#mathscpdchat 15 February 2022

What do you love about maths and maths teaching?

Hosted by Martyn Yeo

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:

How to involve hard-to-reach parents: encouraging meaningful parental involvement with schools which is a Research Associate report by a headteacher, Clare Campbell, from the National College for School Leadership. It was shared by Martyn Yeo

Person of Interest (2x11) "Pi" which is a YouTube video in which the attitude to the maths some students are 'being taught' suddenly changes! It was shared by Piers Young

Maths Teaching Resources which is a very big/full padlet created and compiled by Ben Sinclair. The material is grouped under the following headings: maths-teaching books, general teaching books, websites, blogs, podcasts, videos, tech resources, research, posters, tasks and prompts. It was shared by Ben Sinclair

Dip and Pick Maths Problem Solving Cards which is a collection of problems intended to 'challenge children to develop a deeper understanding of maths at different levels'. It was shared by Kayleigh Pearson

Maths White Board which is a website containing a wide variety of material designed to support maths teaching. It was shared by Catherine Edwards

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

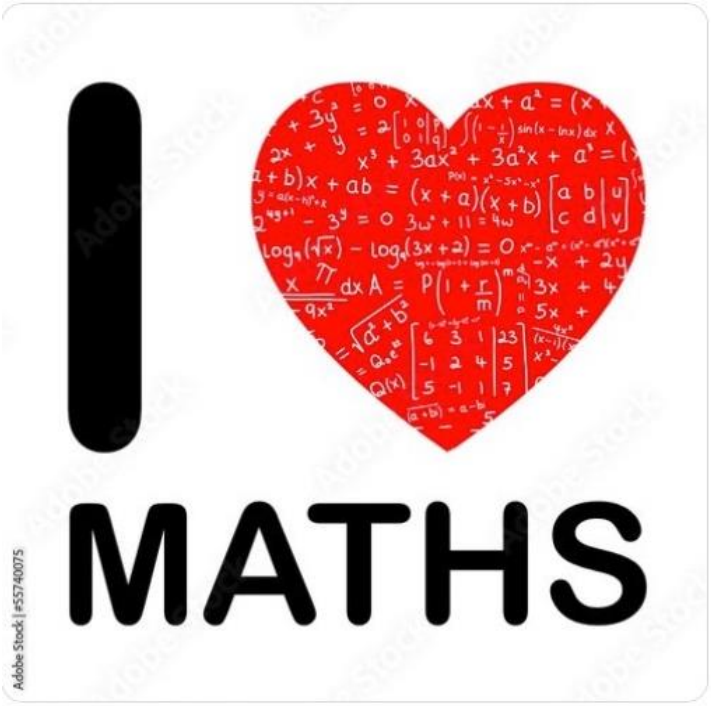
Martyn tweeted this poll at the start of the chat:

Martyn's first question …

Martyn (He/Him) @martynyeouk · 15h

Q1: Let's start sharing the Love!

What do you Love about Maths as a subject?
#mathscpdchat



mathscpdchat and The NCETM

… generated a conversation in which Twitter was mentioned, and teaching students of different ages to love maths was discussed …

Catherine Edwards @Edwards08C · 15h

Replying to @martynyeouk @mathscpdchat and @NCETM

I love the creativity and the fact that there are multiple ways to get to the same point. #mathsCPDchat

Martyn (He/Him) @martynyeouk · 15h

Agreed - so many people have a perception that maths is not creative. All about the right and wrong!

What has made it for you to be different?

#mathscpdchat

Catherine Edwards @Edwards08C · 15h

Teaching maths and Twitter. The way I learnt maths was very procedural, but coming up to 20years of teaching maths has shown me lots of different ways to approach the same thing. #mathsCPDchat

Martyn (He/Him) @martynyeouk · 15h

Agreed - that is how I have learnt to love the subject - teaching it!

Can I ask what age group you teach? #mathscpdchat

Catherine Edwards @Edwards08C · 15h

I teach 11-16, but have dabbled in A-level and All through over the years. I've been doing a lot of teaching KS3 nurture (working around y2 level) over recent years
#mathsCPDchat

Martyn (He/Him) @martynyeouk · 15h

Thanks - I wondered if that made a difference to your love of the subject because you teach it all the time
#mathscpdchat

Catherine Edwards @Edwards08C · 15h

I think it does change your relationship, but the difference between teaching 7 set six where we are working on the concept of 1/2 and set 1 y 9 where we are covering surds, then 11 set 5 with GCSE revision and even though it's all maths they are completely different #mathcpdchat

Martyn (He/Him) @martynyeouk · 15h

Tough questions now - which do you love most out of those?
#mathscpdchat

Catherine Edwards @Edwards08C · 15h

Today 7 set 6, tomorrow we'll see , depends which way the wind blows 🤣

Martyn (He/Him) @martynyeouk · 15h

I guess I wondered if you love it more with pupils who work on harder stuff or is it more satisfying to teach those who struggle? #mathscpdchat

Martyn (He/Him) @martynyeouk · 15h

Lol! That's why I'm the one asking the question! They both have pros and cons to them as you have said #mathscpdchat

Catherine Edwards @Edwards08C · 15h

Please don't make me pick! I like having a variety on my timetable.
#mathscpdchat

… and one of Catherine's comments …

… generated more observations:

In this reply to Martyn's first question 'recreational maths' was discussed:

Matt Man @mr_man_maths · 15h

Replying to @martynyeouk @mathscpdchat and @NCETM

The variety of topics no matter whatever level. Personally, I love it when we have opportunities to do some recreational maths. @EmathsUK did a survey a few months ago and admittedly I don't spend enough time doing this. #mathscpdchat

Martyn (He/Him) @martynyeouk · 15h

Tell us more about recreational maths? What is that? #mathscpdchat

Matt Man @mr_man_maths · 15h

Pretty much doing something that you enjoy doing. For some it might be artistic drawings such as those from the wonderful @c0mplexnumber. For me, it's reviewing back to A Level Further Maths which reminds me of my undergraduate days at university! #mathscpdchat

Matt Man @mr_man_maths · 16h

For some, they might do a training course. The TAM course by @Advanced_Maths and @MEIMaths are great for those that want to extend their subject knowledge for A Level Maths. #mathscpdchat

Martyn (He/Him) @martynyeouk · 15h

I met @c0mplexnumber and did some maths art - was great fun and even better when pupils don't recognise it as maths to start! #mathscpdchat

Connections between teaching maths and teaching sport prompted discussion …

MrHawesMaths @HawesMaths · 15h

Replying to @martynyeouk @mathscpdchat and @NCETM

As a sports person I like how the approaches to coaching a sport and teaching maths can be mirrored. I love that there are multiple strategies to solve problems and I love the logical processes one must go through #mathscpdchat

Martyn (He/Him) @martynyeouk · 15h

Wow! I've never made that connection before! Sports and Maths are not usually things people put together! Thanks for sharing the love! #mathscpdchat

MrHawesMaths @HawesMaths · 15h

I am always making connections between the two. Especially when I am outside coaching sports. I will get a maths point in when I can. Students think I am obsessed with maths #mathscpdchat

Martyn (He/Him) @martynyeouk · 15h

That's great that you get your passion across! #mathscpdchat

Can you give an example of how you get maths in sport?

MrHawesMaths @HawesMaths · 15h

we talk about going to ground in rugby, there are many different options to complete the phase just like when you are doing multiplications, there are many different options. We talk a lot about isolating skills in maths and coaching and stringing it together... 1/2 #mathscpdchat

MrHawesMaths @HawesMaths · 15h

To complete the problem (score the goal etc.) then there is the physical maths that takes place on the pitch.
Scores,angles,speed,measures,angles,simple algebra,Pythagoras and trig. #mathscpdchat

… and prompted more illumination of connections between sport and maths:

MrHawesMaths @HawesMaths · 15h

we talk about going to ground in rugby, there are many different options to complete the phase just like when you are doing multiplications, there are many different options. We talk a lot about isolating skills in maths and coaching and stringing it together... 1/2 #mathscpdchat

Yorkshire Steve @Yorkshire_Steve · 16h

Replying to @HawesMaths @martynyeouk and 2 others

#mathscpdchat when I'm coaching football I do likewise. The girls often just 'want to play' but I reinforce that we'll isolate key bits and work on those - making a well timed near post run, getting in front of the defender, meeting the ball on the move, making a clean connection

Yorkshire Steve @Yorkshire_Steve · 16h

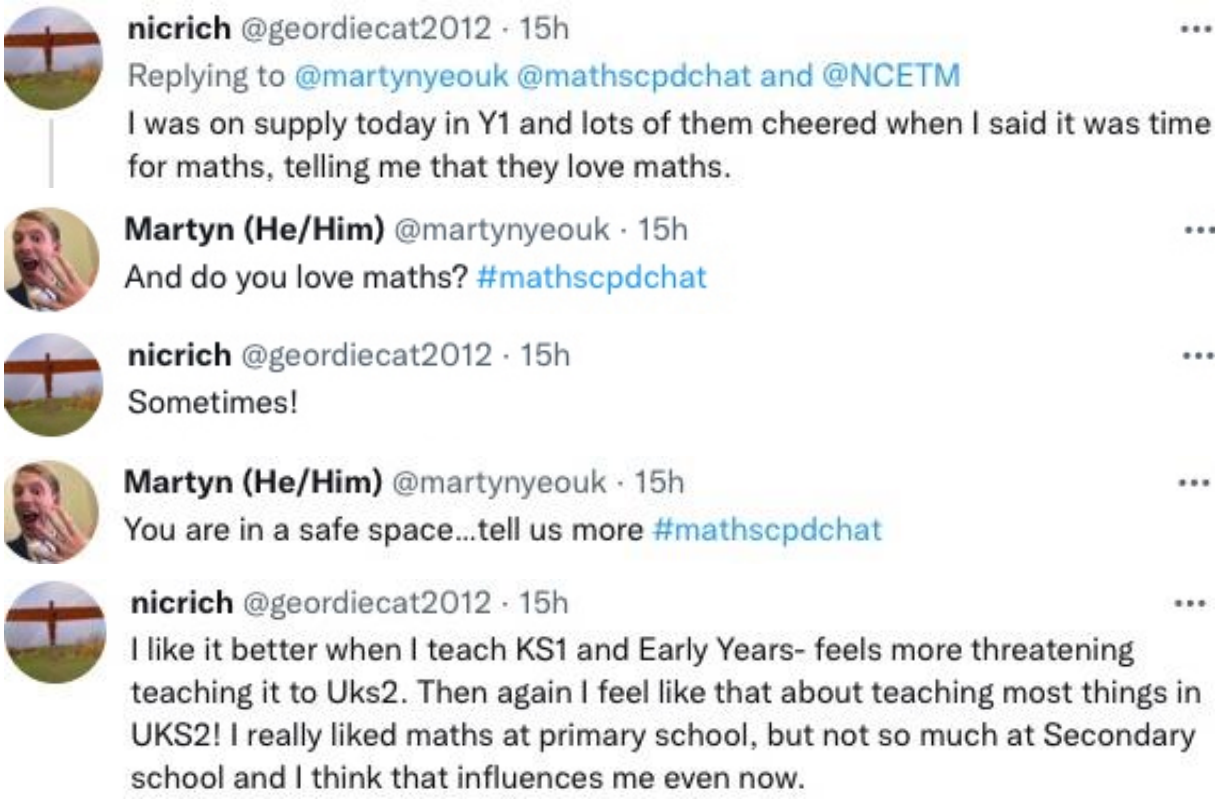
Build these up until the combination becomes a coherent thing in itself. Put it into a game situation with ajusted rules to build opportunities for repeated practice and success in a 'live' scenario

Watch with joy on Sunday when it comes to fruition. The joy on the players faces

Yorkshire Steve @Yorkshire_Steve · 15h

Key to not just 'do the drills' but explain why each is important. The logic behind it. How it builds on the earlier steps. Where it is going. The big picture.

This conversation focused on love of maths from the point of view of supply teaching:



nicrich @geordiecat2012 · 15h

Replying to @martynyeouk @mathscpdchat and @NCETM

I was on supply today in Y1 and lots of them cheered when I said it was time for maths, telling me that they love maths.

Martyn (He/Him) @martynyeouk · 15h

And do you love maths? #mathscpdchat

nicrich @geordiecat2012 · 15h

Sometimes!

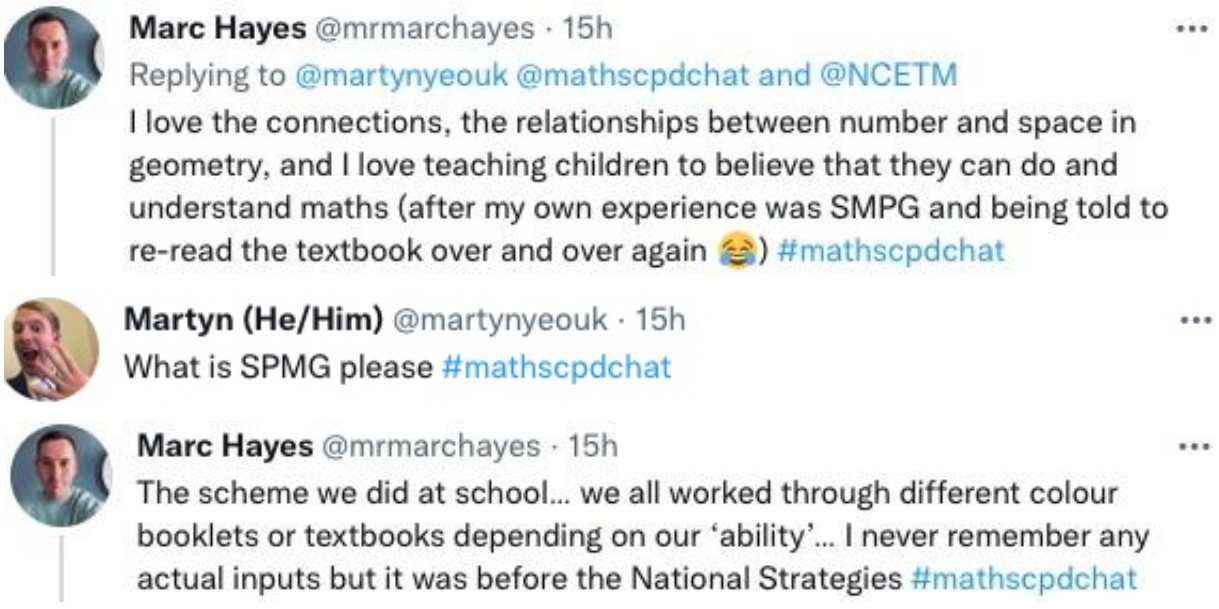
Martyn (He/Him) @martynyeouk · 15h

You are in a safe space...tell us more #mathscpdchat

nicrich @geordiecat2012 · 15h

I like it better when I teach KS1 and Early Years- feels more threatening teaching it to Uks2. Then again I feel like that about teaching most things in UKS2! I really liked maths at primary school, but not so much at Secondary school and I think that influences me even now.

A teacher compared his students' experiences of school maths with his own:



Marc Hayes @mrmarchayes · 15h

Replying to @martynyeouk @mathscpdchat and @NCETM

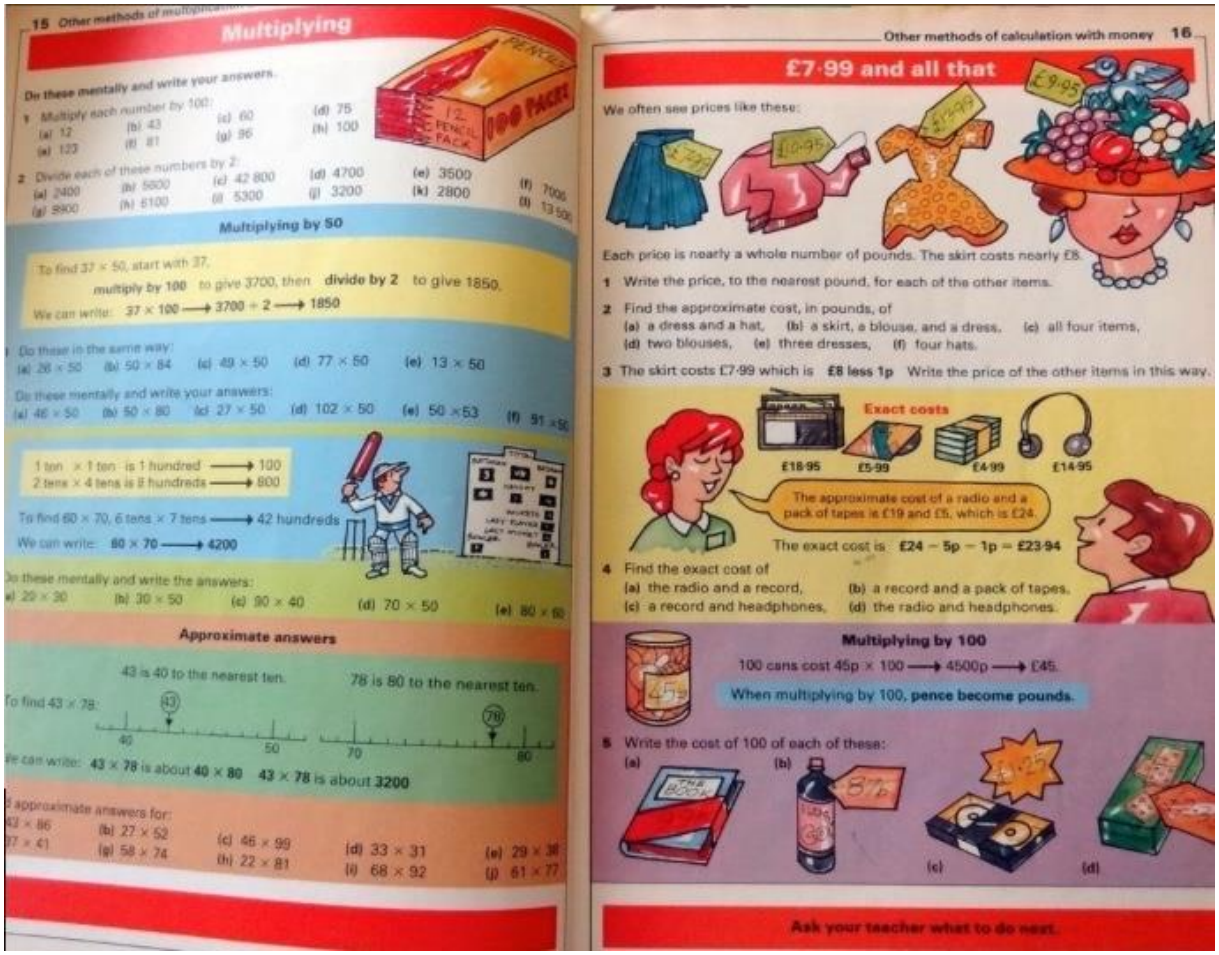
I love the connections, the relationships between number and space in geometry, and I love teaching children to believe that they can do and understand maths (after my own experience was SMPG and being told to re-read the textbook over and over again 😂) #mathscpdchat

Martyn (He/Him) @martynyeouk · 15h

What is SPMG please #mathscpdchat

Marc Hayes @mrmarchayes · 15h

The scheme we did at school... we all worked through different colour booklets or textbooks depending on our 'ability'... I never remember any actual inputs but it was before the National Strategies #mathscpdchat



Martyn (He/Him) @martynyeouk · 15h

Thanks for sharing. This certainly doesn't look like it would install love for the subject #mathscpdchat

This video was popular …

Piers Young 💙 @piersyoung · 14h

Replying to @martynyeouk @Yorkshire_Steve and 2 others

Bit cheesy but this …

youtube.com

Person of Interest (2x11) "Pi"

Amazing scene. I loved it! Hope this doesn't get taken down. People need to see this!

Martyn (He/Him) @martynyeouk · 19h

Never seen this before - but now im in love! #mathscpdchat

… and there was this 'single' comment:

Piers Young 💙 @piersyoung · 14h

Replying to @martynyeouk @Yorkshire_Steve and 2 others

Not sure any subject is both as totally practical and bizarrely beautiful .

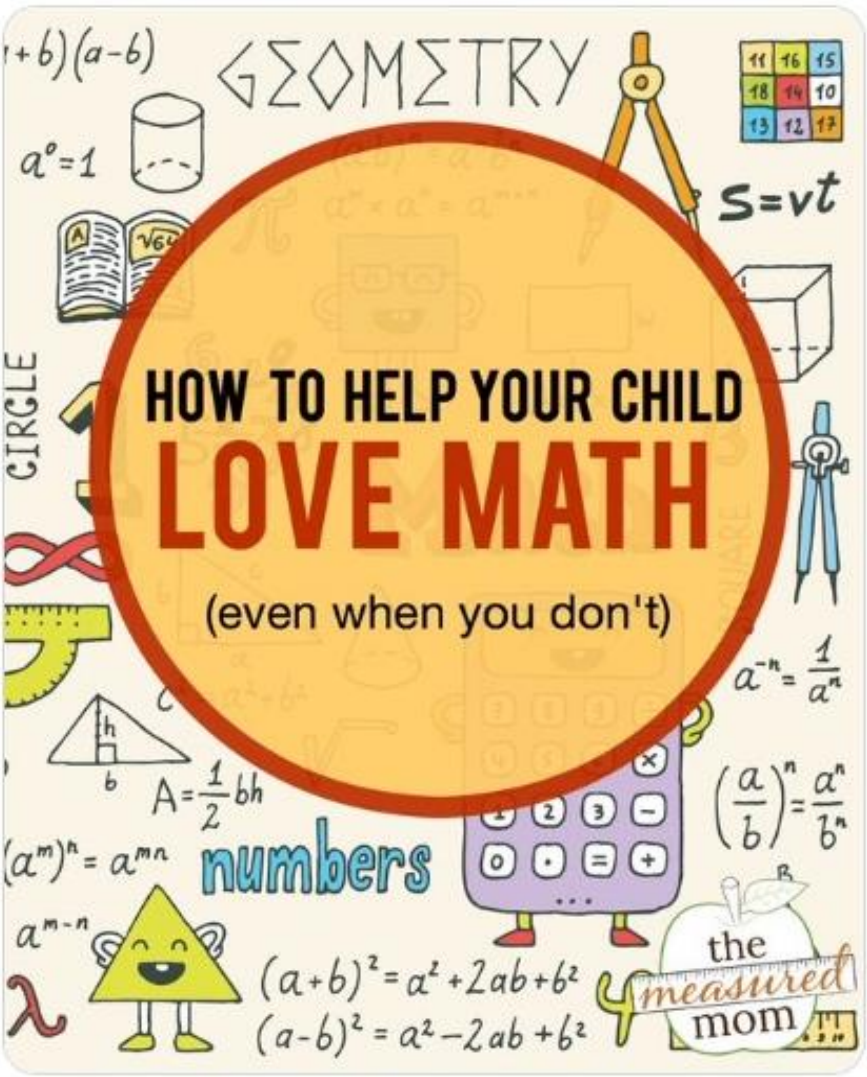
Replies to this question …

Martyn (He/Him) @martynyeouk · 17h

Now to think how to share the love further...

Q3:

How do you get others (children, parents, other teachers) to love Maths? #mathscpdchat



mathscpdchat and The NCETM

…included this conversation …

Yorkshire Steve @Yorkshire_Steve · 16h

Replying to @martynyeouk @mathscpdchat and @NCETM

People *tend* to love things they feel successful at. It must be genuine success (not so easy you don't get the rush. The success need not be immediate but the rush when you experience it will be real.

Yorkshire Steve @Yorkshire_Steve · 16h

Replying to @Yorkshire_Steve @martynyeouk and 2 others

So the question, at least in part, comes down to how we can maximise the chances of a student being successful.

Martyn (He/Him) @martynyeouk · 16h

Can you give a real example of this happening? #mathscpdchat

Yorkshire Steve @Yorkshire_Steve · 16h

Thinking about those pupils I listed earlier. They had got into the loop of sitting assessments that just showed what they couldn't do. Each reinforced their view that they couldn't do maths. Stripped them back so that the assessments were better matched to where they were.

Yorkshire Steve @Yorkshire_Steve · 16h

They started scoring more highly. They felt better about their maths. They started to work harder because they saw they could be successful. So the assessments could ramp up in challenge but they could still be successful. Success breeds success. At least in their cases.

Yorkshire Steve @Yorkshire_Steve · 16h

These were assessments to inform my teaching so ungraded. It was all about "we have been studying these things. Let's see how much we've learned. Let's see what we need extra practice with" rather than "let's see your current grade" or whatever.

… and this one …

MrHawesMaths @HawesMaths · 17h

Replying to @martynyeouk @mathscpdchat and @NCETM

Passion for the subject and the adaptive strategies to progress a student from where they are (even if it is a baby step) progress is progress and they need to see that. #mathscpdchat

MrHawesMaths @HawesMaths · 17h

My biggest bugbear is where teachers/parents say that they can't do maths or hate numbers etc. (had to ask a HT to stop mentioning they hated numbers and was bad at maths) the need to promote and build confidence is essential. #mathscpdchat

Catherine Edwards @Edwards08C · 17h

I'm the only STEM person on the leadership team and the terror maths can instill in highly qualified professionals! But no one would think it was ok if I didn't write documents

… and this …

Catherine Edwards @Edwards08C · 17h

Replying to @martynyeouk @mathscpdchat and @NCETM

Stealth! #mathscpdchat

Martyn (He/Him) @martynyeouk · 17h

Ha ha! But sometimes shouting it from the rooftops too? #mathscpschat

Catherine Edwards @Edwards08C · 17h

Yes, and being enthusiastic about it. As you said earlier people don't see it as creative, or something they can do. Kind reassurance goes a long way too #mathscpdchat

… and this conversation …

Marc Hayes @mrmarchayes · 17h

Replying to @martynyeouk @mathscpdchat and @NCETM

Teach for success… make the basics and principles accessible and straightforward with modelling and explanation to develop procedural and conceptual fluency… which then prepares all for richer problems and challenge #mathscpdchat

Marc Hayes @mrmarchayes · 17h

And remember that regular and repeated practice is vital throughout the learning process to benefit confidence and motivation #mathscpdchat

Martyn (He/Him) @martynyeouk · 17h

Such good advice - how do we help parents and other teachers be successful too? #mathscpdchat

Marc Hayes @mrmarchayes · 17h

Replying to @martynyeouk @mathscpdchat and @NCETM

Definitely by promoting the belief that maths is for everyone and practising the building blocks really does help! #mathscpdchat

Richard Dare @dare_richard · 17h

Yes, I always feel we should do more to communicate our approaches with parents #MathsCPDChat

Mary Pardoe @PardoeMary · 17h

Do you ever get them in to DO MATHS together and with you?
I've found that that can be very effective!
#mathscpdchat

Martyn (He/Him) @martynyeouk · 17h

Absolutely! Before the pandemic! It can break down so many barriers by getting parents to do maths with their children! #mathscpdchat

… there was another response to Richard's comment …

Richard Dare @dare_richard · 17h

Yes, I always feel we should do more to communicate our approaches with parents #MathsCPDChat

Catherine Edwards @Edwards08C · 17h

Our journey into knowledge organisers is beginning to support this. I think we could do it more. One the other hand I'm a little wary of overly prescriptive methods because it can hinder the creativity. #mathscpdchat

… and it generated more discussion …

Richard Dare @dare_richard · 17h

Yes, I always feel we should do more to communicate our approaches with parents #MathsCPDChat

Richard Dare @dare_richard · 17h

We publish information and direct to online content. I wonder what good practice is out there for doing more?
We have information evenings for parents around revision strategies in Y11. I wonder if we could have something in KS3?
#MathsCPDChat

Martyn (He/Him) @martynyeouk · 17h

I have read a research document about reaching hard to reach parents….
assets.publishing.service.gov.uk/government/upl.

#mathscpdchat

Richard Dare @dare_richard · 17h

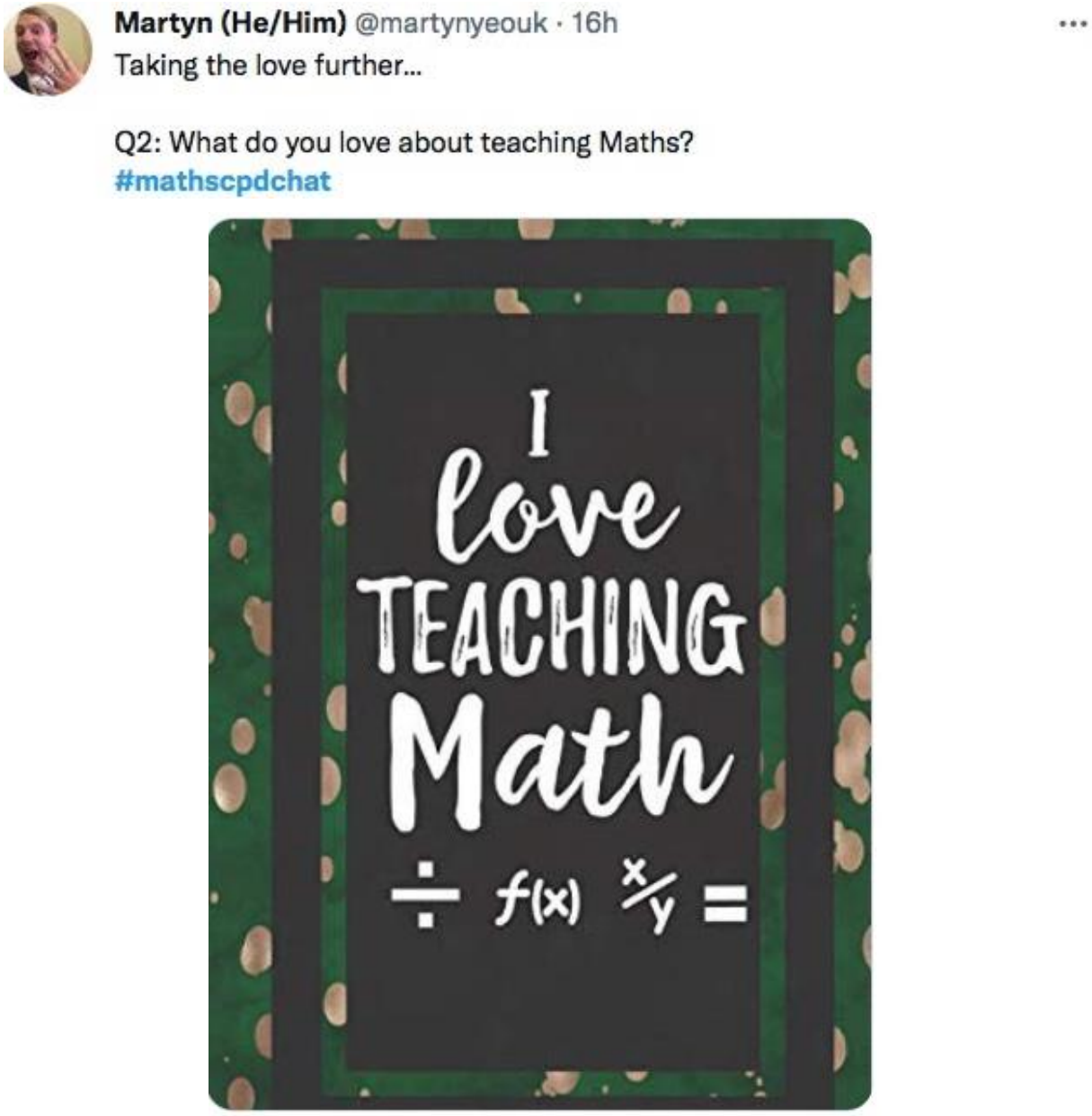
Oh, thank you very much!
I don't know that our parents are hard to reach, just maybe we should do more!

… and yet more:


Richard Dare @dare_richard · 17h
Yes, I always feel we should do more to communicate our approaches with parents #MathsCPDChat
Martyn (He/Him) @martynyeouk · 17h
Replying to @dare_richard @mrmarchayes and 2 others
Do you manage to do this? #mathscpdchat
MrHawesMaths @HawesMaths · 17h
I have produced course maps that show what topics are being taught. sent to parents and students have them in their books.I have also created courses on Dr Frost that mimic our SOW so parents can access and see what is going on and have a cheeky practice themselves. #mathscpdchat
Richard Dare @dare_richard · 17h
Very good!

The screenshots below show conversations generated by two of Martyn's questions. The first sequence shows aspects of teaching maths that are loved by contributors, and that were shared and discussed during the chat. The second sequence reveals some much loved and used resources, many of which were mentioned rather than linked-to, so they are indicated (and can be found from their descriptions) in addition to the links that were shared and are listed at the start of this summary. **Click on any of the following screenshots-of-a-tweet to go to that actual tweet on Twitter.**

The first sequence (below) of conversations and replies was generated by this question from Martyn Yeo:



Some responses formed conversations, such as this one between Sam Blatherwick, Martyn Yeo and Rob Southern …

Sam Blatherwick @blatherwick_sam · 16h

Replying to @martynyeouk

Where to start?
1) unexpected answers in lessons
2) thinking about questions to ask
3) you can see the effect of your feedback within lessons #mathscpdchat

Sam Blatherwick @blatherwick_sam · Feb 15

Replying to @blatherwick_sam and @martynyeouk

4) genuine problem solving
#mathscpdchat

Martyn (He/Him) @martynyeouk · Feb 15

Replying to @blatherwick_sam

I'm going to make you choose now- which do you love the most?
#mathscpdchat

Sam Blatherwick @blatherwick_sam · Feb 15

When you give students problems and they give you perspectives and approaches you hadn't considered. It's so exciting when that happens in a lesson and you are able to capture it and take the class with you
#mathscpdchat

Rob Southern @mrsouthernmaths · 16h

Yes to number 1. I love it when a student comes up with a solution that's better than mine. It happened today with adding and subtracting standard form.
#mathscpdchat

Sam Blatherwick @blatherwick_sam · 5h

What did they do, what did you do?

Rob Southern @mrsouthernmaths · 4h

Q: (3x10^5) + (5x10^4)
I suggested columns at first, leading to visualising place value.
They did (3x10^5) + (0.5x10^5).
If the power of ten is the same, you can just add the numbers and keep the power of ten.

… in which there was also a reply from Amie Coley to Sam Blatherwick's first tweet above …

Sam Blatherwick @blatherwick_sam · 16h

Replying to @martynyeouk

Where to start?
1) unexpected answers in lessons
2) thinking about questions to ask
3) you can see the effect of your feedback within lessons #mathscpdchat

Amie Coley @alcmaths · 15h

Replying to @blatherwick_sam and @martynyeouk

Having that 'ahhh I see' moment of realisation. You can't get that high from anywhere else #mathscpdchat

… and this shorter conversation between Mr Hawes and Martyn Yeo:

MrHawesMaths @HawesMaths · 16h

Replying to @martynyeouk

I love that after 15 years of teaching I still pick up new ways to explain and approach topics. I love that resources are ever evolving. #mathscpdchat

Martyn (He/Him) @martynyeouk · 16h

I was going to ask about resources later - do you want to share some love for a resource? #mathscpdchat

MrHawesMaths @HawesMaths · 16h

Currently loving @DrFrostMaths and @draustinmaths . Been brilliant to utilise this year. #mathscpdchat

… and this short conversation between Mary Pardoe, Mr Hawes and Martyn Yeo:

Mary Pardoe @PardoeMary · 16h

Replying to @martynyeouk

I have always loved trying to find ways of putting pupils in some control of what happens in a lesson … e.g. by inviting their examples, perhaps asking for another, and another, and another … and 'building' on what THEY offer in order to support their learning.
#mathscpdchat

MrHawesMaths @HawesMaths · 16h

I have three whiteboards at the back and sometimes (need to don more often) I will split them into groups and ask them to collaborate and solve some problems (5markers or ao3) the differences between the responses and the learning and leading THEY do is brilliant #mathscpdchat

Martyn (He/Him) @martynyeouk · 17h

Replying to @PardoeMary

I love having children come up and be the teacher - makes my life easier! #mathscpdchat

Other people tweeted replies which did not immediately generate conversations, such as these replies from Catherine Edwards, Matt Man, Mary Pardoe, Simon Ball and Miss S:

Catherine Edwards @Edwards08C · 16h

Replying to @martynyeouk

I love that even though the content of the subject is fairly constant, how I teach, connect and understand it is always changing.
Infact I think not having to learn new content all the time lets you think deeply about the schema and pedagogy
#mathscpdchat

Matt Man @mr_man_maths · 16h

Replying to @martynyeouk

Making up questions on the spot when extending a topic. For example, I was teaching solving equations with expanding brackets. Lots were getting it easily so extended to geometry such as finding the missing side with given area. Interleaving keeps us in our toes! #mathscpdchat

Mary Pardoe @PardoeMary · 16h

Replying to @martynyeouk

I loved seeing PUPILS being surprised! And finding/devising tasks giving opportunities for them to learn by being surprised. And interacting with them as the 'moved' towards being surprised!
#mathscpdchat

Simon Ball @ballyzero · 16h

Replying to @martynyeouk

Being in front of young minds and helping them get closer to their dreams.
#mathscpdchat

Miss S @missspe3 · 14h

Replying to @martynyeouk

Watching the awe and wonder when there is more than one possibility
#mathscpdchat

Mary Pardoe @PardoeMary · 16h

Replying to @martynyeouk

I do want to get this in ... I have loved sometimes being able to teach WITH another teacher ... not with another teacher as an observer ... teaching a lesson together, having planned it together, then reflecting on it together, learnt a lot, and LOVED doing it!

#mathscpdchat

Theis next sequence (below) of conversations and replies was generated by this question (Martyn's last question) from Martyn Yeo:

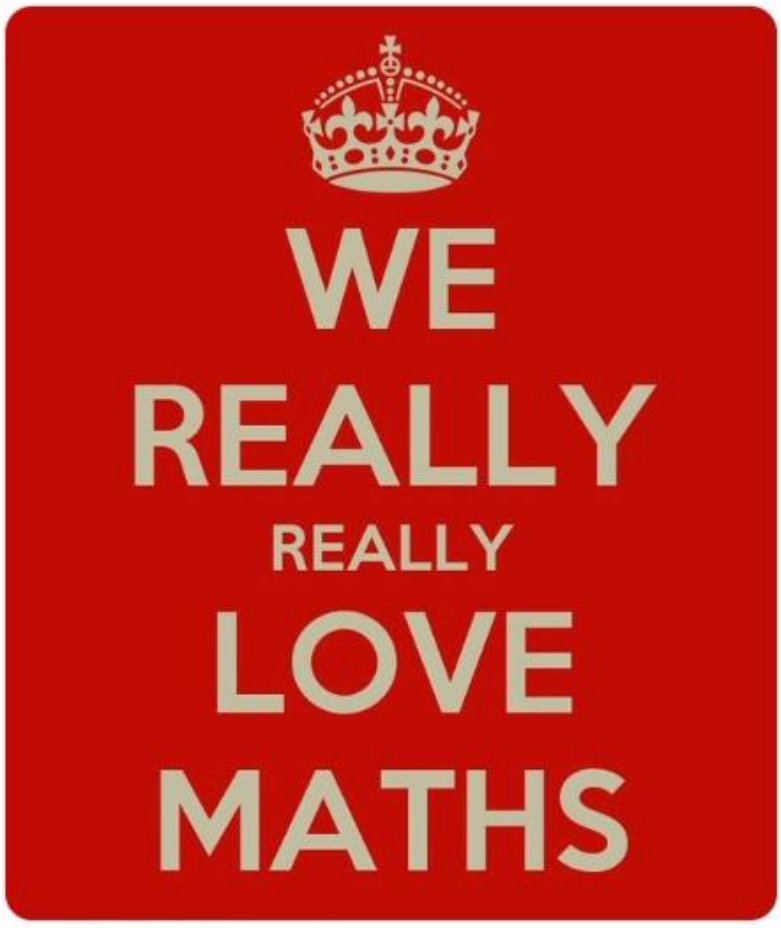
Martyn (He/Him) @martynyeouk · 18h

Final bit of love sharing...

Q4: What Maths Resources do you love?

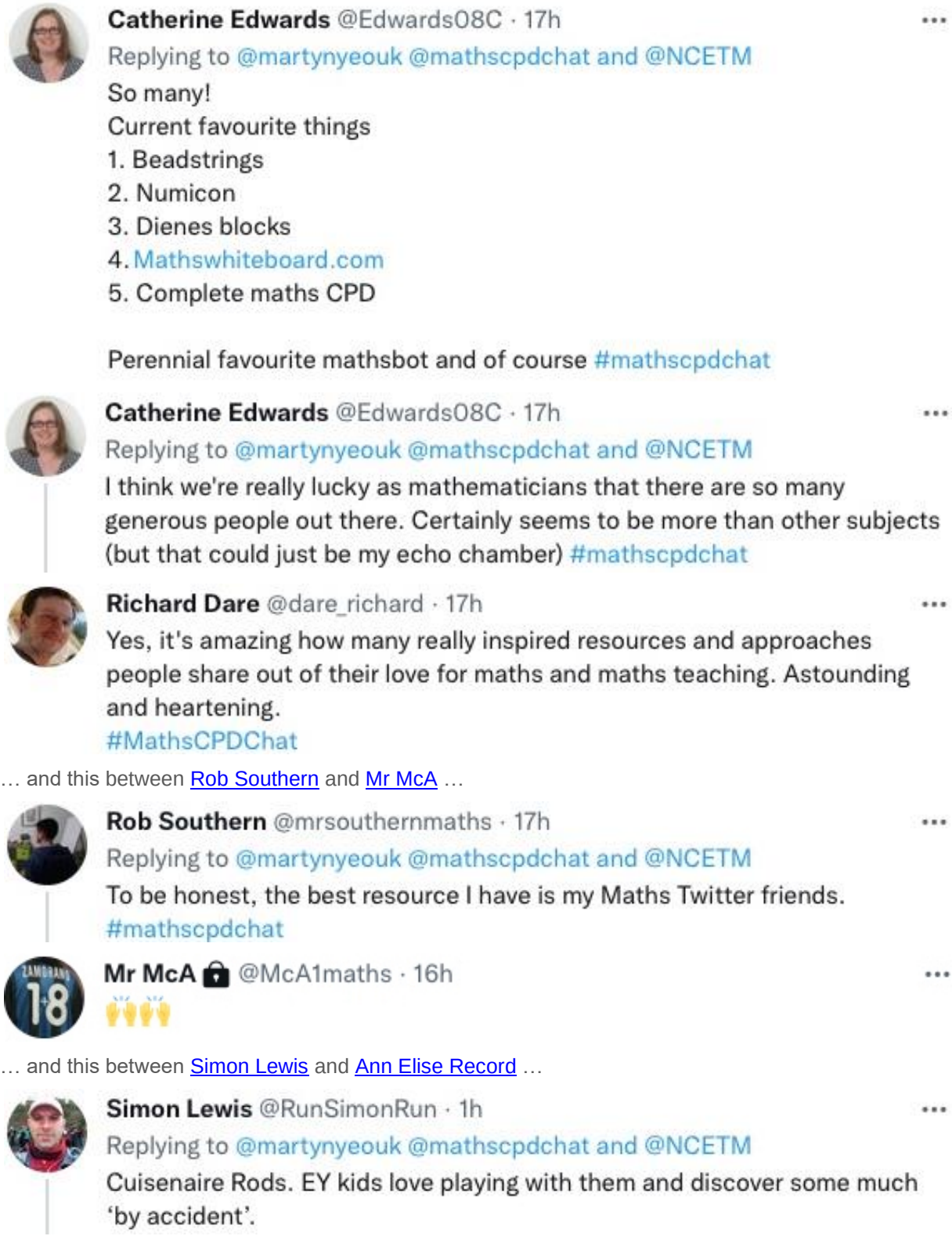
Website, book, manipulative, podcast etc

#mathscpdchat



mathscpdchat and The NCETM

Some responses formed very short 'conversations', such as this one between Catherine Edwards and Richard Dare…



… and this between Rob Southern and Mr McA …

… and this between Simon Lewis and Ann Elise Record …

Ann Elise Record (she/her) @AnnEliseRecord · 1h

I totally agree with #cuisenaire rods! They are so powerful and versatile for various sets of numbers throughout the Ss journeys! They can help move Ss from counting to additive to multiplicative to proportional reasoning!

… and this between Marc Hayes and Kieran Mackle …

Marc Hayes @mrmarchayes · 17h

Replying to @martynyeouk @mathscpdchat and @NCETM

I'm a huge fan of @NCETM , @gareth_metcalfe , @Kieran_M_Ed 's podcast and book, @SarahFarrellKS2's daily puzzles, and of course the incredible Mathsbot website by @StudyMaths #mathscpdchat

Kieran Mackle @Kieran_M_Ed · 5h

Thanks, Marc. Some great pointers here!

… and this between Nikki Arkinstall and Martyn Yeo:

Nikki Arkinstall @ArkinstallNikki · 17h

Replying to @martynyeouk @mathscpdchat and @NCETM

Everything everyone else has said.

We have just purchased a range of great maths picture books which are fab.

I also like Topmarks for great maths online games like Hit the button etc.

#mathscpdchat

Martyn (He/Him) @martynyeouk · 17h

Ohhh! Do check out @MathsStories

Nikki Arkinstall @ArkinstallNikki · 17h

Will do. Thanks

There were also these 'single' responses from Alice Ward-Gow, Ben Sinclair, Amy How, Martyn Yeo, Kayleigh Pearson, Rob Southern and David Helsby:

Miss Ward-Gow @mcwardgow · 17h

Replying to @martynyeouk @mathscpdchat and @NCETM

Too many to list 🙈 @draustinmaths @ChrisMcGrane84 @MathsPadNicola @mrbartonmaths are my go-to at the moment 😀 #mathscpdchat

Ben L Sinclair @mathsacharya · 5h

Replying to @martynyeouk @mathscpdchat and @NCETM

I collect my favourites here:

padlet.com
Maths Teaching Resources
Made with Padlet

Amy How @rekenrek101 · 15h

Replying to @martynyeouk @mathscpdchat and @NCETM

I love rekenreks! I don't think anyone would be shocked to hear me admit that.

Martyn (He/Him) @martynyeouk · 19h

I love @joboaler and always show her videos to my class to help them get a growth mindset **#mathscpdchat**

Kayleigh Pearson @Mrs_P_Deputy · 3h

Replying to @martynyeouk @mathscpdchat and @NCETM

Maybe I made these once upon a time tts-group.co.uk/dip-and-pick-m. 👀

tts-group.co.uk
Dip and Pick Maths Problem Solving Cards
Challenge children to develop a deeper understanding of maths at different levels.

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