#mathscpdchat 10 January 2023

What are your maths-teaching priorities for this spring term?
Hosted by Charlotte Hawthorne

*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:

Trigonometry - starting from similar triangles and pythagorean triples which are free to download, editable resources created by Karen Hancock. It was shared by Karen Hancock

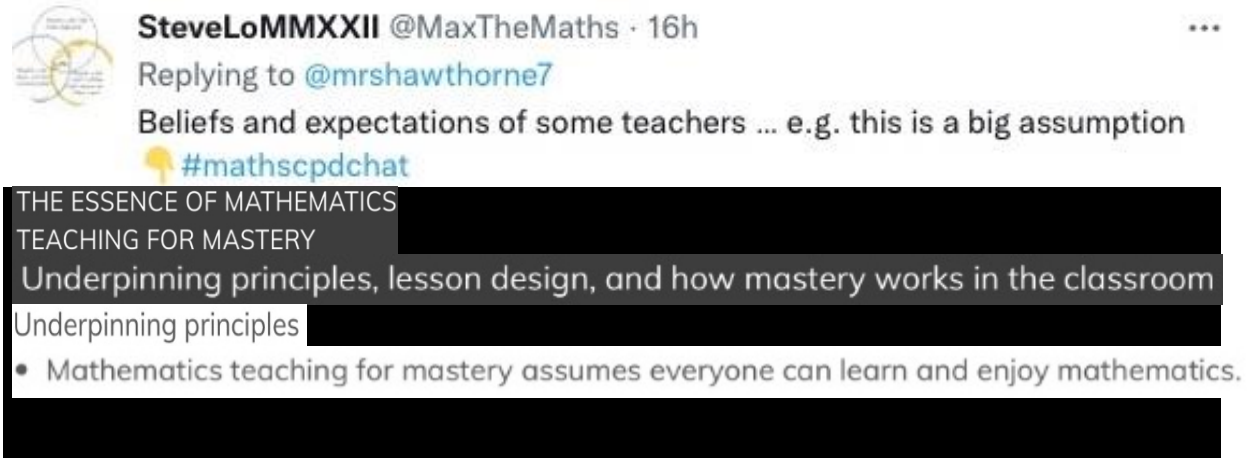
Thinking About Pythagoras' Theorem which is an illustrated blog by Mr Rowlandson in his 'Pondering Planning in Mathematics' series of blogs. It includes links to PowerPoint presentations of tasks that are shown and described in the article. It was shared by Brooke Hunter

Four Simple Ways to Apply Behavioural Insights which is an article from *The Behavioural Insights Team*. It was shared by MathsWithMsB

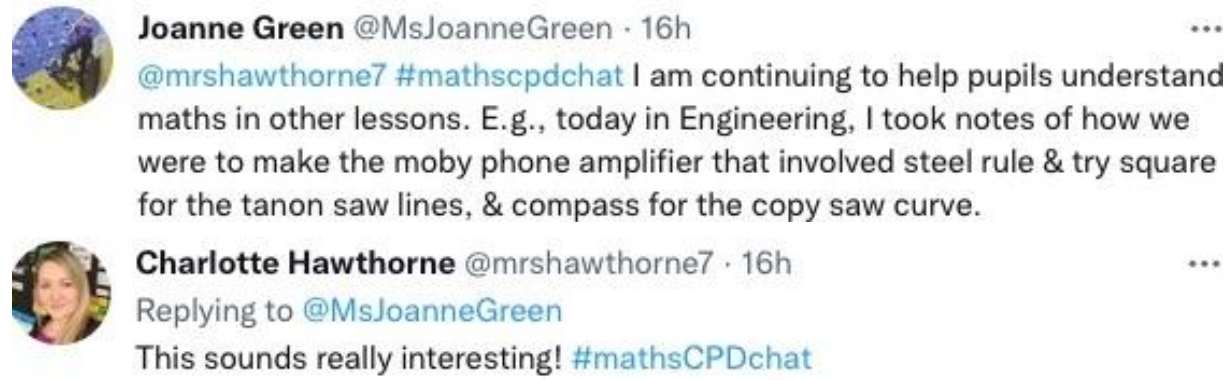
An illustrated summary of the discussions in this #mathsCPDchat follows.

The host's introductory tweet …

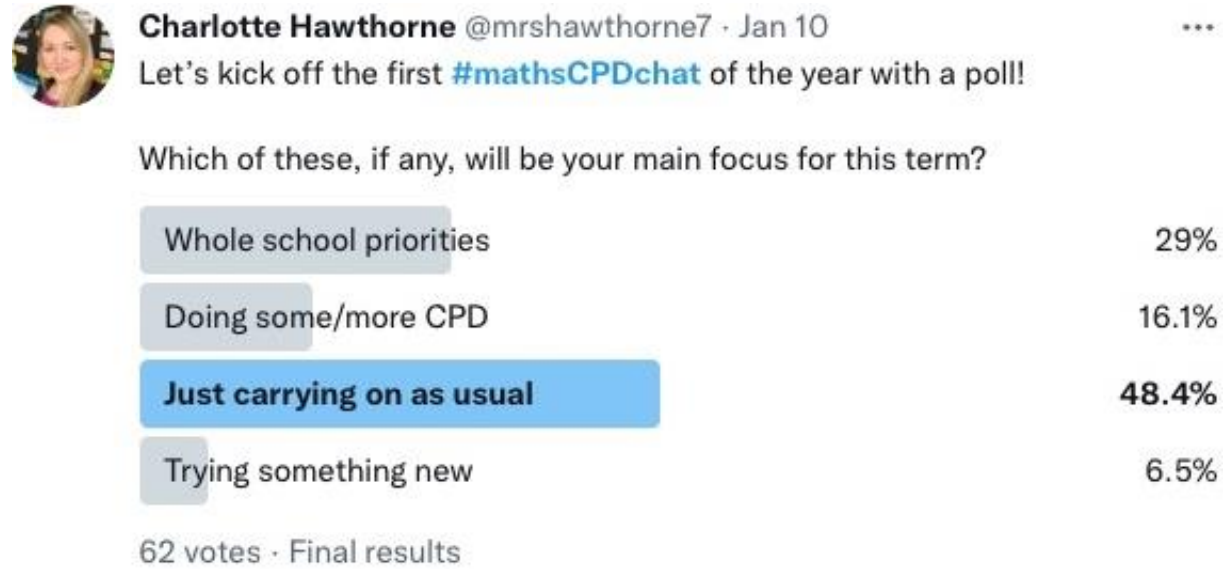
… prompted this comment …



… and this …



… and was followed by this poll …



… to which there was this response:

Joanne Green @MsJoanneGreen · 18h

@mrshawthorne7 **#mathscpdchat** I'm supply, so I'm always booked to meet priorities. So, my own focus is to continue as usual: being a good role model by modelling; science, maths. Though my current school is spoiling me with Shakespeare at the moment - which I love.

The New Year resolutions revealed by replies to Charlotte's first question …

Charlotte Hawthorne @mrshawthorne7 · 16h

Q1 - Let's have quite an open question to see what people are up to…

Have you set yourself any teaching new-year-resolutions?

Or what would they be if you did?

#mathsCPDchat

… were …

Belle Cottingham @CottinghamAmber · 1h

Replying to @mrshawthorne7

To smile more/ be more positive when teaching. Hopefully my students' approach to learning will follow my lead

… and …

Karen @karenshancock · 16h

Replying to @mrshawthorne7

Mine are only ever about working less hard at home… Almost every year. Be on the sofa by 8pm… Still trying 26 years on! #MathsCPDChat

… which generated the following conversation about aiming to establish a good work-life balance to support the ability to teach well:

Kathryn MCCT @Arithmaticks · 16h

Replying to @karenshancock and @mrshawthorne7

I'm always really proud when I leave work before they check me out at 6pm 😂 #mathscpdchat

Karen @karenshancock · 16h

Replying to @Arithmaticks and @mrshawthorne7

Since Covid and lockdowns my home set up is better than my school set up so I tend to rush home and work here… This is not ideal for stopping at a reasonable hour though. #MathsCPDChat

Kathryn MCCT @Arithmaticks · 16h

Replying to @karenshancock and @mrshawthorne7

I've made my classroom really nice for myself - in fact today put up pictures of Albs, Jamie and my parents near my desk! Only annoying thing is the lights are on a 15 min timer and my desk isn't close enough to the sensor... #mathscpdchat

Charlotte Hawthorne @mrshawthorne7 · 16h

Replying to @karenshancock

This is a great one, definitely something we can be working on as we gain more experience I hope!

Any tips you can think of to help with this?

#mathsCPDchat

Karen @karenshancock · 16h

Replying to @mrshawthorne7

A good filing system!

Not feeling guilty about walking away from a task (marking/planning) mid job if it's time for some TV and knitting.

And the understanding that "good enough" is often fine. Perfect isn't always necessary.

Charlotte Hawthorne @mrshawthorne7 · 19h

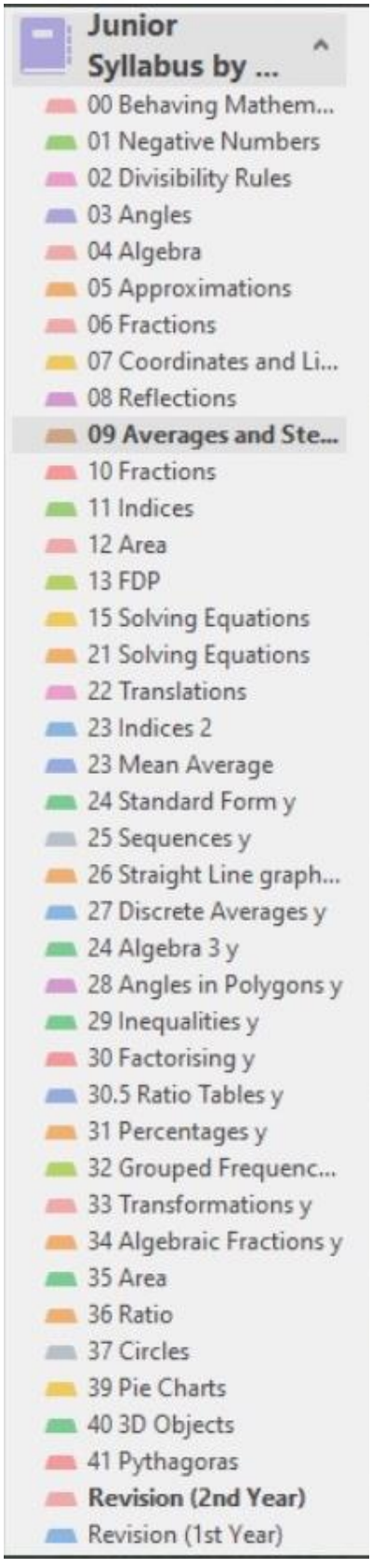
Replying to @karenshancock

These are great tips! By filing system I imagine you mean your amazing OneNote? #mathsCPDchat

Karen @karenshancock · 19h

Replying to @mrshawthorne7

Yep - This certainly helps. :-) #MathsCPDChat



Kathryn MCCT @Arithmaticks · 16h

Replying to @karenshancock and @mrshawthorne7

I've had "Good is good enough" as my "Positive Mantra" on my little card from my @TPositiveTC planner for the last two years! #MathsCPDChat

Karen @karenshancock · 16h

Replying to @Arithmaticks @mrshawthorne7 and @TPositiveTC

I think we have to remember that our past selves didn't do a bad job of teaching a topic and even if we'd like it to be better this year not every topic has to be better this year. So it's ok to re use the "ok" stuff from last year if you are drowning a bit.
#MathsCPDChat

Kathryn MCCT @Arithmaticks · 16h

Replying to @karenshancock @mrshawthorne7 and @TPositiveTC

👏 Yes, pick your battles. Your ideas for "better" will still exist at a time you have the capacity to act on them! #MathsCPDchat

MrTaylorMaths @MrTaylorMaths2 · 1h

Replying to @karenshancock @Arithmaticks and 2 others

I needed to hear this!
Thanks Karen

#MathsCPDChat

This question about Karen's resolutions …

Joanne Green @MsJoanneGreen · Jan 10

@karenshancock #mathcpdchat @mrshawthorne7 🤣 why stop working by 8pm?

> **Karen** @karenshancock · Jan 10
>
> Replying to @mrshawthorne7
>
> Mine are only ever about working less hard at home… Almost every year. Be on the sofa by 8pm… Still trying 26 years on! #MathsCPDChat

… was answered:

Karen @karenshancock · Jan 10

Replying to @MsJoanneGreen and @mrshawthorne7

I have lots of fun creative hobbies. Two hours before bed gives me time to eat dinner and do some hobbying. :-) **#MathsCPDChat**

This resolution …

Kathryn MCCT @Arithmaticks · 16h

Replying to @mrshawthorne7

I need to really think about how to break down tasks/questions for EAL students. I find they can do them in lesson but then when given an assessment with multiple ideas they struggle with the questions and can't figure out what to do. Much bigger issue in new school #mathscpdchat

… prompted a question from the host:

Charlotte Hawthorne @mrshawthorne7 · 18h

Does anyone have any suggestions for supporting EAL students in maths, especially when it comes to assessments? #mathscpdchat

To the host's second main question …

Charlotte Hawthorne @mrshawthorne7 · 17h

Q2 - a bit more specific but along the same theme of the last question...

Reflecting back on your maths teaching last term, what would be the one thing you'd really like to do better this term?

#mathsCPDchat

… there were two single replies, this …

MrHawesMaths @HawesMaths · 16h

Replying to @mrshawthorne7

I am looking to really cut down on teacher chat (20% max) and let students just get on and discuss their learning more. #mathscpdchat

… and this …

Anna Pandrich @AnnaPannaTW · 16h

Replying to @mrshawthorne7

More diagnostic questions, more whiteboard work. More targeted retrieval practice.

… which, when quote-retweeted by the host with a further question …

Charlotte Hawthorne @mrshawthorne7 · 20h

I'm definitely trying to encourage more use of mini-whiteboards in the department. Anyone got tips to help this become standard practice? #mathsCPDchat

Anna Pandrich @AnnaPannaTW · 20h

Replying to @mrshawthorne7

More diagnostic questions, more whiteboard work. More targeted retrieval practice.

… prompted the sharing of the following 'tips' about using class sets of individual mini-whiteboards in lessons:

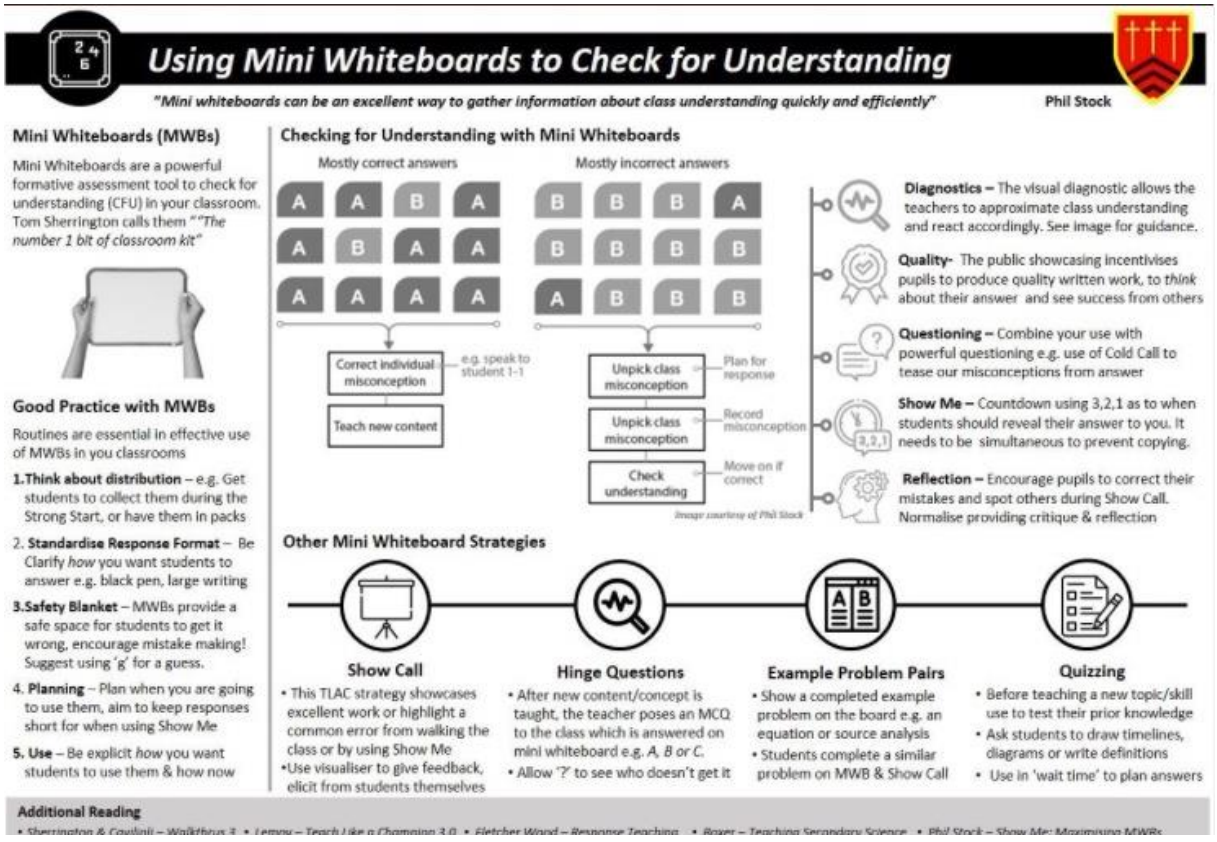
Karen @karenshancock · 20h

Replying to @mrshawthorne7

Get kids into the habit of picking them up every lesson.
Without fail all my classes come in and collect a board and pen without thinking now. And because they are on the desk it means I use them.
#MathsCPDChat

Brendan O'Sullivan @ImtaBrendan · 15h

Replying to @mrshawthorne7



Gareth Shadick @gareth_shadick · 9h

Replying to @mrshawthorne7

Giving teachers opportunities to see them being used effectively

Marc @marcmaths · 8h

Replying to @mrshawthorne7

Have plenty of pens!
I think teachers need to give them a go, when they do they'll see how great they are.
Make sure the expectations around how to use them (and not when you're doing other stuff) are established.
Once they are not a novelty students don't mess around with them.

Sam Blatherwick @blatherwick_sam · 20h

Replying to @mrshawthorne7

tell staff it's ok to use them every lesson

I think that step a few years ago liberated my staff - every single member of staff uses them often #mathscpdchat

Kerry Dunton @KerryDunton · 19h

Replying to @mrshawthorne7

We have a zip bag on each double desk containing 2 boards, pens and rubbers. As others have said because they are out they get used all the time

Maria Howard MCCT NPQML @MrsHsNumeracy · 19h

Replying to @mrshawthorne7

We collaborated to make PPTs with sets of diagnostic questions for different topics / hinge questions for the department. They could then be added to lessons as needed.

Mary Pardoe @PardoeMary · 20h

Replying to @mrshawthorne7

Give time sometimes for students to look at each other's boards … what they've written/drawn … and time to respond to what they see on other students' boards. #mathscpdchat

Mark Wilson @lazymarky · 2h

Replying to @PardoeMary and @mrshawthorne7

I'm trying to investigate those electronic type boards so that we aren't relying on the pens that run out so quickly. Having said that just ordered 30 of everything yesterday

The next two tweets about ways of working when each student has an individual mini-whiteboard on which to write and draw …

Dan Draper @MrDraperMaths · 20h
Replying to @mrshawthorne7
I'm evangelical about splitting whiteboards in four for escalating questions and adapting accordingly. Overly narrating why I'm asking things really works as well. New year 7 class week really bought it when I kept explaining WHY I'm using boards. 1/2 #MathsCPDChat

Dan Draper @MrDraperMaths · 20h
Replying to @MrDraperMaths and @mrshawthorne7
Some kids still think they're a novelty. They got really good at letting me read every single board. Then narrated what I was doing based on that. "Oh hang on, boards down let's clarify." or "Great! I don't think we need to practice this yet so let's move on!" 2/2 #MathsCPDChat

… were discussed, and during the conversation the strategies being described were supported with examples:

Kathryn MCCT @Arithmaticks · 20h
Replying to @MrDraperMaths and @mrshawthorne7
Oh I like this idea - do you have an example? When do you use this? Is it in place of an "I do you do" kind of thing? #MathsCPDChat (sorry @mrshawthorne7 I know the qs are your job but I'm so intrigued!!!!)

Dan Draper @MrDraperMaths · 20h
Replying to @Arithmaticks and @mrshawthorne7
I use whenever the mood strikes haha - basically when I need to know something. It might not even escalate in difficulty. Like:
1) 3x+2y+5x
2) 2x+8y+x
3) 9cm+2m+1cm
4) (4/8)+(3/8)+(7/8)
The ones kids can and can't do 1/2 #MathsCPDChat

Dan Draper @MrDraperMaths · 20h
Replying to @MrDraperMaths @Arithmaticks and @mrshawthorne7
gives me loads of information to then bounce off. Like if kids can do them all and give 3) as 10cm + 2m are they blindly following an algorithm or are they seeing cm and m as variables rather than measures, do they see fractions 2/3 #MathsCPDChat

Dan Draper @MrDraperMaths · 20h
Replying to @MrDraperMaths @Arithmaticks and @mrshawthorne7
as unitising in the same way as algebra in 4) etc. and then I'll have a chat/discussion/branch off accordingly. 3/3 #MathsCPDChat

Advice about managing the use of individual mini-whiteboards by students poured in, with these suggestions …

Charlotte Hawthorne @mrshawthorne7 · Jan 10

#mathsCPDchat

Some GREAT tips for encouraging mini-whiteboard use!

MathsWithMsB @MathsWithMsB · 20h

Replying to @MathsWithMsB @mrshawthorne7 and 4 others

Make it social:
- discuss in dept mtg
- mutual peer obs for help & support
- feedback & sharing of ideas

Make it timely:
- identify upcoming topic on SoW which would benefit & encourage everyone to have a go

(bi.team/publications/e...)

bi.team

EAST: Four Simple Ways to Apply Behavioural Insights

If you want to encourage a behaviour, make it Easy, Attractive, Social and Timely (EAST). These four simple principles, based on the ...

Kathryn MCCT @Arithmaticks · 20h

Replying to @MathsWithMsB @mrshawthorne7 and 4 others

Whiteboard pen rechargers are a game changer. #mathscpdchat

… and this advice (including about pens velcro'd to the teacher's toes!!!!):

Anna Pandrich @AnnaPannaTW · 20h

Replying to @mrshawthorne7

Training the students on the setup. Hand out boards and wipes at start. Don't give out pens until the last minute!

Sam Blatherwick @blatherwick_sam · 10h
Replying to @AnnaPannaTW and @mrshawthorne7
Yes to this!!! Avoids mindless picking them up and doodling

Miss White ✨ @_MissWhiteMaths · 20h
Replying to @AnnaPannaTW and @mrshawthorne7
This!! Students need training and time to get into the routine. I've got mine velcro'd to the edge of my toes for easy access. Never give pens until I'm ready to use them.

Anna Pandrich @AnnaPannaTW · 20h
Replying to @_MissWhiteMaths and @mrshawthorne7
The edge of your toes? A whole class set?

Brooke Hunter @BrookeEHunter · 20h
Replying to @AnnaPannaTW @_MissWhiteMaths and @mrshawthorne7
😂😂😂😂😂 this is my favourite typo (atleast I think it is a typo?) of all time @_MissWhiteMaths 👏🏻👏🏻👏🏻

Miss White ✨ @_MissWhiteMaths · 9h
Replying to @BrookeEHunter @AnnaPannaTW and @mrshawthorne7
Hahahah! Well, can you tell this is our first week back in after Christmas? I definitely meant 'edge of my rows' as in my rows of tables, but edge of my toes would be far more interesting!

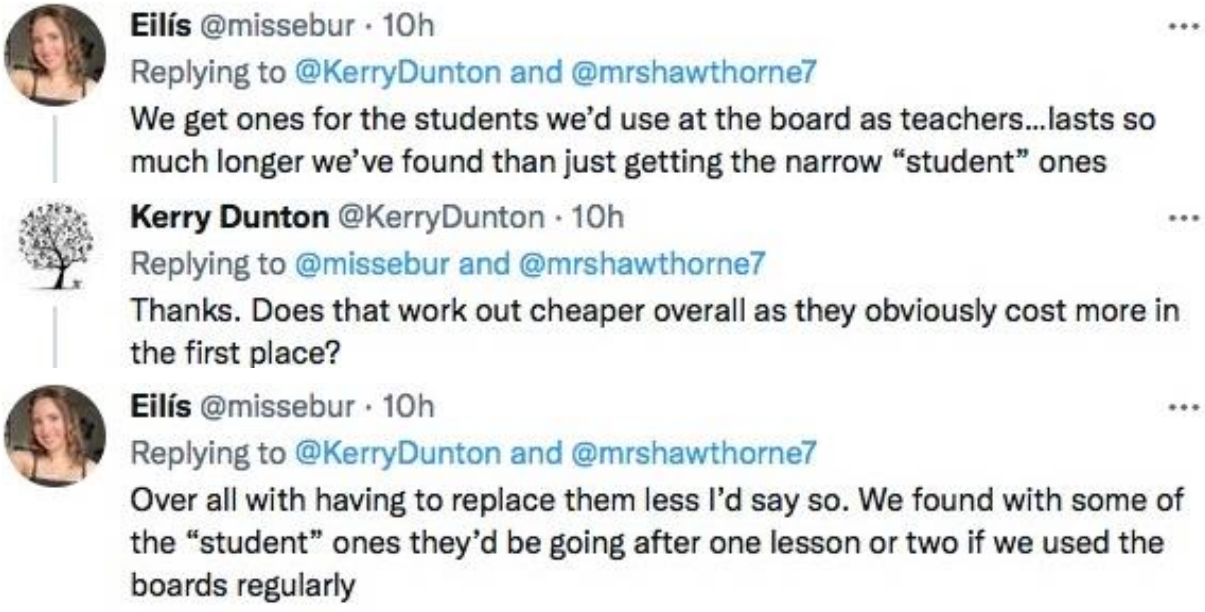
The cleaning of mini-whiteboards was mentioned …

thatmathsshow @thatmathsshow · 15h
Replying to @mrshawthorne7
Slightly off topic (apologies) but how do people keep them clean? After a couple of terms we can't get them clean enough to use. Really puts staff off.

Matt Curry @MattCurry7 · 4h
Replying to @thatmathsshow and @mrshawthorne7
A bit of dettol and a good wipe… but by who, when etc are the difficult questions

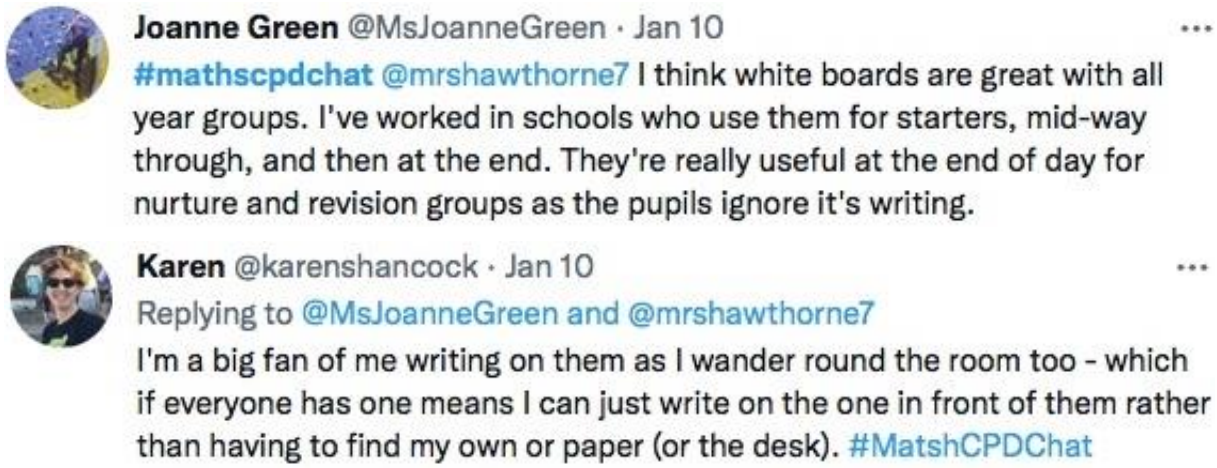
… and which pens to buy was discussed:

Kerry Dunton @KerryDunton · 20h
Replying to @mrshawthorne7
If anyone has got any tips for the best pens to buy for MWB that would be great. We seem to get through them so quickly!!



There were also these comments in reply to the host's request for 'tips' about using class sets of mini-whiteboards …

… and these:



The host's second question …

Charlotte Hawthorne @mrshawthorne7 · 17h

Q2 - a bit more specific but along the same theme of the last question...

Reflecting back on your maths teaching last term, what would be the one thing you'd really like to do better this term?

#mathsCPDchat

… also generated two conversations that were not about mini-whiteboards. This discussion was about encouraging student-student discussion and managing effective group work …

Sam Blatherwick @blatherwick_sam · 17h

Replying to @mrshawthorne7

developing structures for students to talk to each other about tasks with lower attaining year 10s

I've softened them to thinking deeply, but how can I retain that focus so they can explore maths together?

#mathscpdchat

Charlotte Hawthorne @mrshawthorne7 · 19h

Really interested in ideas for this, and more broadly for facilitating great discussions, developing oracy too.

Sam Blatherwick @blatherwick_sam · 17h

Replying to @blatherwick_sam and @mrshawthorne7

I would like to explore them working in groups, but the dynamic of student-student interaction in the class isn't great for some of them and I'm nervous about taking the first step incase it's a misstep #mathscpdchat

Sam Blatherwick @blatherwick_sam · 17h

Replying to @blatherwick_sam and @mrshawthorne7

at the moment the class is ok, i am quite happy where I've got them in the last term. this could make it ace or could blow everything up... do I take the risk? how do I dip my toe in the water?

#mathscpdchat

Mary Pardoe @PardoeMary · 16h

Replying to @blatherwick_sam and @mrshawthorne7

How about a 'structured' experimental lesson? Have them in groups ... give a task which allows of several alternative effective approaches ... appoint a 'reporter' in each group to feed back on the group's progress at various intervals to whole class ? #mathscpdchat

Sam Blatherwick @blatherwick_sam · 15h

Replying to @PardoeMary and @mrshawthorne7

We have 75 min lessons & the tasks I like are snappy... I wonder if I could combine them together though and if there's enough in it to be a lesson rather than an element of a lesson

Kathryn MCCT @Arithmaticks · 17h

Replying to @blatherwick_sam and @mrshawthorne7

I wonder if you could introduce this slowly... something like a "what has this person done wrong?" And then "think, pair, share" or something similar? My last school used a lot of "collaborative structures" and it really helped with roles/expectations #MathsCPDChat

Joanne Green @MsJoanneGreen · Jan 10

@Arithmaticks **#mathscpdchat** @mrshawthorne7 I think, 'How could we improve this so that it's even better' is helpful in building confidence rather than 'what's wrong' which may reduce confidence. I also like to say, 'oooh nearly' and smile broadly.

Kathryn MCCT @Arithmaticks · Jan 10

Replying to @MsJoanneGreen and @mrshawthorne7

I would argue that "oh nearly" is also not too helpful if a student is incorrect (rather than a silly mistake) though... They need to know that and be corrected, kindly but clearly! #mathscpdchat

Kathryn MCCT @Arithmaticks · Jan 10

Replying to @MsJoanneGreen and @mrshawthorne7

Would never use a students actual work for this! Would always be "Debby did xyz... Her teacher has marked it wrong. Why? Can you give feedback?" Etc

My students know I always use Debby too as it's my mum who only got her GCSE at 50, so she used to be wrong a lot! #mathscpdchat

… and this chat involved considerations about priorities for teachers who have recently moved to teaching in a different school:

Dan Draper @MrDraperMaths · 17h

Replying to @mrshawthorne7

First term in a new school last term so a lot routines and setting norms. This term I want to improve my live marking/feedback within lessons. #mathsCPDchat

Kathryn MCCT @Arithmaticks · 17h

Replying to @MrDraperMaths and @mrshawthorne7

Similar here - I want to start trying to ease my workload while giving much more effective feedback and being a bit more responsive #MathsCPDChat

Dan Draper @MrDraperMaths · 17h

Replying to @Arithmaticks and @mrshawthorne7

Especially now I know some of my classes as mathematicians more now! #MatshCPDChat

Mary Pardoe @PardoeMary · 17h

Replying to @MrDraperMaths and @mrshawthorne7

How in the past have you given feedback during lessons, Dan? Genuinely interested. #mathscpdchat

Dan Draper @MrDraperMaths · 17h

Replying to @PardoeMary and @mrshawthorne7

I used to have an exercise book for each class and wrote as I've gone round, either notes, ideas for starters/revisiting/extensions etc. and then sketched out seating plans and stuff. Nothing formal or consistent, but just an exercise book that's my external brain! #MathsCPDChat

Dan Draper @MrDraperMaths · 17h

Replying to @MrDraperMaths @PardoeMary and @mrshawthorne7

But getting to grips with different schemes of learning and teaching in different classrooms and shared classes and stuff since August I've just not managed to get myself right yet! #MathsCPDChat

Joanne Green @MsJoanneGreen · 19h

@MrDraperMaths @mrshawthorne7 **#mathscpdchat** Sparks Maths is good.

Mary Pardoe @PardoeMary · 17h

Replying to @MrDraperMaths and @mrshawthorne7

Are you planning to ask individuals/small-groups 'prompting' questions more often? #mathscpdchat

Dan Draper @MrDraperMaths · 17h

Replying to @PardoeMary and @mrshawthorne7

Not particularly - I think I just want to get back into the habit of being a proper nosy git. 😄 #MathsCPDChat

Charlotte Hawthorne @mrshawthorne7 · 16h

Replying to @MrDraperMaths and @PardoeMary

I might have that as my target this year...be more of a proper nosey git 😆

Charlotte Hawthorne @mrshawthorne7 · 17h

Anyone else start at a new school last term?
Anyone starting a new job this term?

I've only ever moved in a September but can imagine mid-year is tough?
#mathscpdchat

Maths Webb @MathsWebb · 14h

Replying to @mrshawthorne7

2 of my 4 teaching jobs hae been January starts, including my new role this year.
It's a bit of a whirlwind but has its advantages.

Keith Lees @KeithLees6 · 2h

Replying to @MathsWebb and @mrshawthorne7

I hated my one and only mid year transfer at the time.
It did make the following September very smooth though.

The host's next main question …

Charlotte Hawthorne @mrshawthorne7 · Jan 10

Let's have another poll and a follow up question!

Are you teaching any exam classes this year?

(And follow up in the comments: What are your priorities for them? How are you preparing them?)
#mathsCPDchat

Y11 only	**52.8%**
Y13 only	5.2%
Both Y11 and Y13	34.2%
No/other (comment)	7.8%

269 votes · Final results

… prompted four single replies …

Kathryn MCCT @Arithmaticks · 18h

Replying to @mrshawthorne7

Filling gaps from the mocks with "big hitter" ideas so they can feel more successful with seemingly little "work"... obviously proportional reasoning has been my first 😬 money and mass, best buys, similarity, percentages... the list goes on! #mathscpdchat

Kirsty Behan @kirstybehan · 18h

Replying to @mrshawthorne7

I also have a one year core maths group so that makes me a triple threat 🤣 Priorities though are short hw that I can mark and feedback quickly as well as weekly retrieval quizzes with specific feedback on what they need to improve.

Dan Draper @MrDraperMaths · 18h

Replying to @mrshawthorne7

Building confidence and trying to show them their own success. #MathsCPDChat

Adam Sinclair @HeavyMetalBlade · 3h

Replying to @mrshawthorne7

Using QLAs from December mocks to gap full. Its essentially a bottom set so going Iver all the fundamentals again and again.... And again...

… and two conversations; this discussion, in which some examples were shared, was mainly about short revision tasks/problems:

Emma B Maths @CardiffMaths · 18h

Replying to @mrshawthorne7

Homework!
Every topic finishes with a sheet of exam questions (actual ones not "exam style") then once a fortnight a mixed practice homework of exam qs.
Rigorous follow up on non completion. #mathscpdchat

Emma B Maths @CardiffMaths · 18h

Replying to @CardiffMaths and @mrshawthorne7

Also mixed practice starters of high frequency topics

Charlotte Hawthorne @mrshawthorne7 · 18h

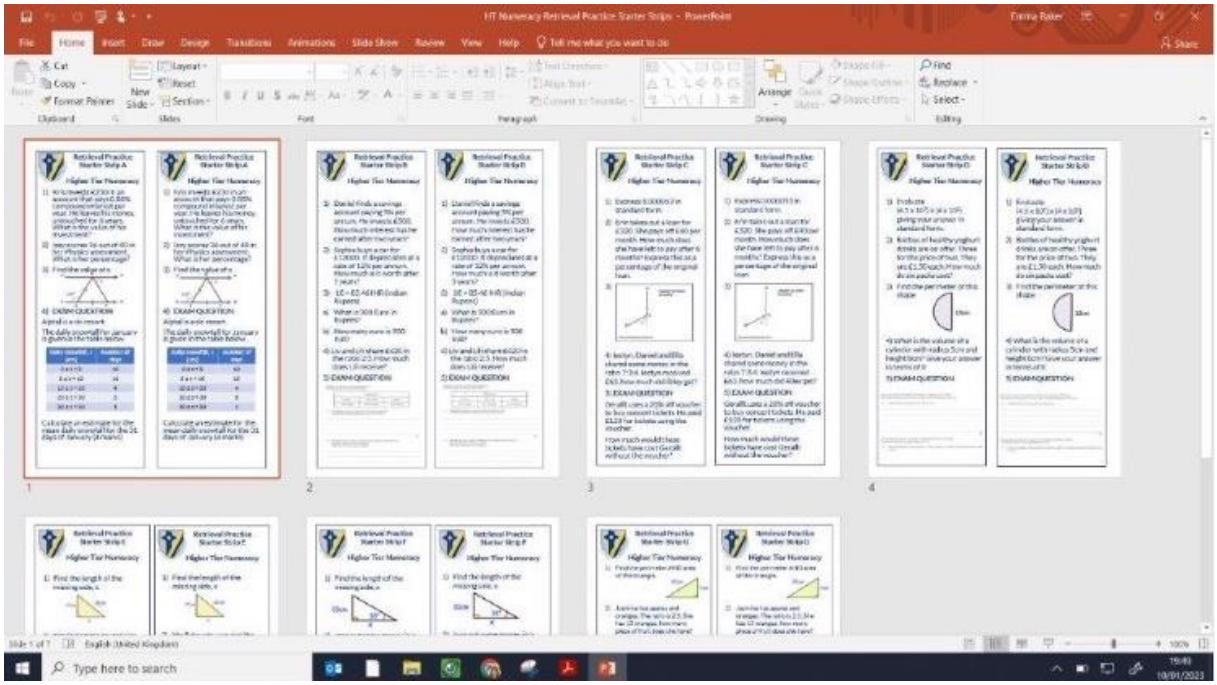
Replying to @CardiffMaths

How long do your starters tend to last? Are these centrally prepared or do you make your own for your own class? #mathsCPDchat

Emma B Maths @CardiffMaths · 18h

Replying to @mrshawthorne7

I make starter strips for my class and share them with the rest of the team. No obligation on anyone else to use! Every class has different needs. #mathscpdchat



Emma B Maths @CardiffMaths · 18h

Replying to @CardiffMaths and @mrshawthorne7

Students stick sheet on left side of page and complete on the right. They seem to like them. Do these about once per week and do mini wbs or something else other days #mathscpdchat

Charlotte Hawthorne @mrshawthorne7 · 18h

Replying to @CardiffMaths

I love anything that helps students organise their work which doesn't mean loads of unnecessary effort on my part! These look great! #mathsCPDchat

MrHawesMaths @HawesMaths · 18h

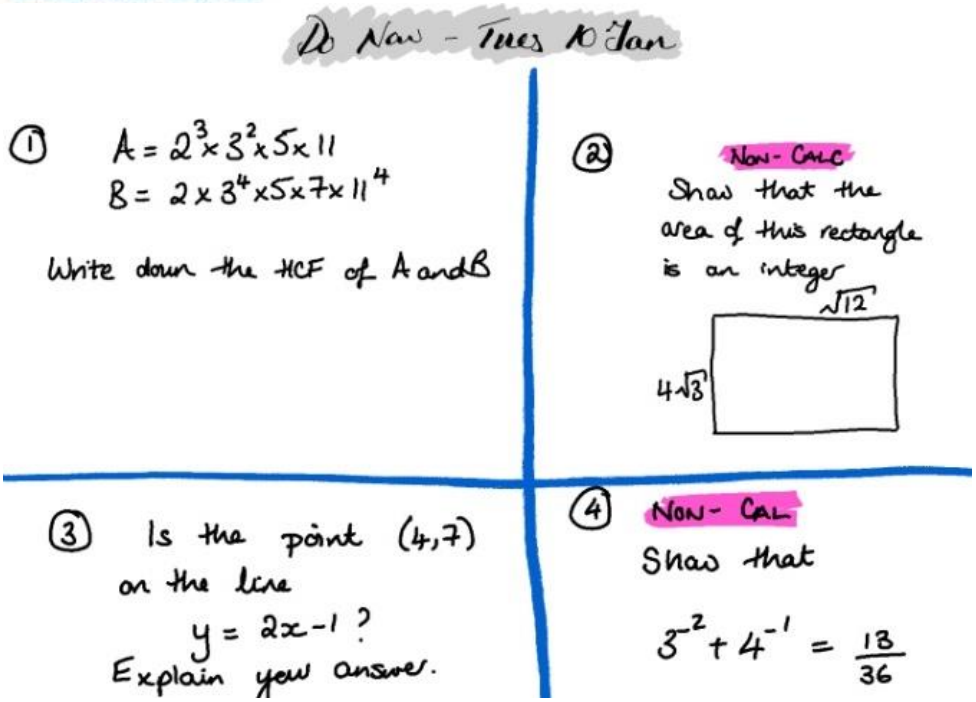
Replying to @mrshawthorne7 and @CardiffMaths

I run a retrieval task ready for them when they come in. Using OneNote. Drop the answers in after about 5 mins and then begin with the main lesson. #mathscpdchat

Karen @karenshancock · 18h

Replying to @HawesMaths @mrshawthorne7 and @CardiffMaths

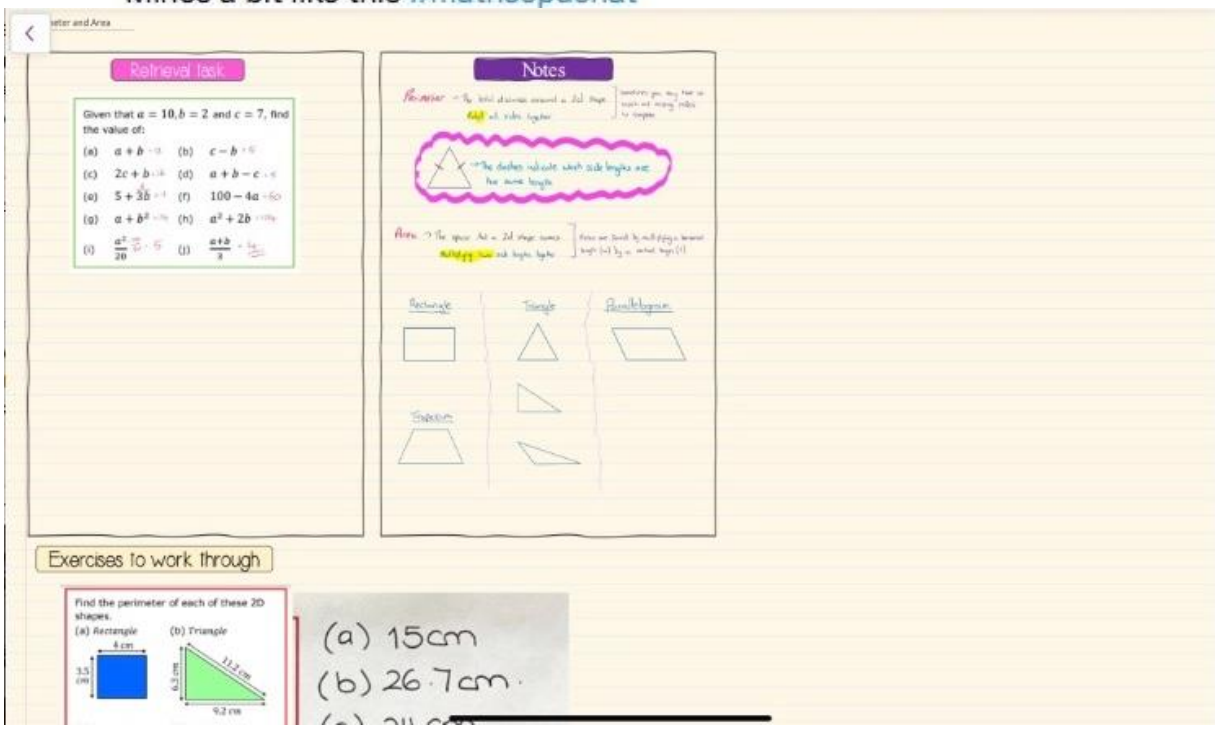
Ditto - I start all lessons with something like this whilst I find my feet (I don't have a classroom base.)
#MathsCPDChat



MrHawesMaths @HawesMaths · 18h

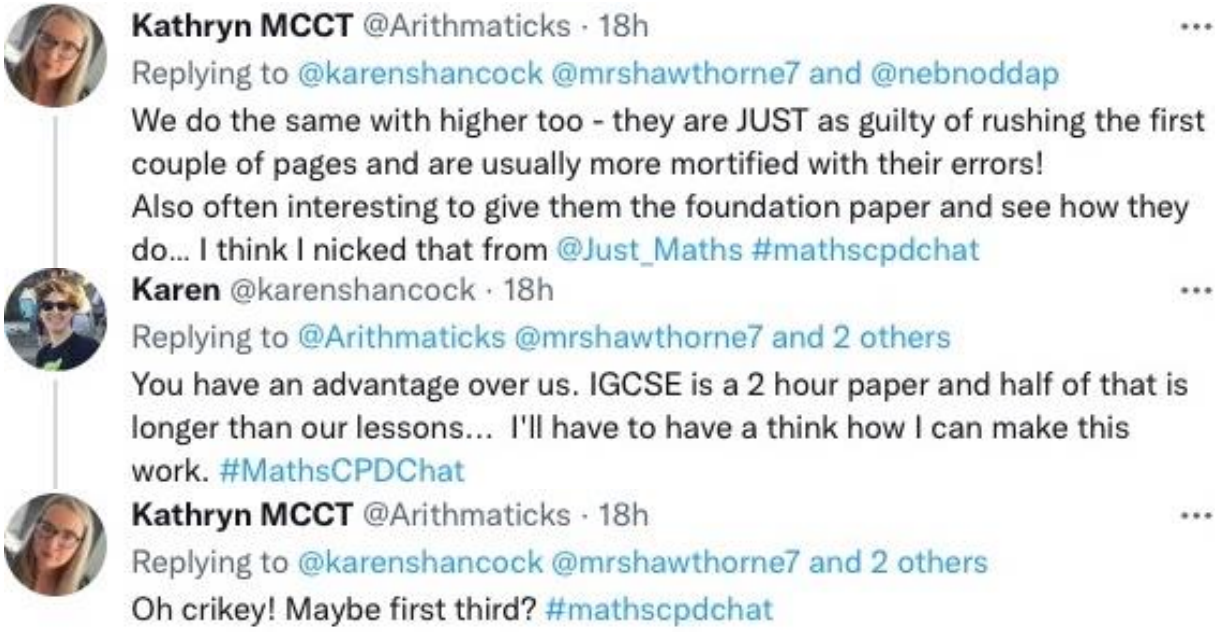
Replying to @karenshancock @mrshawthorne7 and @CardiffMaths

Mines a bit like this #mathscpdchat

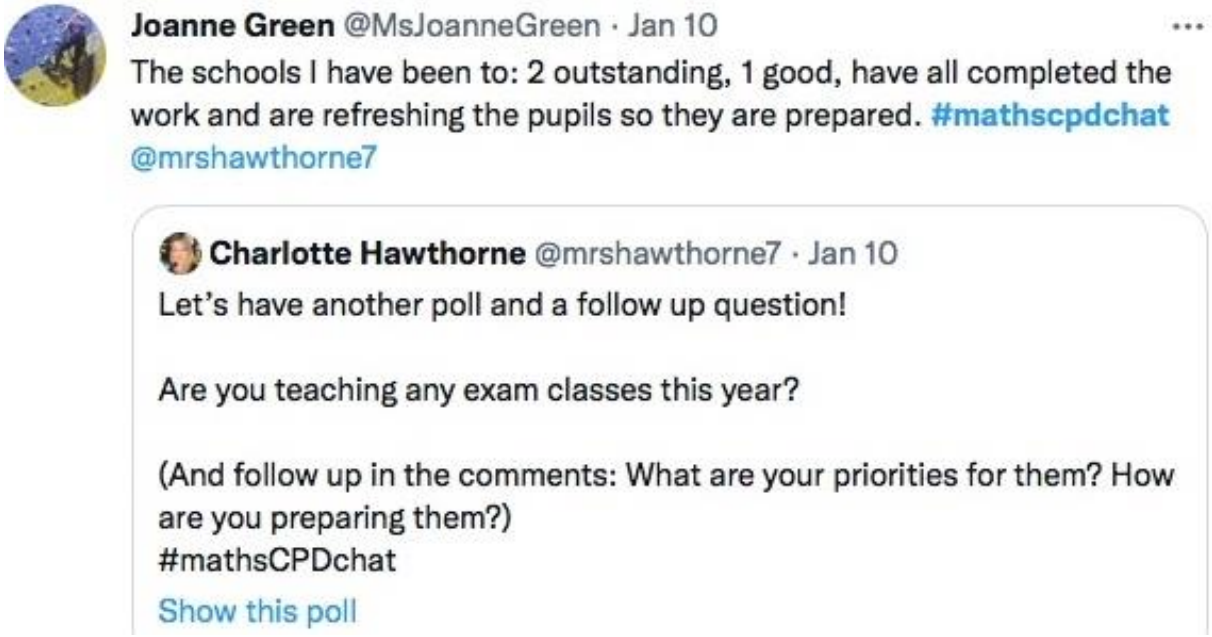


There was this quote-retweet reply to one of Charlotte's questions during the previous discussion:

This was the other conversation generated by the question about priorities with exam classes:



Later there was this quote-retweet comment in response to the question about priorities with exam classes:



This was the host's next main question:

Charlotte Hawthorne @mrshawthorne7 · Jan 10

Lots of discussions happening which I am loving!

Let's hear if there's something you'd bin from last term? (It could be a hopeful one that you're not strictly allowed to...if you want)

Is there something you tried which absolutely didn't work?
#mathsCPDchat

Three people responded to this in two 'comment-and-reply' interactions, which were this …

Kathryn MCCT @Arithmaticks · Jan 10

Replying to @mrshawthorne7

Ooooh... I am finding this harder to answer than I thought I would... probably... Assessment feedback lessons/parts of lessons. #mathscpdchat

Karen @karenshancock · Jan 10

Replying to @Arithmaticks and @mrshawthorne7

Yes, as per my tweets on Sunday night. How is this 45 minutes improving their Maths? #MathsCPDChat

… and this:

Dan Draper @MrDraperMaths · Jan 10

Replying to @mrshawthorne7

Might be a bit meta, but I'm giving on equivocating. I've spent far too much time and energy unhelpfully questioning myself lately. "Does it make kids better at maths?" is the only question I'm concerning myself with here on out. (He says.) #MathsCPDChat

Kathryn MCCT @Arithmaticks · Jan 10

Replying to @MrDraperMaths and @mrshawthorne7

This is a much better question than something like "is this the best way to teach x?"... (I ask this too often) Because who bloody knows?! So many variables to that! As long as you've thought enough to make sure it helps them learn, that's what matters. #mathscpdchat

The host's next main question …

Charlotte Hawthorne @mrshawthorne7 · Jan 10

Excellent! And a great prompt for my last question of the evening for #mathsCPDchat

Thinking about specific topics, have you or will you plan to teach something differently this term?

Hope it went well, Brooke!

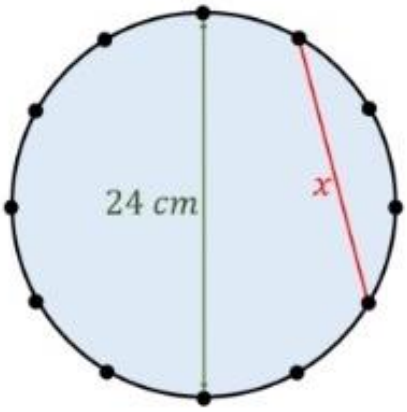
> **Brooke Hunter** @BrookeEHunter · Jan 10
> For the first time in 8 years... I introduced Pythagoras in a different way today! 📐

… in which this was the whole tweet that Charlotte quote-retweeted …

Brooke Hunter @BrookeEHunter · Jan 10

For the first time in 8 years... I introduced Pythagoras in a different way today! 📐

Using @Mr_Rowlandson brilliant blog and resources together with @mrshawthorne7 resources featuring some Don Steward tasks.



ponderingplanning.wordpress.com
Thinking About Pythagoras' Theorem
Pythagoras' Theorem seems to be a concept that can be taught in an endless number of different ways! I must have re-invented the way th...

… generated the following replies and conversations. This was one discussion …

Karen @karenshancock · Jan 10

Replying to @mrshawthorne7

Almost on topic, I'm looking forward to repeating the Pythgaoras (from your resources) and then the trigonometry I did last year. #MathsCPDChat

Charlotte Hawthorne @mrshawthorne7 · Jan 10

Replying to @karenshancock

Me too! It went so well last year #mathsCPDchat

Brooke Hunter @BrookeEHunter · Jan 10

Replying to @karenshancock and @mrshawthorne7

Karen - could you be so kind to point me in the direction of your trig resources. I joined a teach meet last year with you, Jonny, Charlotte and co where you were showing them and they looked brilliant but I have misplaced them! 🙏

Karen @karenshancock · Jan 10

Replying to @BrookeEHunter and @mrshawthorne7

kshancock.co.uk/lessonresource...

Here you go. :-)

Brooke Hunter @BrookeEHunter · Jan 10

Replying to @karenshancock and @mrshawthorne7

🙏 thanking you

… and there was this single reply, with Amanda's examples (shown on the following pages):

Nathan Day @nathanday314 · Jan 10

Replying to @mrshawthorne7

I'm taking a very function machines-heavy approach with Y11 functions over the next week or two.

In particular, I'm using many of @draustinmaths's great functions resources (e.g. twitter.com/draustinmaths/...).

#mathsCPDchat

> **Amanda Austin** @draustinmaths · Nov 27, 2022
>
> I've been rethinking how I'll teach functions to my Y11s this year. I'm going to try spending a lot more time using function machines to build understanding and confidence before I bring in algebraic methods. Starting this week with these resources…
> #mathscpdchat #mathsTLP

Fill In The Blanks...

Two-Step Functions

Input	Function Machine		Output	Function
x	$\times 3$	$+8$	$f(x)$	$f(x) = 3x + 8$
x	$\times 5$	-1	$f(x)$	
x	$\times 2$		$g(x)$	$g(x) = 2x - 7$
x	-1		$f(x)$	$f(x) = 4(x - 1)$
x		$+2$	$h(x)$	$h(x) = \frac{x}{3} + 2$
x	$\div 2$	-5	$f(x)$	
x	$+7$	$\div 4$	$f(x)$	
x	*square*	$+3$	$g(x)$	
x	$+2$	*square root*	$f(x)$	
x			$f(x)$	$f(x) = 10x^2$
x				$g(x) = \sqrt{x} + 8$
x				$h(x) = \frac{x^3}{2}$
x	*reciprocal*	$+8$	$f(x)$	

Fill In The Blanks...

Evaluating Two-Step Functions

Question	Input	Function Machine		Output
$f(x) = 2x - 1$ Find $f(5)$	5	$\times 2$	-1	
$f(x) = 4x + 3$ Find $f(-3)$		$\times 4$	$+3$	
$f(x) = x^2 - 5$ Find $f(4)$		*square*		
$g(x) = \frac{x+3}{2}$ Find $g(11)$			$\div 2$	
$f(x) = \sqrt{x+5}$ Find $f(4)$				
$f(x) = \frac{x}{2} + 1$ Find $f(2.5)$				
$f(x) = 3(x + 2)$ Find $f(-7)$				
$h(x) = (x + 3)^2$ Find $h(-5)$		$+3$		
$f(x) = 4x^2$ Find $f(\sqrt{3})$		*square*		
$f(x) = \frac{1}{x} + 9$ Find $f(2)$				
$f(x) =$ Find	10	-1	$\div 3$	
$f(x) =$ Find	-7	$+2$	*reciprocal*	

Fill In The Blanks...

Three-Step Functions

Input	Function Machine			Output	Function
x →	× 3 →	−1 →	÷ 4 →	$f(x)$	$f(x) = \frac{3x-1}{4}$
x →	+2 →	÷ 3 →	square root →	$f(x)$	
x →	+3 →	square →	−5 →	$h(x)$	
x →	square root →		+1 →	$f(x)$	$f(x) = 4\sqrt{x}+1$
x →	reciprocal →			$g(x)$	$g(x) = 2\left(\frac{1}{x}-3\right)$
x →				$f(x)$	$f(x) = \frac{1}{3x}-1$
x →					$f(x) = \left(\frac{x+2}{3}\right)^2$
x →					$g(x) = \frac{1}{4x-3}$

Fill In The Blanks...

Evaluating Three-Step Functions

Question	Input	Function Machine			Output
$f(x) = (2x+1)^2$ Find $f(4)$	→	→	→	square →	
$g(x) = \frac{2x-5}{3}$ Find $g(6.25)$	→	→	→	→	
$f(x) = \sqrt{3x-2}$ Find $f(9)$	→	→	→	square root →	
$h(x) = 2(x^3-6)$ Find $h(-2)$	→	→	→	→	
$f(x) = \frac{3}{x}+7.5$ Find $f(2)$	→	reciprocal →	→	→	
$f(x) =$ Find	−2 →	−1 →	square →	× 4 →	
$f(x) =$ Find	7 →	+2 →	reciprocal →	square root →	

These were two more single replies to the host's question about teaching something differently this term…

Simon Ball @ballyzero · Jan 10

Replying to @mrshawthorne7

Yes! I'm hoping to emphasise different elements of moments to my Year 13 class when we get onto it in a couple of weeks. They need to understand that it's okay to take the pivot to be anywhere if the bar is in equilibrium! #mathscpdchat

MrHawesMaths @HawesMaths · Jan 10

Replying to @mrshawthorne7

to attempt to do some more physical practical work this term using the sports hall.Thinking I might do some percentage work where students calculate their percentage accuracy for netball, basketball badminton serves etc. using the data to predict future outcomes #mathscpdchat

… these linked comments …

Kathryn MCCT @Arithmaticks · Jan 10

Replying to @mrshawthorne7

I've done similar with Pythagoras this time. Had the time to really think about the planning of it and can't wait to get stuck in with y10 next lesson! I think using WRM for the first time has me teaching a few things differently just because it's a new order! #mathscpdchat

Kathryn MCCT @Arithmaticks · Jan 10

Replying to @Arithmaticks and @mrshawthorne7

I'm also getting to FINALLY consider all the CPD and ideas I've had on surds this term, as I've not taught it from the start for a few years. Very excited!

… and this conversation:

Karen @karenshancock · Jan 10

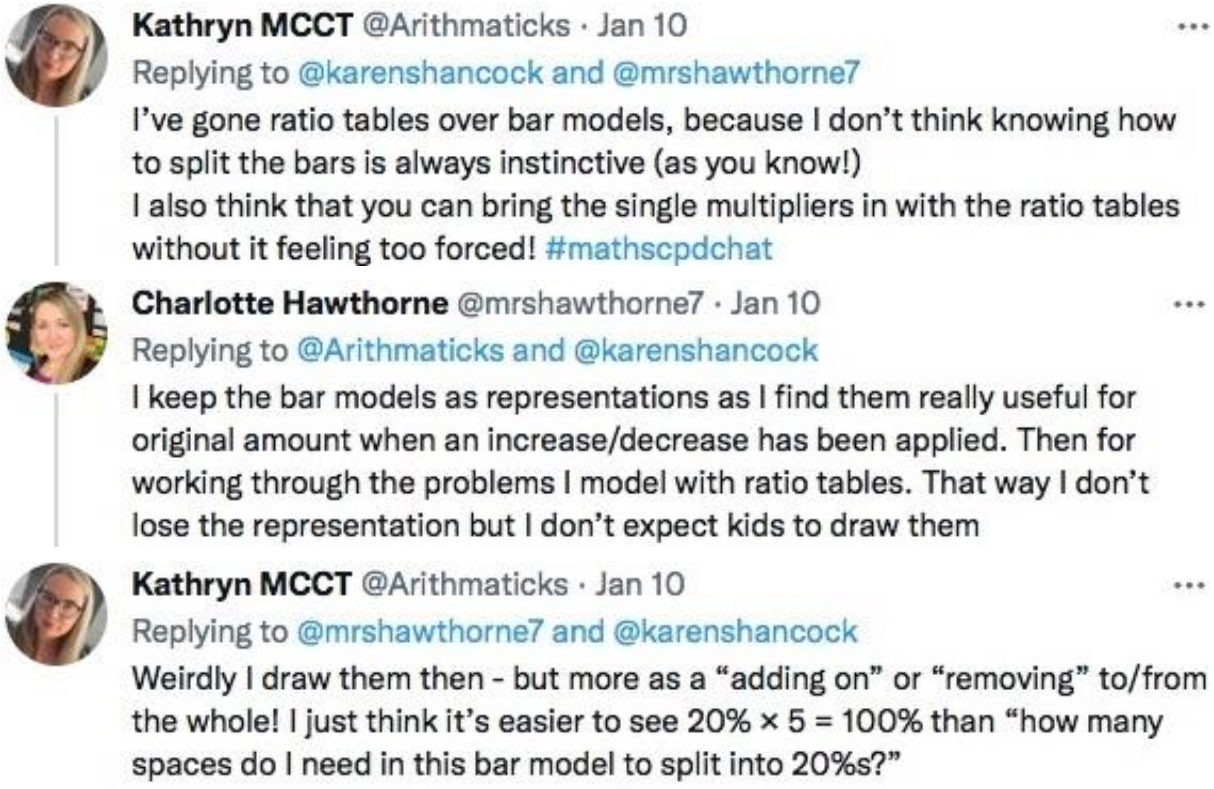
Replying to @mrshawthorne7

And just trying to decide between bar models, ratio tables and multipliers for Year 8 percentages which is coming up. Have done all three over the past three years. Not sure which I prefer. #MathsCPDChat

Hywel Pugh @MrHPugh · Jan 10

Replying to @karenshancock and @mrshawthorne7

I use a bar model and label one side as % and the other as the number. This develops into a double number line, which simplifies to ratio tables, where multipliers develop as you are working through.



During the #mathsCPDchat, not as a reply to any question, this comment was shared …

… and another contributor to the chat replied to it:

This was the host's final tweet …

Charlotte Hawthorne @mrshawthorne7 · Jan 10

Wow, that hour flew by!

The first #mathsCPDchat for 2023 is over.

Thank you SO MUCH for all of your contributions, you've given me (and others, I'm sure) loads to think about.

Until next time...

… and these were replies to it:

Kathryn MCCT @Arithmaticks · Jan 10

Replying to @mrshawthorne7

Very much enjoyed that! Thanks Charlotte 👏🥰

Charlotte Hawthorne @mrshawthorne7 · Jan 10

Replying to @Arithmaticks

Me too! And thanks for your expert support and replies! 🥰

Karen @karenshancock · Jan 10

Replying to @mrshawthorne7

Thank you - super chat! #MathsCPDChat

Charlotte Hawthorne @mrshawthorne7 · Jan 10

Replying to @karenshancock

Thank you for all of your messages, super helpful as always! I always learn something from you :)

Joanne Green @MsJoanneGreen · Jan 10

#mathscpdchat @mrshawthorne7 Thank you for this evening 😃💐

Cheerio

Charlotte Hawthorne @mrshawthorne7 · Jan 10

Replying to @MsJoanneGreen

Thanks for all of your contributions! Have a lovely rest of your evening ☺️