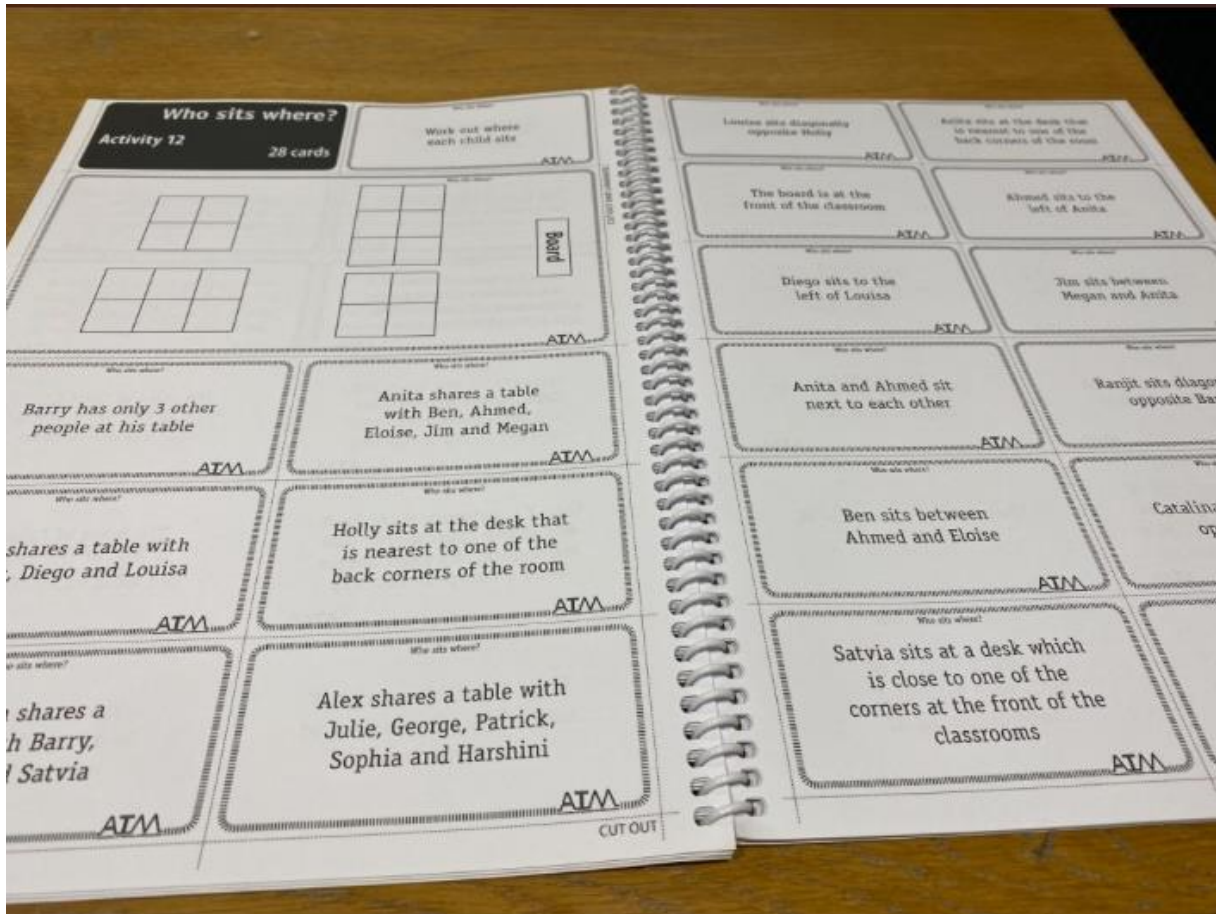
Replying to @becatherfold and @EducEndowFoundn

I haven't used this before! Can you tell us more about it? #MathsCPDChat



Rebecca Atherfold @becatherfold · 13h

We did this - groups of 3 ish. Desks to the side, big bits of paper, post its. Kept my classes going all lesson. Some activities are more mathsy but it was my classes' first day in college #mathscpdchat



Kathryn MCCT @Arithmaticks · 13h

Oh I love things like this! Thank you for sharing! #MathsCPDChat



Joanne Green @MsJoanneGreen · 21h

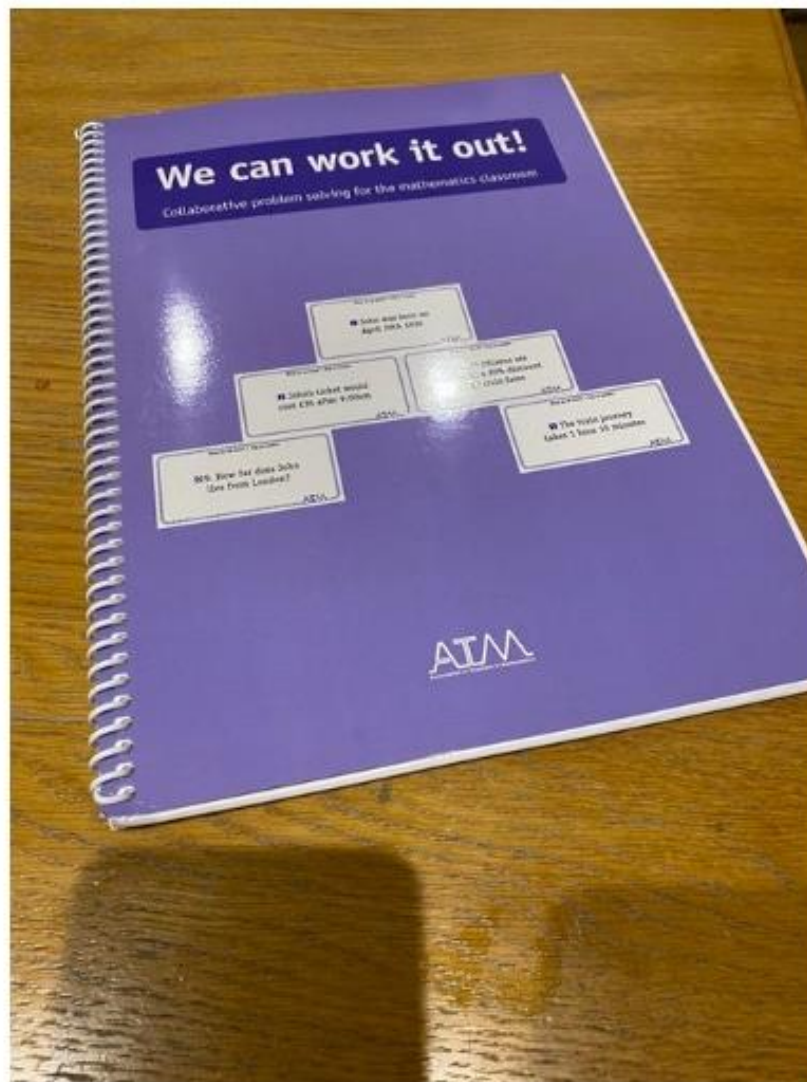
I like the idea of this, but do you read down the left side and then the right or left right left right etc doing down? atm.org.uk/write/MediaUpl..



Rebecca Atherfold @becatherfold · 21h

Replying to @Arithmatics and @EducEndowFoundn

PowerPoint to show images - whiteboard/visualiser for the rest. Went straight in with an activity from this ace book today #mathscpdchat



Rebecca Atherfold @becatherfold · 21h

Replying to @MsJoanneGreen

You cut it up so they get cards. I think with this activity you would give them a hundred square too #mathscpdchat




... whereas in this short thread [webmathscouk](#) and [Kathryn Darwin](#) discussed how providing feedback to, and receiving feedback from, students in a large class might be modified:


 **webmathscouk** @Dids31 · 13h ...
Replying to [@Arithmaticks](#)
Becoming more efficient with whole class feedback. Lots of large classes, so time is going to be a factor.

 **Kathryn MCCT** @Arithmaticks · Sep 6 ...
Replying to [@Dids31](#)
Sounds a great target... how are you planning to implement that?

alsoooo.... [#MathsCPDChat](#)



 **webmathscouk** @Dids31 · 13h ...
WCF sheet, highlighters and target codes. Follow up with starters, Dr Frost tasks and specific teaching tasks.
[#mathscpdchat](#)

 **Kathryn MCCT** @Arithmaticks · 13h ...
Sounds amazing - do you have a 'proforma' in mind for that? How will you 'follow up' on the follow up!? [#MathsCPDChat](#)

 **webmathscouk** @Dids31 · 13h ...
Yes, got simple proforma, printed out, as writing v typing more efficient. MWB follow up to check understanding and green pen by students in their books to highlight key issues.
[#mathscpdchat](#)


This conversation between [Sam Blatherwick](#) and [Kathryn Darwin](#) (with a comment from [Rob Southern](#)) was about changing physical arrangements (mostly school building) in order to facilitate better/easier relationships/communication between KS5 students and their maths teachers ...

 **Sam Blatherwick** @blatherwick_sam · 14h ...
Replying to [@Arithmaticks](#)
From HoF perspective, fostering staff-student working relationships at KS5.
[#mathscpdchat](#)

 **Rob Southern** @mrsouthernmaths · 14h ...
Replying to [@blatherwick_sam](#) and [@Arithmaticks](#)
Sounds intriguing! [#mathscpdchat](#)

 **Kathryn MCCT** @Arithmaticks · 14h ...
Can you elaborate on this? What are you looking for in those relationships?
[#MathsCPDChat](#)

 **Sam Blatherwick** @blatherwick_sam · 13h ...
Pre-pandemic we were a split site school with students moving between sites. Our ks5 students knew where to find us. During pandemic as a result of safeguarding we moved to having a ks4 site and a ks5 site.

 **Sam Blatherwick** @blatherwick_sam · 14h ...
Replying to @blatherwick_sam and @Arithmaticks
We've made changes at ks5 that have had a real impact but the students just can't find their teachers and we need to build that back so that we have that support available [#mathscpdchat](#)

 **Kathryn MCCT** @Arithmaticks · 13h ...
Ahhh so physically that should be a lot easier! Anything you are going to do to boost it further? [#MathsCPDChat](#)

 **Sam Blatherwick** @blatherwick_sam · 13h ...
We're changing a cupboard into an office with a door! 🍷

Some nitty gritty though.

Low workload solutions to monitoring students' work outside of lessons would be great.... [#mathscpdchat](#)

 **Kathryn MCCT** @Arithmaticks · 13h ...
That sounds like a positive step! Is that so teachers have a 'base' students can find them in? [#MathsCPDChat](#)

 **Sam Blatherwick** @blatherwick_sam · 14h ...
Yes. Also had to move away from a "fair" distribution on ks5. In reality it meant the ks5 maths rooms were an unloved ghostland

... and in this conversation between [Karen Hancock](#) and [Kathryn Darwin](#) (with helpful comments from [FudgeMaths](#) and [Kirsty Fish](#)) some implications of introducing the use of 1-2-1 devices by Y9 students in lessons were discussed:

 **Karen** @karenshancock · 15h ...
Replying to @Arithmaticks
We're introducing 1-2-1 devices in Year 9.
My big focus is making best use of these. (Especially with GCSE Statistics)
[#mathscpdchat](#)



Kathryn MCCT @Arithmaticks · 15h

...

Is there anything you have learned from previous roll-outs that will help with that? [#MathsCPDChat](#)



Karen @karenshancock · 15h

...

First ever 1-2-1 devices at our place... We're learning each day. How much should we use them, how much space they take up on the desk! First GCSE Stats lesson tomorrow - trying to balance learning some Statistics and getting to grips with software.



Kathryn MCCT @Arithmaticks · 15h

...

Oooh I thought you already had them because of your extensive One Note use! Assume this will feature..?

Also..... [#MathsCPDChat](#)



Karen @karenshancock · 15h

...

Yes, OneNote is our main means of teaching - but having just moved to booklets, trying to work out how this transitions to devices (or if it doesn't) [#mathscpdchat](#)



Kathryn MCCT @Arithmaticks · 17h

...

Replying to [@karenshancock](#)

I think you could 'push' them out to student devices and have them use them like normal if they will work well on them! Loads of nice opportunities for geogebra etc too! [#MathsCPDChat](#)








Karen @karenshancock · 17h

...



Indeed and Desmos Classroom, and hoping some Excel use with the GCSE Stats.

Will keep you apprised.

[#mathscpdchat](#)

-  **Kathryn MCCT** @Arithmaticks · 17h ...
Please do! [#MathsCPDChat](#)
-  **Karen** @karensancock · 15h ...
Trying to just use the booklet online feels like it may be a waste of time (but really would love not to do all the printing).
Trying to decide how it works if I want them to fill the gaps do I have to give them paper, can I insist they write on devices? [#mathscpdchat](#)
-  **Kathryn MCCT** @Arithmaticks · 15h ...
Hard one! You can only trial I guess! [#MathsCPDChat](#)
-  **FudgeMaths** @FudgeMaths · 15h ...
Replying to [@karensancock](#) and [@Arithmaticks](#)
We went 1-2-1 a couple of years ago. I work on the basis that everything is on the screen apart from things like transformations, early days of plotting graphs etc. However, I do use paper for some homework, particular in year 10 or 11 where I want to look at neatness etc.
-  **Kirsty Fish** @Kirstymaths · 11h ...
Replying to [@karensancock](#) and [@Arithmaticks](#)
Write on devices! I've been (pretty much) paper free at ks3 for a few years now, everyone adapts quickly. Booklets would work really well electronically.

This was another, shorter, conversation between [Karen Hancock](#) and [Kathryn Darwin](#), this time about moving towards greater use by students in lessons of individual small whiteboards in order to communicate their responses/thoughts/ideas:

-  **Karen** @karensancock · 15h ...
Replying to [@Arithmaticks](#)
Also really focusing on Check For Understanding with MWB.
Today with my Year 7 class we practised "Answer and Hover" several times to get them used to writing an answer that others couldn't see and hovering the board face down so I knew they were ready [#mathscpdchat](#)
-  **Kathryn MCCT** @Arithmaticks · 15h ...
This is brilliant! Might work it in to my lessons this next week!
[#MathsCPDChat](#)



Karen @karensancock · 15h

...

They looked at me weirdly. But I asked things like "what is 3+4", "what is your name" "what is your favourite bit of maths".

Just did it 6 or 7 times to practice hovering rather than showing the answer or putting in on the desk. #mathscpdchat

In the next conversation [Miss Franklin](#) shares and discusses her plans with [Kathryn Darwin](#) for ways of helping her team develop professionally and continually, day-to-day, through interaction within the department/school:



miss franklin @missfc_maths · 15h

...

Replying to @Arithmaticks

On a personal level saying no a bit more. Professionally to coordinate the role out of a robust dept CPD for the dept #mathscpdchat



Kathryn MCCT @Arithmaticks · 15h

...

Fab... what are your first steps? #MathsCPDChat



miss franklin @missfc_maths · 15h

...

I did a staff survey at the end of last term to identify areas staff felt they had to offer/ wanted to develop. Using it to outline session topics for pm dept meeting time, looking to use morning weekly meeting time for "5 min masterclasses" and sharing ideas from pm cpd sessions



Kathryn MCCT @Arithmaticks · 15h

...

Sounds a brilliant plan - really giving ownership to the department. #MathsCPDChat



miss franklin @missfc_maths · 15h

...

That was my hope - if they have a voice they will be more invested in the process and it will make it more productive and long lasting

There were no replies to the following response from [TM](#) to Kathryn's first question until [Mary Pardoe](#) added a comment the next day:



TM @tm_maths · 15h

...

Replying to @Arithmaticks

This year, my target is to raise aspirations of pupils and get them to think "yeah, I can do well". I'd welcome any ideas for this. #mathscpdchat



Mary Pardoe @PardoeMary · 2h

...

Replying to @tm_maths and @Arithmatics

I found, as a young maths teacher, that endeavouring to establish a conjecturing atmosphere (as described by John Mason in 'Expressing Generality' ... document in the OU 'Update' series, my reading of which prompted/initiated those endeavours) helped to raise pupils' aspirations.

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.

This was another 'later' conversation, between [Joe Crowther](#) and [Kathryn Darwin](#), about moving away from planning individual 'lessons' to planning 'units' to guide the teaching/learning during several lessons:



Joe 🦉 @jcrowthermaths · 14h

...

Replying to @Arithmatics

Alas this is outside the #mathscpdchat hour, but my main target is to develop a method of planning that allows topics to flow into each other better and to move away from planning 'lessons'.

(Hopefully this will be the first step towards transforming my teaching style).



Kathryn MCCT @Arithmatics · 13h

...

Happy to discuss if you'd like to - biggest change I've made and so worth it!
x



Joe 🦉 @jcrowthermaths · 12h

...

Thank you, I think that would be good 😊 I've started by doing some medium-term plans for each of my classes - a list of objectives for each chapter of the book being covered this half-term, now the really hard bit of breaking down each of those objectives.



Joe 🗨️ @jcrowthermaths · 12h ...

My biggest problem is that my perception of how long it takes to teach a topic is really bad, and also the more I think about planning the more complicated everything seems to get, even with something as simple as Sample Space Diagrams which I've been planning this evening.



Kathryn MCCT @Arithmaticks · 4h ...

I think you will naturally over plan - everyone does really. I would just be ready to know what is "core" and what is a nice bonus to know/use!



Joe 🗨️ @jcrowthermaths · 21h ...

Yeah, I guess some of that will be a trial-and-error process though. I guess I also need to make sure I always have at least enough material to cover one hour- hopefully if I'm planning an entire mini-unit in one go that should be doable 😊

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

Kathryn's second question ...



Kathryn MCCT @Arithmaticks · 17h ...

What was the impetus for the changes you want to make?
[#MathsCPDChat](#)

... prompted just one reply and a reaction to it from Kathryn:



miss franklin @missfc_maths · 17h ...

Replying to [@Arithmaticks](#)

Massive changes to dept staffing, beginning my npq1t last year and becoming 2ic has given me a voice i don't think i had before. Meaning the desire that has always been there can now be let loose [#mathscpdchat](#)



Kathryn MCCT @Arithmaticks · 17h ...

Sounds like you are really coming into your own! I love that!
[#MathsCPDChat](#)

Her third question ...



Kathryn MCCT @Arithmaticks · 17h

...

If you have more than one area you want to improve, how are you going to prioritise them? [#MathsCPDChat](#)

... generated this discussion about coaching:



Em  @elfearedem · 17h

...

Replying to [@Arithmaticks](#)

That's a tricky one. I am having coaching observations of my A-level teaching which is one area I want to improve, particularly in terms of questioning and using a wider range of taste, so by default think I will focus on that.



Kathryn MCCT @Arithmaticks · 17h

...

Sounds a brilliant way to focus on your development. Have you had coaching before? [#MathsCPDChat](#)



Em  @elfearedem · 17h

...

Yes, our school's observation model is coaching based. It's not everyone's cup of tea, but I love it.



Kathryn MCCT @Arithmaticks · 17h

...

Sounds amazing - can you tell us more about it? Sounds really supportive! [#MathsCPDChat](#)



Em  @elfearedem · 17h

...

We all get a 15 minute observation about every 6 weeks with a pair of coaches, one of whom does a same day coaching session and agrees a strength area and target area to work on. Coaches were doing two consecutive observations, but that's been increased to 4 for continuity.



Kathryn MCCT @Arithmaticks · 17h

...

How awesome - do you feel it has an impact on your practice? [#MathsCPDChat](#)



Em  @elfearedem · 17h

...

Definitely. I always found the whole lesson observation model made me focus on lots of things I felt I did wrong. This model helps celebrate what staff are doing well, but also there's a very specific focus area to work on which avoids overwhelming you with "to dos".



Kathryn MCCT @Arithmaticks · 17h

...

Lovely model! Do you choose the focus point or is that something that is 'given'? [#MathsCPDChat](#)



Em    @elfearedem · 17h

The lesson is selected simply based on how everyone's timetables fit. The initial focus is usually given by the coach, but I've generally found it matches the elements I would have chosen to do differently. Then it's reviewed at the next obs and either kept or a new focus given.



Kathryn MCCT @Arithmaticks · 17h

A proper partnership. Love it! [#MathsCPDChat](#)

The replies to Kathryn's next (fourth) question ...



Kathryn MCCT @Arithmaticks · 18h

Some of the changes we want to make to our practice are quite significant, and could be a bit much "going it alone"... we need support.

Where are you going to go for that?

[#MathsCPDChat](#)

... formed two short conversations, this ...



Karen @karenshancock · 18h

Replying to @Arithmaticks

Really lucky that the deputy head in charge of the role out is teaching a parallel Maths class at least.

[#mathscpdchat](#)



Kathryn MCCT @Arithmaticks · 18h

Very lucky! You can bounce ideas off oneanother! [#MathsCPDChat](#)



Karen @karenshancock · 18h

And commiserate in the corridor when it all goes wrong (we're in neighbouring classrooms. :-)) [#mathscpdchat](#)

... and this:



Em    @elfearedem · 18h

Replying to @Arithmaticks

We have a couple of lead practitioners within the department, which helps when running ideas past someone. More observations of other teachers too.



Kathryn MCCT @Arithmaticks · 18h

Great idea - who would you go to if those Lead Pracs didn't exist!?

[#MathsCPDChat](#)

The replies to the host's fifth question ...



Kathryn MCCT @Arithmaticks · 20h

...

What are the resources you plan to draw on to enhance your pedagogy and subject knowledge this year? #MathsCPDChat

... formed four short conversations.

Teachers' professional development was mentioned ...



webmathscouk @Dids31 · 20h

...

Replying to @Arithmaticks

Doing NPQLTD this year. Also lots of free CPD using podcasts and videos. Logged them on the T&L tab here and shared with the dept webmathscouk.wordpress.com #mathscpdchat

(link provided above)



Kathryn MCCT @Arithmaticks · 20h

...

Excellent resource - thank you for sharing! #MathsCPDChat

... as was their own mathematical learning ...



Emma @emmaemma53 · 20h

...

Replying to @Arithmaticks

I've signed up to an @Advanced_Maths course on A Level Mechanics. Never taught it before and it was my weakest module back when I did my A Level so really looking forward to brushing up 🤓 #MathsCPDChat



Kathryn MCCT @Arithmaticks · 20h

...

Ooh I love that! I had to teach myself bits of it on short notice for a school change a few years ago but would have loved to have been re-taught by an expert! #MathsCPDChat

... and learning by listening ...



Karen @karenshancock · 21h

...

Replying to @Arithmaticks

Ooo - good question. I've found reading books really hard (I can't knit and read), so I think podcasts and audio books will be my go to this year. #mathscpdchat



Kathryn MCCT @Arithmaticks · 21h

...

I have weirdly found the same... maybe I need more audiobooks!



... and deriving support from a combination of resource types:

- 

miss franklin @missfc_maths · 21h ...
 Replying to @Arithmaticks
 Will be using the last of my NPQLT, podcasts, conferences (where i can), reading, twitter #mathscpdchat
- 


Kathryn MCCT @Arithmaticks · 21h ...
 Which do you think will help the most? #MathsCPDChat
- 

miss franklin @missfc_maths · 21h ...
 NPQ for general pedagogy, podcasts and conference for subject specific idea, Twitter for ideas on application and resources #mathscpdchat
- 

Kathryn MCCT @Arithmaticks · 21h ...
 And then you'll piece it all together in a lovely CPD package! Simple 😊
 #MathsCPDChat

There was also this reply to the fifth question:

- 

Joanne Green @MsJoanneGreen · 21h ...
 #mathscpdchat @Arithmaticks I also Follow university Maths departments. Feel free to look at my Following list
- 

Kathryn MCCT @Arithmaticks · 21h
 What are the resources you plan to draw on to enhance your pedagogy and subject knowledge this year? #MathsCPDChat

To Kathryn's sixth question ...

- 

Kathryn MCCT @Arithmaticks · 21h ...
 Who will support you in school? How? #MathsCPDChat

... there was just one reply:



Mary Pardoe @PardoeMary · 21h

Replying to @Arithmaticks

This might be a useful paper to read if time available?

link.springer.com/content/pdf/10.1007/s11858-018-0858-1

#mathscpdchat

Mathematics Teachers Working and Learning Through Collaboration

Barbara Jaworski, Olive Chapman, Alison Clark-Wilson, Annalisa Cusi, Cristina Esteley, Merrilyn Goos, Masami Isoda, Marie Joubert and Ornella Robutti

Abstract The authors of this paper were tasked by ICME-13 organisers with conducting a survey on the topic “Mathematics Teachers Working and Learning through Collaboration”. Four research questions guided the survey, concerned with: the *nature* of collaborative working; the *people* who engage collaboratively; the *methodological* and *theoretical perspectives* used; what *learning* could be observed and how it related to collaboration? The resulting survey drew from a wide range of sources, identifying papers relevant to the topic—316 papers were identified, analysed against a set of criteria and organised into three major themes, each relating to one or more of our research questions: *Different contexts and features of mathematics teachers working in collaboration*; *Theories and methodologies framing the studies*; *Outcomes of collaborations*. In addition to the papers revealed by the survey, the team sought contributions from projects around the world which are not represented in the published literature. Members from these projects offered ‘narratives’ from the work of teachers in the projects. This paper reports on the nature of the projects revealed by the survey and the narratives, their theoretical and methodological focuses, and the range of findings they expressed. While we offer a

The next (seventh) question ...



Kathryn MCCT @Arithmaticks · 21h

Some of the changes we want to make to our practice are quite significant, and could be a bit much "going it alone"... we need support.

Where are you going to go for that?

#MathsCPDChat

... prompted this ...



Karen @karensancock · 21h

...

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... and this:



Em    [@elfearedem](#) · 21h

...

Replying to [@Arithmaticks](#)

We have a couple of lead practitioners within the department, which helps when running ideas past someone. More observations of other teachers too.



Kathryn MCCT @Arithmaticks · 21h

...

Great idea - who would you go to if those Lead Pracs didn't exist!?

[#MathsCPDChat](#)

There were no replies to the eighth question:



Kathryn MCCT @Arithmaticks · 21h

...

If you were struggling with one of your targets, where would be your go-to for help and support online? [#MathsCPDChat](#)

Kathryn's last question ...



Kathryn MCCT @Arithmaticks · 21h

...

What support do you need to meet your aims this year, that you are not sure how to find or not sure exists? Maybe others can signpost!

[#MathsCPDChat](#)

... prompted these replies:



Joanne Green @MsJoanneGreen · 21h

#mathscpdchat @Arithmaticks I held a large narrow plastic yellow annulus today that folds in at 0, 90, 180, 270 degrees to create other shapes. I'd like one and one that contains measurements on. I've no idea where to purchase one 🤔



Kathryn MCCT @Arithmaticks · 22h

What support do you need to meet your aims this year, that you are not sure how to find or not sure exists? Maybe others can signpost!
#MathsCPDChat



Mary Pardoe @PardoeMary · 21h

Replying to @Arithmaticks

MEI often helps! mei.org.uk

#mathscpdchat



mei.org.uk
MEI Website

(link provided above)



Mary Pardoe @PardoeMary · 21h

And ATM and the MA, of course!

atm.org.uk

m-a.org.uk

#mathscpdchat

(links provided above)



Kathryn MCCT @Arithmaticks · 21h

And the lovely folks at @NCETM have some brilliant CPD resources!

#MathsCPDChat



Mary Pardoe @PardoeMary · 21h

Yes ... and maths hubs of course!

ncetm.org.uk/maths-hubs/wha..

#mathscpdchat

This video sums up the Work Group model in just over a minute



(link provided above)

The host ended this #mathsCPDchat by posting this tweet:



Kathryn MCCT @Arithmatics · 21h

...

Well, that's it for tonight folks! Thank you so much for joining in tonight.. if you have any hints and tips on finding support for your CPD journey this year, please reply to any of the messages from tonight so we can share the wisdom!

Happy start of term! [#MathsCPDChat](#)

