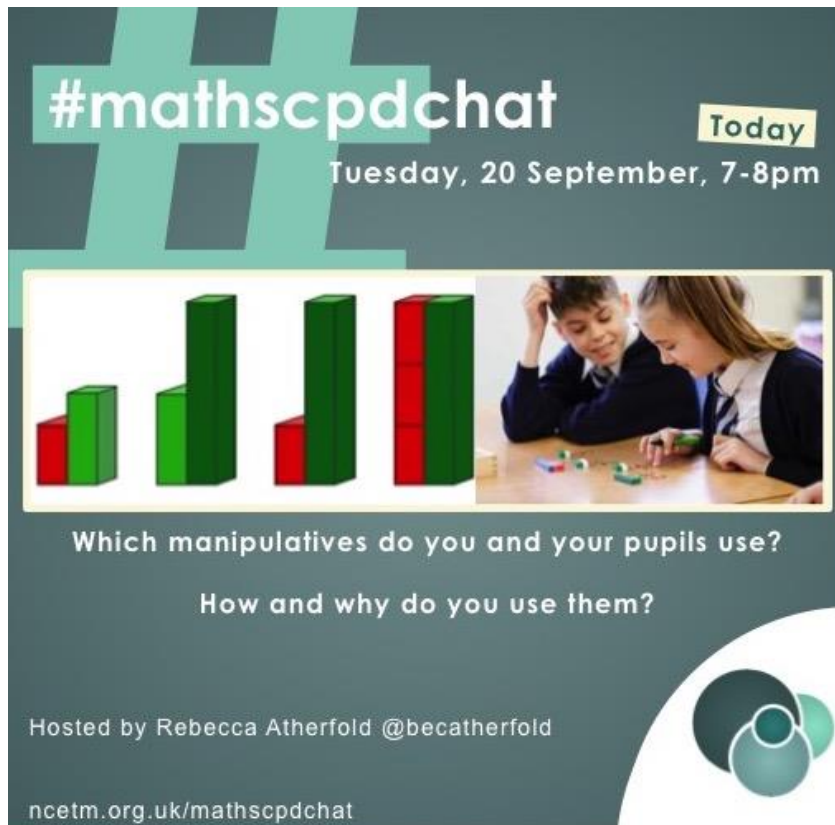


#mathscpdchat 20 September 2022

Which manipulatives do you and your pupils use? How and why do you use them?

Hosted by [Rebecca Atherfold](#)

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



The graphic features a large teal hashtag #mathscpdchat on a dark teal background. To the right, it says 'Today Tuesday, 20 September, 7-8pm'. Below this is a horizontal strip with two images: on the left, a bar chart with four bars of varying heights (red, green, green, red); on the right, two children in school uniforms looking at a table with colorful blocks. Below the images, the text reads: 'Which manipulatives do you and your pupils use? How and why do you use them?'. At the bottom, it says 'Hosted by Rebecca Atherfold @becatherfold' and 'ncetm.org.uk/mathscpdchat'. The NCETM logo is in the bottom right corner.

The links shared during this discussion were:

[Playful Mathematics](#) which is a book by [Dr Helen Williams](#). The author outlines recent research on how children best learn mathematics, and shows how teachers can make mathematics relevant and engaging for their young learners. It was shared by [Rebecca Atherfold](#)

[Pattern Blocks](#) which is a book (and templates) from the ATM by [Simon Gregg](#). The book provides an exploration of Pattern Blocks while addressing key areas of the curriculum, as well as the geometrical and proportional reasoning skills that pupils will need to succeed in maths later on. It was shared by [Dr Helen Williams](#)

[Build it, Say it, Write it - Understanding the concepts of Perimeter and Area using Manipulatives](#) which is a book (and templates) from the ATM by [Pip Huyton](#) and [Alison Borthwick](#). It is written in such a way that tasks can be used across different phases of education according to student's needs. It was shared by [Dr Helen Williams](#) and [Pip Huyton](#)

[Cuisenaire - from Early Years to Adult](#) which is a book (and download) from the ATM by [Dr Helen Williams](#), [Mike Ollerton](#) and [Simon Gregg](#). It illustrates how you can use Cuisenaire® rods with your learners, whatever age they may be. It was shared by [Mary Pardoe](#)

[Learning from variation](#) which is a BERA (British Educational Research Association) report by [Dr Helen Williams](#). The author describes/explains how variation theory can be applied to the use of manipulatives to support understanding of early number. It was shared by [Dr Helen Williams](#)

[Ask the Cognitive Scientist: Do Manipulatives Help Students Learn?](#) which is an article in *American Educator* by Daniel T. Willingham. It was shared by [Christian Bokhove](#)

[Teaching with Algebra Tiles: Axioms, Expressions and Equality](#) which is a *Complete Mathematics* course about teaching with algebra tiles. It was shared by [Mark McCourt](#)

[Teaching with Algebra Tiles: Distribution and Factoring](#) which is another related *Complete Mathematics* course about teaching with algebra tiles. It was shared by [Mark McCourt](#)

[An Introduction to Algebra Tiles for Teaching Mathematics](#) which is an illustrated blog by [Mark McCourt](#). The author's text is enhanced by the inclusion of five explanatory videos. It was shared by [Simon Cox](#)

[Visible Maths on YouTube](#) which is where you can see all the videos that [Peter Mattock](#) produces about using manipulatives to teach maths in schools. It was shared by [Darren Elgar](#)

[Using the Concrete, Pictorial and Abstract \(CPA\) approach to secure mathematics learning in Year 3](#) which is a course provided by Herts for Learning. It was shared by [Kate Kellner-Dilks](#)

[Using the Concrete, Pictorial and Abstract \(CPA\) approach to secure mathematics learning in Year 4](#) which is a similar course provided by Herts for Learning. It was shared by [Kate Kellner-Dilks](#)

[Concrete resources explained for parents: how to use them with your child at home to create a maths master!](#) which is a blog by Emma Johnson. It was shared by [Sophie Bessemer](#)

[Concrete Materials in the Classroom](#) which is a chapter by Julianna Szendrei in the *International Handbook of Mathematics Education* (pp 411-434). It was shared by [ChusSL](#)

[NCETM Secondary Archive](#) which is part of the NCETM website where you will find an archive of all NCETM Secondary Magazines. An image from [Issue 60](#) was shared during the chat by [Mary Pardoe](#)

The [Association of Teachers of Mathematics \(ATM\)](#) 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](#)

[Mathematics in Education and Industry \(MEI\)](#) which 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](#)

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

The host's two opening tweets ...

 **Rebecca Atherfold** @becatherfold · 18h ...
Welcome to tonight's [#mathscpdchat](#) where we will be chatting about all things manipulative. Follow the hashtag to see all the comments and make sure you include [#mathscpdchat](#) in all your tweets - even the replies! Lets get going!




 **Rebecca Atherfold** @becatherfold · 18h ...
Tonight's topic (manipulatives) is cross key stage so I thought we could kick off with some introductions. To start, my background is primary and SEN and I currently work in FE#


... generated the following replies:

 **Catherine Edwards** @Edwards08C · 18h ...
Replying to @becatherfold
Hi I'm secondary maths , only teaching ks3 this year for the first time ever. [#mathsCPDchat](#)

 **Rebecca Atherfold** @becatherfold · 18h ...
Welcome [#mathscpdchat](#) !

 **Jude Mortimer** @Littlemissmath5 · 18h ...
Replying to @becatherfold
Good evening Jude, primary background but now teaching adults (some of the time) [#mathscpdchat](#)

 **Mary Pardoe** @PardoeMary · 18h ...
Replying to @becatherfold
Hi! I taught maths in secondary schools for many years ... HOD in three ... also did some other things in sec maths ed. [#mathscpdchat](#)

 **Lisa** 🐸 @Elsie2110 · 18h ...
Replying to @becatherfold
Evening! I'm Lisa, primary and self confessed Cuisenaire lover!
[#MathsCPDChat](#)



Rebecca Atherfold @becatherfold · 18h ...

Me too! I used them to learn when I was a child so they feel very natural to me [#mathscpdchat](#)



Lisa 🐸 @Elsie2110 · 20h ...

Replying to @becatherfold

They're a relatively new thing to me but I love them for so many things. [#MathsCPDChat](#)



Mary Pardoe @PardoeMary · 18h ...

I think the videos of Caroline Ainsworth's work with Cuisenaire ... and her talks with @petegriffin7 ... are very very useful and interesting!

cuisenaire.co.uk/index.php/home...

[#mathscpdchat](#)

The Cuisenaire® Company

The Original Manufacturer of Cuisenaire® Rods since 1954

We are indebted to Caroline Ainsworth whose video record of her students at primary school actively exploring some mathematical concepts, allows us to share the joy and excitement of children working as mathematicians.

Caroline has achieved an impressive level of understanding for her students and has willingly shared the accrued know-how of some 8 years of self development in the use of the Cuisenaire material, with guidance from Madeleine Goutard and Dr Caleb Gattegno.

Caroline Ainsworth has been interviewed by Pete Griffin from NCETM on her research and work with the Cuisenaire Rods and in particular the work of Madeline Goutard.

Caroline recently won The Award for Teacher of the Year in a Primary School in the Pearson Teaching Awards 2015.

Cuisenaire Rods in the Classroom (15)



Mary Pardoe @PardoeMary · 18h ...

Also, there is an article in the archived NCETM Sec Mag 60 that may be useful to some ...

ncetm.org.uk/news-features/...

[#mathscpdchat](#)



Focus on...numbers in colour

"Georges Cuisenaire showed in the early fifties that students who had been taught traditionally, and were rated 'weak', took huge strides when they shifted to using the (Cuisenaire) material. They became 'very good' at traditional arithmetic when they were allowed to manipulate the rods."

[The Science of Education Part 2B: the Awareness of Mathematization](#) by Caleb Gattegno.

Because students who cannot do arithmetic cannot function effectively in most mathematical situations that arise in life, it is worth exploring any resource that may help them. And teachers have found that Cuisenaire materials can help all learners, not only young children. They have found that when students think about and manipulate unmarked Cuisenaire rods the students use their natural thinking skills to learn to do arithmetic competently and naturally.

-  **Lisa** 🗨️ @Elsie2110 · 20h ...
I use and encourage the use of manipulatives a lot in primary. I find it easier to explain underlying concepts & reason about patterns if I have stuff.
[#MathsCPDChat](#)
-  **Rebecca Atherfold** @becatherfold · 20h ...
Replying to @Elsie2110
Stuff can be hard to find. Are you well resourced? [#mathscpdchat](#)
-  **Lisa** 🗨️ @Elsie2110 · 20h ...
Yes and no. I work across a Trust and it's mixed. Some have everything, others just don't have enough. Money is so tight. [#MathsCPDChat](#)

The responses to the host's (Rebecca's) first main question ...

-  **Rebecca Atherfold** @becatherfold · 18h ...
I'd love to hear how people feel about using manipulatives! They were part of my kit with younger children but with teenagers it feels much less instinctive [#mathscpdchat](#)

... were replies (some of which formed conversations) revealing some ways in which some teachers use various manipulatives with students of various ages at different stages in their learning of mathematics. For example, this conversation (which continued into the day following the actual [#mathsCPDchat](#)) focused on general issues (such as ways of providing colleagues with easy access to useful/helpful reading material) that can arise in discussions about using manipulatives ... it also focused specifically on the use of Cuisenaire® rods:



Catherine Edwards @Edwards08C · 18h

...

Replying to @becatherfold

I've always used diagrams and I trained in numicon for use with nurture groups (15years ago ish).

It's only in recent years I've introduced manipulative across all age and prior attainment. The main difference tends stop be how quickly they abandon them #mathsCPDchat



Rebecca Atherfold @becatherfold · 18h

...

Replying to @Edwards08C

How did 15 year olds take to numicon? I love it, but have only used in with much younger children #mathscpdchat



Catherine Edwards @Edwards08C · 18h

...

Tend to use numicon with v low prior att. Generally they are happy to use because it makes them feel successful.

Use it as a physical support to a written method they are happier. Double sided counters and algebra tiles and starting with cuniserre in other classes #mathscpdchat



Lisa 🐸 @Elsie2110 · 18h

...

I agree! I find that 'maths talk' happens much more easily with manipulatives. Do you find that with older learners? #MathsCPDChat



Rebecca Atherfold @becatherfold · 18h

...

Very much! I read @helenjwc book 'Playful Maths' over the summer and it made me think about using manipulatives as away of giving older learners some space to 'play' with and discuss ideas #mathscpdchat



Dr Helen J. Williams 🇪🇺 🇺🇰 @helenjwc · 16h

...

Awww thank you! I really think manipulatives are essential at all ages - and yes I think the issue is that Ss move away from them more quickly as they get older. But everyone needs to move in and out of using manipulatives (and their heads) to deepen their understanding.



Kerri Smith @FishyKES · 20m

...

We have to make the use of manipulatives normal in every primary classroom and encourage all students to see them as an aid to understanding: they are NOT just for junior students!



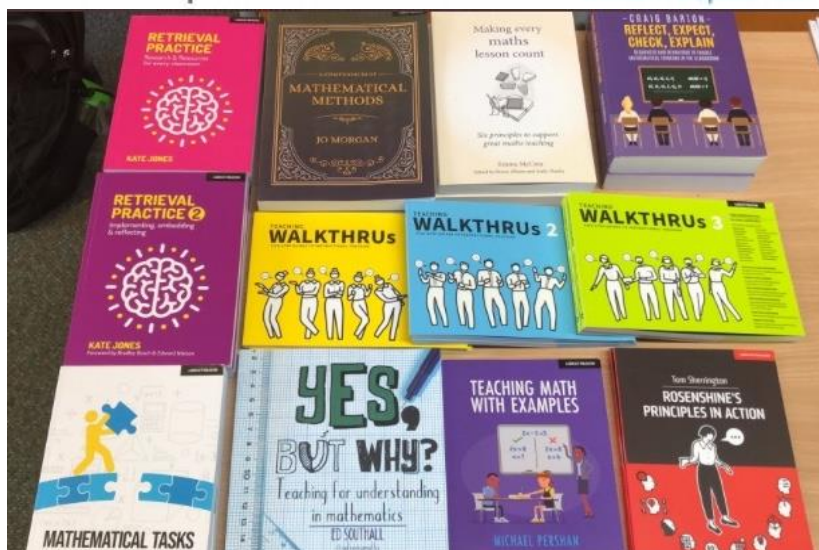
Dr Helen J. Williams 🇪🇺 🇺🇰 @helenjwc · 3m

...

Yes - And not just for students who "don't understand". #manipulatives need to be available to all; every #maths lesson. 🙌

The following tweet from above is repeated to show how it generated another branch of the conversation:

- Rebecca Atherfold** @becatherfold · 18h ...
Very much! I read @helenjwc book 'Playful Maths' over the summer and it made me think about using manipulatives as away of giving older learners some space to 'play' with and discuss ideas #mathscpdchat
- Lisa** 🐸 @Elsie2110 · 18h ...
Replying to @becatherfold @Edwards08C and @helenjwc
That's on my every growing list. I need to learn that it's OK to spend some of my work time reading CPD! #MathsCPDChat
- Rebecca Atherfold** @becatherfold · 18h ...
Yes! I see schools on twitter that have teacher libraries and often wonder if there is time made for this #mathscpdchat
- Catherine Edwards** @Edwards08C · 18h ...
New this year We have an hour directed cpd time each week. sometimes it's whole school, sometimes small groups so if you aren't required in a session you are expected to read or research or learn #mathsCPDchat
- Rebecca Atherfold** @becatherfold · 18h ...
That's AMAZING! I would be bankrupt within a week though if I had another excuse to buy maths books! #mathscpdchat
- Catherine Edwards** @Edwards08C · 18h ...
Got to use your @TeacherTapp vouchers, although we have a fairly extensive CPD library too #mathscpdchat
- MrHawesMaths** @HawesMaths · 18h ...
Lucky enough to have incorporated it as part of my budget for the year. Ring fenced so it won't get touched and means I can get most recent relevant books. Spent £££ for the first order #mathscpdchat



- Lisa** 🐸 @Elsie2110 · 18h ...
Replying to @HawesMaths @Edwards08C and 3 others
You might find my blog interesting / useful for summaries of some of these.
- Tazreen Tershanah** @tershanah · 18h ...
What an amazing collection. I would also add visible maths by Peter Mattock in the mix. Visual reps with some great potential connections to concrete manipulatives #mathscpdchat
- MrHawesMaths** @HawesMaths · 18h ...
That is in my next book order for Xmas. 😊
- Dr Helen J. Williams** 🇪🇺 🇷🇺 @helenjwc · 17h ...
I think @MrMattock's book would be good for a sec maths teacher looking to increase manipulative use.
- Lisa** 🐸 @Elsie2110 · 18h ...
And a new one out at the end of the month!

The following tweet from above is repeated to show how it prompted more comments:

- Rebecca Atherfold** @becatherfold · 18h ...
That's AMAZING! I would be bankrupt within a week though if I had another excuse to buy maths books! #mathscpdchat
- Mary Pardoe** @PardoeMary · 18h ...
If you are an @ATMMathematics member there's lots' of stuff that won't cost much?
EG ... just on Cuisenaire there's this of course ...
atm.org.uk/shop/ACT103pk
#mathscpdchat



Cuisenaire - from Early Years to Adult, Book and Download

ATM Number 1 Best Seller, Cuisenaire - from Early Years to Adult illustrates how you can use Cuisenaire rods with your learners, whatever age they may be. Written by Helen Williams, Mike Ollerton and Simon Gregg. EYFS, KS1, KS2, KS3, KS4, KS5, Adult. Available from £12

Non-Member Price: £16.00
Member Price: £12.00

Quantity [Add to cart](#)



Mary Pardoe @PardoeMary · 18h

... and MASSES of other articles etc ... just on Cuisenaire!

atm.org.uk

[#mathscpdchat](#) (which I forgot!)



Mathematics Teaching 273

Journal



22/10/2020

One Primary Teacher's Personal Learning Journey in Teaching

A few years ago, Caroline Ainsworth, who teaches in a Devon primary school, became interested in the work of the educational theorist Caleb Gattegno and the mathematics teacher Madeleine Goutard. Prompted by their ideas and practice, she experimented with the use of **Cuisenaire rods** as a tool for helping children develop a deep understanding and mastery of number, as well as a creative and flexible approach to...



23/06/2020

CPD Video Shorts

Page - A collection of short videos presented by members of the ATM covering mathematical activities for all levels. Using Pattern Blocks - With Mike Ollerton and Helen Williams **Cuisenaire Rods** - With Mike Ollerton and Helen Williams Manipulatives (Linking Cubes) - With Mike Ollerton and Helen Williams How do you know? - By Heather Davis, Chair of General Council...



02/09/2019

Working with Rods & Why

Page - Working with Rods and Why The articles in this booklet, Working with Rods and Why, bring together inspirational writings on the theory of reforming mathematics education together with articles by primary teachers who exemplify the Cuisenaire-Gattegno approach in practice. Other reading: Cuisenaire - from Early Years to Adult, written by Mike Ollerton and Helen Williams **Cuisenaire Rods**...



26/02/2019

Mathematics Teaching 265

Journal



16/11/2018

2019 Cuisenaire CPD

Page - This day course is a practical, hands-on workshop about using **Cuisenaire rods** with learners from the early years to KS3. It is for educators both familiar and unfamiliar with **Cuisenaire rods** as a manipulative. The course will be run by authors of the ATM best-selling publication, Cuisenaire from Early Years to Adult, Helen Williams and Mike Ollerton. The day will develop tasks from the...



Dr Helen J. Williams 🇪🇺 🇷🇺 @helenjwc · 16h

And there's these @ATMMathematics books: atm.org.uk/shop/Cuisenaire...

atm.org.uk/shop/Pattern-B...

atm.org.uk/Shop/KS3/Build..

[#CPDmathschat](#)



Becky Clinton @beckycmaths · 17h

Replying to @becatherfold

Could it be that it is more about giving the students opportunity to reason and explain and that using manipulatives could be a way to show their thinking?



Mary Pardoe @PardoeMary · 37m ... and PROMPT their thinking? ...



Becky Clinton @beckycmaths · 1m Definitely 100 ...

A quote retweet of a comment in the conversation shown above continued that conversation a little further:



Joanne Green @MsJoanneGreen · Sep 20 ...
#mathscpdchat @becatherfold Is there a secondary school and a college equivalent? Or even one for university and apprenticeships levels?



Rebecca Atherfold @becatherfold · Sep 20

Replying to @Elsie2110 and @Edwards08C

Very much! I read @helenjwc book 'Playful Maths' over the summer and it made me think about using manipulatives as away of giving older learners some space to 'play' with and discuss ideas #mathscpdchat



Rebecca Atherfold @becatherfold · Sep 20 ...

Replying to @MsJoanneGreen

The closest I can think of is Visible Maths and Yes but Why? But they aren't quite the same. @AlfColes book is well worth a read imo #mathscpdchat



Lisa 🐸 @Elsie2110 · Sep 20 ...

Replying to @MsJoanneGreen and @becatherfold

I recommend Visible Maths by @MrMattock for people after further information on representations, but I haven't read Helen's book to know if it's comparable. #MathsCPDChat

This is a different conversation, in which virtual manipulatives are mentioned, that was also generated by the host's (Rebecca's) first main question (which is repeated first as a reminder)

...



Rebecca Atherfold @becatherfold · 18h ...

I'd love to hear how people feel about using manipulatives! They were part of my kit with younger children but with teenagers it feels much less instinctive #mathscpdchat



Jude Mortimer @Littlemissmath5 · 18h ...

Replying to @becatherfold


I'd like to use algebra tiles more with adult learners but I've never quite organised it well enough and struggle with time.

 **Catherine Edwards** @Edwards08C · 17h ...
Maths bot has digital manipulatives including algebra tiles. Using them to visually support explanations is a good start to introducing more widely [#mathscpdchat](#)


 **MrHawesMaths** @HawesMaths · 17h ...
My year 3 and 4 teachers love using this as well as the physicals means they can demonstrate on the board and then let pupils have a go with what is on their desk. [#mathscpdchat](#)

 **Catherine Edwards** @Edwards08C · 17h ...
Plus the sound effects are fun! [#mathscpdchat](#)

... and students' attitudes were mentioned here:

 **Director of Maths** @DirectorMaths · 17h ...
Replying to [@becatherfold](#)
The biggest barrier I've found is in staff knowledge and having the time for CPD. In many ways it is easier with Hear 7 because they are used to them from KS2 but it's often hard to ask students in Y9 say to take a step back in order to take 3 steps forward [#mathscpdchat](#)

 **Rebecca Atherfold** @becatherfold · 17h ...
Definitely! Although to my surprise my FE students were very receptive. But its a new start for them and I think that makes a difference [#mathscpdchat](#)

 **Director of Maths** @DirectorMaths · 17h ...
Replying to [@becatherfold](#)
Maybe that's a maturity thing? A recognition that whatever it takes to understand something deeply is to be engaged with? [#mathscpdchat](#)

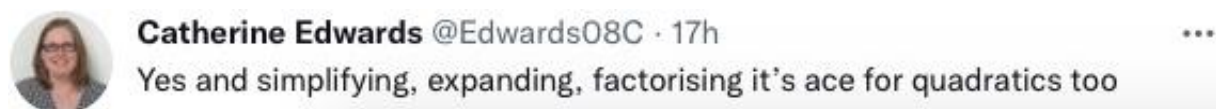
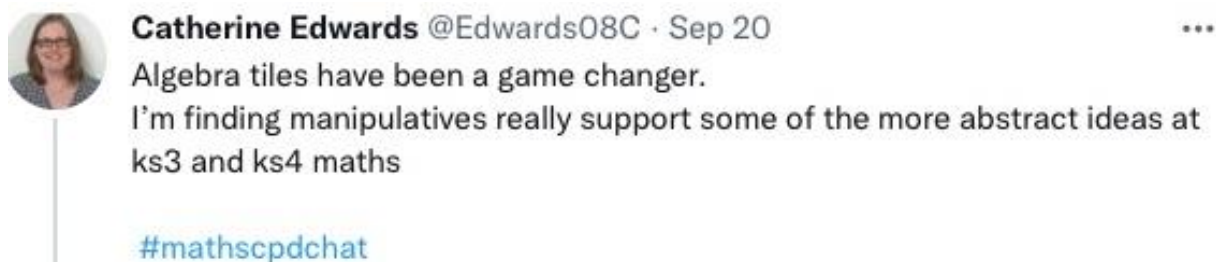
 **Rebecca Atherfold** @becatherfold · 17h ...
Or they see it as a way of avoiding 'hard maths' 😊 [#mathscpdchat](#)

The screenshots below (linked to Twitter) show all the replies to Rebecca's second main question, and the discussions that they generated. Ways of using some particular manipulatives to support some particular learning were discussed. There were also some more general comments, including a conversation about adopting whole-school/department approaches in the use of manipulatives. A few responses prompted by the question were somewhat 'off-topic'.

In the following part of the summary only, showing all the single-replies and discussions that were in response to the host's second main question, you can **click on any screenshot-of-a-tweet to go to that actual tweet on Twitter**. This was that second main question from [Rebecca Atherfold](#):



In this conversation [Catherine Edwards](#) and [Miss White](#) discussed **algebra tiles** and the maths topics the learning about which their use might support ...



... and in this long discussion, between [Lisa](#), [Catherine Edwards](#), [Pip](#), [Rebecca Atherfold](#), [Neil Almond](#) and [Tazreen Kassim-Lowe](#), the focus was on some ways of using **place value counters**, **dienes blocks**, **Cuisenaire® rods**, **double-sided counters** and **Numicon** to help students understand whole numbers and fractions:



 **Catherine Edwards** @Edwards08C · 20h ...
Replying to @Elsie2110 and @becatherfold

Have you seen the area model with dienes blocks for short and long divisions? #mathsCPDchat

 **Lisa** 🌱 @Elsie2110 · 20h ...

Yes and I love it for connecting to multiplication. Its so visual and...
Obvious? But for the written procedure itself I like the counters.

Multiplying and dividing fractions using Cuisenaire is a favourite of mine too. #MathsCPDChat

 **Pip - Mathematics** @AccomplishEdu · 20h ...

Lots of ideas to use manipulatives in the new publication from ATM
atm.org.uk/Shop/Build-it..

 **Rebecca Atherfold** @becatherfold · 20h ...

I think this will be excellent for those area/perimeter issues! And if you join the @ATMMathematics you get a free E download of a book of your choice I believe! #mathscpdchat

 **Lisa** 🌱 @Elsie2110 · 20h ...

Replying to @Elsie2110 and @becatherfold


At KS3 double sided counters for directed numbers blows minds every time it is shared. #MathsCPDChat

 **Neil Almond** 🇬🇧 @Mr_AlmondED · 20h ...

Pfft. Year 6 love it too!

 **Lisa** 🌱 @Elsie2110 · 20h ...

Fair enough - I've not done zero pairs with Y6 before!

 **Tazreen Tershanah** @tershanah · 20h ...

Numicon works really well do when asking the question 'how many of the divisor fit in to the dividend?' #mathscpdchat

Double-sided counters were also mentioned by [Gemma Scott](#) and [Janine Allen](#):

 **Director of Maths** @DirectorMaths · 20h ...

Replying to @becatherfold

Negative numbers- they've helped us get rid of the "tricks" people used to use #mathscpdchat



Janine Allen @J9Allen · 20h

Being introduced to zero pairs with double sided counters was a game changer for me [#mathscpdchat](#)

An example of one of the many ways in which **Cuisenaire® rods** can represent (and prompt awareness of) relationships between fractions was shared by [Mary Pardoe](#), prompting replies from [Rebecca Atherfold](#) and [Maths@Pioneer](#) ...



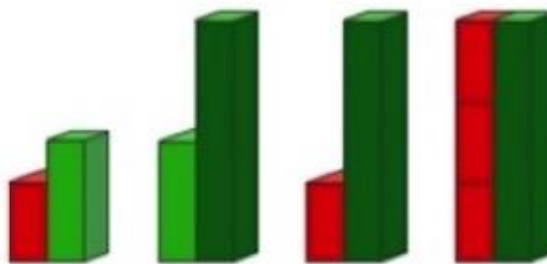
Mary Pardoe @PardoeMary · 20h

Replying to [@becatherfold](#)

Still on Cuisenaire ...playing with them (by students of ANY age) can lead to 'seeing' number relationships ... e.g. ... (From NCETM Sec Mag 60) [#mathscpdchat](#)

Fractions of fractions

For example, two thirds of one half is one third:



(link provided above)



Rebecca Atherfold @becatherfold · 20h

Looks like a must read for me [#mathscpdchat](#)



Maths@Pioneer @MathsPioneer1 · Sep 21

Replying to [@PardoeMary](#) and [@becatherfold](#)

One of my fav tools. Algebraic thinking without numbers for my young folk is fantastic and accessible by all learners.

... and the host's second main question (this is a reminder of what it was) ...



Rebecca Atherfold @becatherfold · 20h

Are there any concepts that lend themselves particularly well to manipulatives? [#mathscpdchat](#)

... prompted [Darren Elgar](#), [Rebecca Atherfold](#), [Dr Helen Williams](#) and [Amanda Wells](#) to share similar (to each other) thoughts:



Darren Elgar @ElgarDarren · 21h

Replying to [@becatherfold](#)


It may be easier to think of those that don't.

 **Rebecca Atherfold** @becatherfold · 20h ...
That was my next question! #mathscpdchat

 **Dr Helen J. Williams** 🇪🇺 🇬🇧 @helenjwc · 16h ...
Replying to @becatherfold
Can't think of one that doesn't tbf #mathscpdchat

 **Amanda** @WellsAmandaj · 4h ...
Replying to @becatherfold
For me in key stage one I don't think there is anything that doesn't. Place value, doubles and halves, the four operations, number bonds.

The link to a blog was shared by [Sophie Bessemer](#), with a reply from [Rebecca Atherfold](#) ...

 **Sophie Bessemer** @sophiebessemer · 5h ...
Replying to @becatherfold
This blog was originally written by a primary school maths leader for home learning but there are lots of useful applications and examples of manipulatives in practice.



thirdspacelearning.com

Concrete resources explained for parents: How to use them with your ...
What are concrete resources and how can you use them to help your primary school child improve their maths skills and knowledge. For ag...

 **Rebecca Atherfold** @becatherfold · 1h ...
Thank you! This is fab

A reply to the host's second question, from the host [Rebecca Atherfold](#) herself, prompted responses from [Catherine Edwards](#), [Gemma Scott](#), [Sally Curtis](#), [Mr Hawes](#), [James Swann](#), and [Leanne](#):



Rebecca Atherfold @becatherfold · 22h

...

I must confess that I use manipulatives mainly for number work - showing what is happening. I haven't really tried algebra tiles - do you think a whole school approach is necessary here? [#mathscpdchat](#)



Catherine Edwards @Edwards08C · Sep 20

...

Replying to [@becatherfold](#)

It is easier if they have met double sided counters and zero pairs before. Sometimes You do have to insist they use the tiles for things they can already do so they understand the rules before trying complex ideas. But if they trust you they will usually go with you [#mathsCPDchat](#)



Director of Maths @DirectorMaths · 22h

...

Replying to [@becatherfold](#)

I would say a whole school approach is needed. Manipulatives support the learning journey until the abstract is understood and for some topics/ students this will take longer than a year and for any students they may need to be re introduced. [#mathscpdchat](#)



Sally Curtis @Ms_Curtis_Maths · 22h

...

I love algebra tiles. They have improved my explanations of things like expanding brackets as students have the visual to support. Agree with the other comments about it taking time to build your own confidence though. I also think whole school consistency is key. [#mathscpdchat](#)



MrHawesMaths @HawesMaths · 22h

...

Replying to [@becatherfold](#)

This is one on my developmental areas as I am notoriously poor at using manipulatives. Again so lucky to have a budget for this and have a member in my department who loves it. Rolling out class sets for each teacher to use when they need to. [#mathscpdchat](#)



Rebecca Atherfold @becatherfold · 22h

...

It makes such a difference if somebody can support you. I'm nervous that I will mess up algebra tiles and have entirely the opposite effect.... [#mathscpdchat](#)



James @JameswSwann · Sep 21

...

Replying to [@becatherfold](#)

The White Rose Maths scheme uses manipulatives in their Year 6 algebra scheme and for me and my pupils it was groundbreaking. Conceptualising an unknown as being different from a value really helped them to solve simple equations and represent expressions.



Leanne @LeanneMathsUK · Sep 21

Replying to @becatherfold

I would say that a whole school approach is needed to embed it from early on, they can be taken away once the understanding is there. I have seen a huge improvement in student engagement and understanding since using algebra tiles in lessons.



Leanne @LeanneMathsUK · Sep 22

I should add that I always start with developing the understanding that one negative and one positive tile creates zero which then is used quite often throughout.

A tweet from [Priya Shah](#) was quote-retweeted by [Tazreen Kassim-Lowe](#), and [Rebecca Atherfold](#) responded to it:



Tazreen Tershanah @tershanah · Sep 20

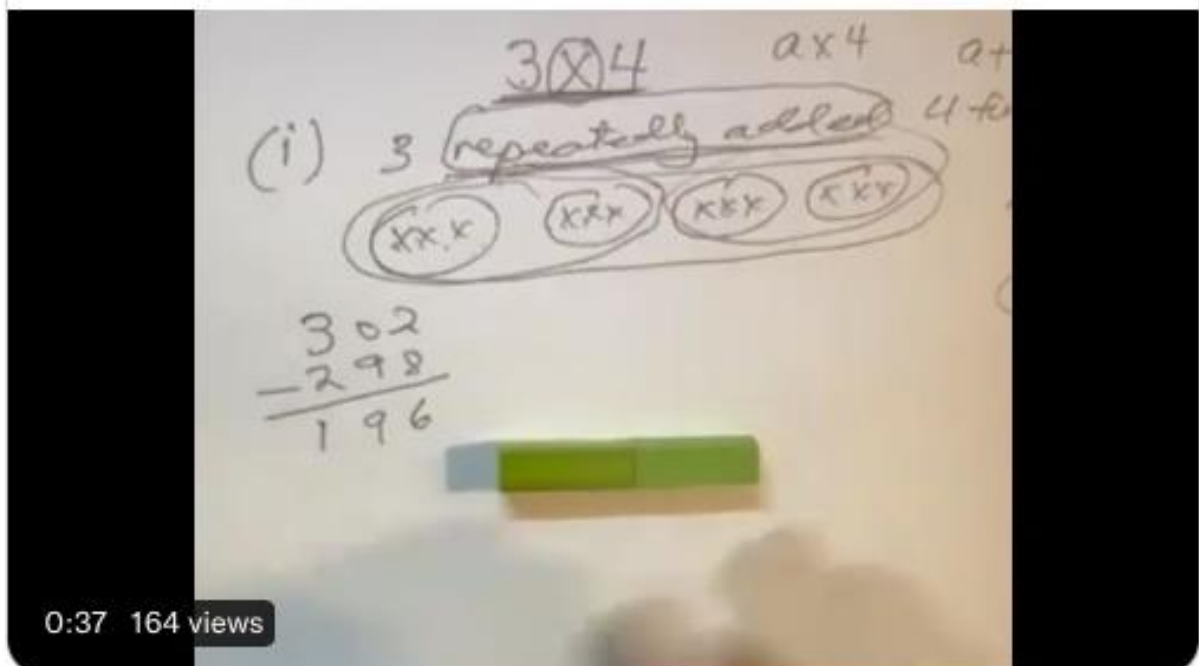
Another example of cuisinere and the power of 'lifting' (worded by @mathematicsctlm) students from one conceptualisation to the next e.g. addition as linear and 1Dvs multiplication as 2D. #mathscpdchat



Priya Shah @mathsdives · Sep 20

Supporting the numerical calculation of '3x4' at the first stage of repeated addition by using place value shown by @Mathematicsctlm

#primary #teachers and those who #teach #multiplication, how do you support the #numerical #calculation in multiplication facts?



0:37 164 views



Rebecca Atherfold @becatherfold · Sep 20

Replying to @tershanah and @Mathematicsctm

I will make time to look at this properly! #mathscpdchat

A tweet from [Joanne Green](#) about writing numbers in Standard Form, generated replies from [Rebecca Atherfold](#), [Catherine Edwards](#), [Mary Pardoe](#), [Jonathan Hall](#), and [Dr Anna](#) ...



Joanne Green @MsJoanneGreen · 20h

@becatherfold #mathscpdchat It's a shame there are no manipulatives for Standard Form 😞 This means that I have to teach Algebra first and then use those numbers for Standard Form.



Rebecca Atherfold @becatherfold · 20h

Replying to @MsJoanneGreen

I think standard form is a great example of something that seems really abstract! Would be very interested to know if anybody has suggestions about making it more concrete? #mathscpdchat



Catherine Edwards @Edwards08C · 19h

I mostly use a place value chart and a gattano (not sure on spelling). I do lay the ground work right from the very first mention of place value at ks3 introducing the idea of 100 is 10^2 etc #mathscpdchat



Mary Pardoe @PardoeMary · 12h

Replying to @Edwards08C @becatherfold and @MsJoanneGreen

This is a great/very-useful virtual (manipulative) Gattegno chart from @StudyMaths, Catherine ... which I've loved using ... is it the one that you've used?

mathsbot.com/tools/gattegno...

#mathscpdchat



Catherine Edwards @Edwards08C · 10h

Yes

Also recently saw @studymaths demo this one

mathsbot.com/grids/gattegno which I'll be using in a few weeks when I get to standard form with y7

#mathscpdchat



Jonathan Hall @StudyMaths · 10h

Thanks Catherine. Yes, this is my "new and improved" version!




Dr Anna @Dr_anna_maths · Sep 20

Interesting, I just moved to a new school and the approach is to introduce place value in Yr 7 with powers of ten e.g. 10^2 instead of 100. I wasn't sure how they would do, but students seemed to take to it well! #mathscpdchat

 **Rebecca Atherfold** @becatherfold · Sep 20 ...
Replying to @Dr_anna_maths @Edwards08C and @MsJoanneGreen
This is interesting - I wonder how many students don't make that connection #mathscpdchat

 **Dr Anna** @Dr_anna_maths · Sep 20 ...
I certainly wouldn't instinctively think of that way. But then $x10^3$ means move 3 places to the left and $x10^{-3}$ means move 3 to the right which is totally logical now I've seen it that way 😊 #mathscpdchat

 **Rebecca Atherfold** @becatherfold · Sep 20 ...
I wouldn't either but to be honest there are a lot of connections in maths that I didn't make until I started teaching maths #mathscpdchat

 **Catherine Edwards** @Edwards08C · Sep 20 ...
Replying to @Dr_anna_maths @becatherfold and @MsJoanneGreen
I link metric units to it too, helps tie all the bits together #mathscpdchat

... and then some quote-retweets from [Joanne Green](#) prompted replies from [Lisa](#) and [Dr Anna](#):

 **Joanne Green** @MsJoanneGreen · 22h ...
#mathscpdchat @becatherfold When I was a pupil at school we took out school textbooks from the library. We covered them in wrapping paper to keep them looking new. We had to pay a deposit for some books that needed to be returned. Not done anymore, why not?

 **Rebecca Atherfold** @becatherfold · 22h
Replying to @MsJoanneGreen
I think standard form is a great example of something that seems really abstract! Would be very interested to know if anybody has suggestions about making it more concrete? #mathscpdchat

 **Lisa** 🐸 @Elsie2110 · 22h ...
Replying to @MsJoanneGreen and @becatherfold
Do schools still use textbooks in the same way? I think primary schools move away from workbooks like I had when I was that age.
#MathsCPDChat



Joanne Green @MsJoanneGreen · Sep 20

#mathscpdchat @becatherfold @Elsie2011 Textbooks are still needed each lesson as they are different to the sheets, and they are more like dictionaries or encyclopaedias really. They remind pupils of what they already know, but in more detail. E.g, graphs & Statistics.



Lisa @Elsie2110 · Sep 20

Replying to @MsJoanneGreen and @becatherfold

Do schools still use textbooks in the same way? I think primary schools move away from workbooks like I had when I was that age.

#MathsCPDChat



Joanne Green @MsJoanneGreen · 21h

#mathscpdchat @becatherfold Dienes have a hundred squares and a thousand per box, so they are too large to show the speed of light, and they don't show numbers small enough for the radius of atoms. Something new is needed.



Rebecca Atherfold @becatherfold · 22h

Replying to @MsJoanneGreen

I think standard form is a great example of something that seems really abstract! Would be very interested to know if anybody has suggestions about making it more concrete? #mathscpdchat



Joanne Green @MsJoanneGreen · Sep 20

#mathscpdchat @becatherfold @Dr_anna_maths Perhaps you could show us one day on one of these CPDs?



Dr Anna @Dr_anna_maths · Sep 20

Replying to @Edwards08C @becatherfold and @MsJoanneGreen

Interesting, I just moved to a new school and the approach is to introduce place value in Yr 7 with powers of ten e.g. 10^2 instead of 100. I wasn't sure how they would do, but students seemed to take to it well! #mathscpdchat



Dr Anna @Dr_anna_maths · Sep 20

Replying to @MsJoanneGreen and @becatherfold

Nothing too fancy, just labelling the columns as 10^{-3} as well as the word thousandths and expecting students to convert such as 'write 0.04 as a fraction, in words and as a multiple of a power of 10' #mathscpdchat

There were single replies to the host's second main question (which, as a reminder again, was) ...



Rebecca Atherfold @becatherfold · 20h

...

Are there any concepts that lend themselves particularly well to manipulatives? [#mathscpdchat](#)

... from [Mike Ollerton](#), [Professor Alison Clark-Wilson](#), [Dee Vijayan](#), [K Bentley](#), [Karen Clyne](#) and [Zoe Anne](#):



Mike Ollerton @MichaelOllerton · 12h

...

Replying to @becatherfold

This is an interesting question. So I did a bit of brain-wracking wrt using Cuisenaire without giving the rods numbers. This leads to the development of algebraic thinking which, in turn, is somewhat fundamental, especially as this means algebra precedes numerical thinking.



Professor Alison Clark-Wilson @AliClarkWilson · 8h

...

Replying to @becatherfold

...and don't forget digital manipulatives such as TouchCounts or tasks with well-designed "sliders" that let learners vary some values to make important generations!



DMaths MCCT @DeeVijayan · 17h

...

Replying to @becatherfold

Collecting like terms and fractions of quantities [#mathscpdchat](#)



K Bentley @MrsB874 · 19h

...

Replying to @becatherfold

Directed numbers have been a game changer at KS3. Just starting to look at cuisinier rods and how we can use them.



Dame Karen Clyne 🇺🇰 @queenkarenclyne · 23h

...

Replying to @becatherfold

Exchanging & partitioning (can you tell I'm doing Y2 Place Value WRM?)



Zoe Anne @spinningzoo · Sep 21

...

Replying to @becatherfold

Mixed numbers and improper fractions - numicon of the same size as the denominator, cm cube squares (same amount as numerator). Nice visual way of showing the relationship between wholes and fractions and shifting between them.

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

The next main question from the host ...


 **Rebecca Atherfold** @becatherfold · Sep 20 ...
What barriers are there to using manipulatives? #mathscpdchat

... prompted thoughts about supporting the maths teaching of colleagues in primary schools:

 **Lisa** 🇬🇧 @Elsie2110 · Sep 20 ...
Replying to @becatherfold
Primary teachers say: mess, children fiddling / building. I think subject knowledge is a barrier - it's great to have them but some teachers don't know how to use them (yet)! #MathsCPDChat

 **Rebecca Atherfold** @becatherfold · Sep 20 ...
Yes I think they require a deep level of subject knowledge. How do you support teachers who are also expected to have a deep subject knowledge of all the other curriculum areas? #mathscpdchat

 **Lisa** 🇬🇧 @Elsie2110 · Sep 20 ...
With difficulty! Little and often really. The curriculum is laced with representations and examples and I'm developing 'just in time' PD videos to support. But it's hard when you have to be expert in all subjects! #MathsCPDChat

 **Rebecca Atherfold** @becatherfold · Sep 20 ...
Really tough! #mathscpdchat

This conversation, which continued after the official end of the chat, challenged the view that the use of manipulatives merely provides support for students who are finding maths hard:

 **Etak Airotciv** @etaknipsa · Sep 20 ...
Replying to @becatherfold
Knowing which to use for what.. Knowing where the sweet spot is to scaffold but then when to remove..use of visualisation can help there. Bring brave enough esp in KS2 to recognise the need ... knowledge of subject pedagogy to know the next smaller step to insert when.

 **Dr Helen J. Williams** 🇪🇺 🇺🇦 @helenjwc · Sep 20 ...
A mind a lack of appreciation for their power, in the mistaken belief they're only for children (in ks2 plus) that are finding maths hard.

(Note: the tweet above was intended to begin 'And a lack of appreciation for their power, ...')



Rebecca Atherfold @becatherfold · Sep 20

...

Very true. I didn't have time in the [#mathscpdchat](#) to talk about this but [@DrHelenDrury](#) was influential for me when it comes to using manipulatives to extend rather than just support



Helen Drury @DrHelenDrury · 17h

...

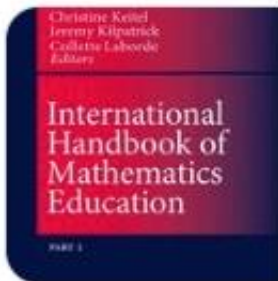
I wonder if it (using manipulatives) isn't all wrapped up in the idea of maths as being as much (more) about concepts as processes?



ChusSL @chussiabaleston · 9h

...

link.springer.com/chapter/10.1007/978-1-4939-9826-7_10.. Concrete Materials in the Classroom
Julianna Szendrei : "Educational materials are not miracle drugs; their productive use requires planning and foresight"



link.springer.com

Concrete Materials in the Classroom

Concrete materials have a long history in the mathematics classroom, although they have not ...

The following discussion, also in response to Rebecca's question ...



Rebecca Atherfold @becatherfold · Sep 20

...

What barriers are there to using manipulatives? [#mathscpdchat](#)

... focussed on the general debate about whether manipulatives help students learn:

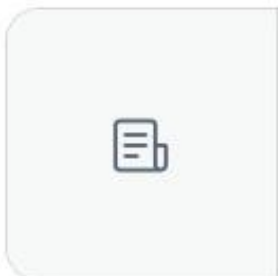


Christian Bokhove @cbokhove · Sep 20

...

Replying to [@becatherfold](#)

This was quite interesting on it.



aft.org

Ask the Cognitive Scientist: Do Manipulatives Help Students Learn?

(link provided at top of this summary)



Rebecca Atherfold @becatherfold · Sep 21

...

That is interesting - thank you for sending it my way

(The following comment refers to the document that Christian Bokhove shared above.)



Dr Helen J. Williams   @helenjwc · Sep 21

...

Scan read this.

It starts by aligning manipulatives with “kinesthetic learners” - which is a nonsense - & goes on to state the obvious! As every response on this thread shows! 😞

know that theory is wrong.' Still, isn't it the case that *all* small children learn better via concrete objects than via abstractions? Surely it helps students focus if classroom activities are mixed up a bit, rather than listening to endless teacher talk.

Answer: Research in the last few decades has complicated our view of manipulatives. Yes, they often help children understand complex ideas. But their effectiveness depends on the nature of the manipulative and how the teacher encourages its use. When these are not handled in the right way, manipulatives can actually make it harder for children to learn.



Mike Ollerton @MichaelOllerton · 16h

...

Replying to @helenjwc @becatherfold and @cbokhove

I thought the abject nonsense of classifying learners based upon VAK had long disappeared.

(Note: 'VAK' represents the phrase 'Visual, Auditory and Kinaesthetic learning styles'.)



Dr Helen J. Williams   @helenjwc · 13h

...

It did my way in the early 90s



Rebecca Atherfold @becatherfold · 13h

...

I think they are agreeing with you re VAK?

Question: Is there any reason to be cautious when using manipulatives in class? I understand that some educators might have mistakenly thought that manipulatives—concrete objects that students handle mostly during math and science lessons—help because they give kinesthetic learners the hands-on experiences they need, and we now know that theory is wrong.¹ Still, isn't it



Mike Ollerton @MichaelOllerton · 11h

...

Thank you and phew!



Christian Bokhove @cbokhove · Sep 21

...

I don't agree with everything in the article, but it has an excellent list of references to follow up.



Dr Helen J. Williams 🇪🇺 🇺🇦 @helenjwc · Sep 21

...

1/2

I think this conclusion is debatable: “we must temper our endorsement of manipulatives in classrooms with some caveats; there are instances where manipulatives will not speed children’s learning, and may even slow it down.”

The research indicates that >>



Mary Wombat 🐨 🇬🇧 🇺🇸 @little_mavis · Sep 21

...

Replying to @helenjwc @cbokhove and @becatherfold

Do we always want to "speed up" learning? Why?



Dr Helen J. Williams 🇪🇺 🇺🇦 @helenjwc · 23h

...

That’s an excellent point, which I have never once had a satisfactory answer to !



Dr Helen J. Williams 🇪🇺 🇺🇰 @helenjwc · Sep 21

2/2

<< it's not the manipulatives themselves that are the issue here; but the use of them.

You (or anyone!) might be interested in my @BERANews paper with @RuthTrundle that researches this issue:

	<p>bera.ac.uk</p> <p>Learning from variation</p> <p>How can variation theory can be applied to the use of manipulatives to support understanding of early...</p>
---	---

(link provided at top of this summary)



Christian Bokhove @cbokhove · 16h

I'm mixed here. Some manipulatives are really hard to use competently, so then it *is* relevant to consider their features, not just the use of them.



Dr Helen J. Williams 🇪🇺 🇺🇰 @helenjwc · 16h

When you read the paper Christian you'll see it is about the features, as well as the use.

A particular 'barrier to using manipulatives' was mentioned ...



MrHawesMaths @HawesMaths · Sep 20

Replying to @becatherfold

Confidence in the manipulative and that you are using it in the manner you intended. And for me it is probably about relinquishing control and letting pupils 'play' about and make connections. #mathscpdchat



Mary Pardoe @PardoeMary · Sep 20

Yes ...taking a/that risk!!!!
#mathscpdchat

... and another ...



! @BevelP · Sep 20

Replying to @becatherfold

Pretending it's lego. Mostly.



Pip - Mathematics @AccomplishEdu · Sep 21

Need to appreciate time spent using manipulatives to secure the structure and understanding is time saved in the long run #mathscpdchat

... and other 'single' comments also pointed to 'barriers' ...



Catherine Edwards @Edwards08C · Sep 20

...

Replying to @becatherfold

When they already "know" how to do the maths so skip using the manipulative which means they come unstuck on harder bits. Occasionally "this is for babies " but usually that's easily overcome by showing them the power of manipulatives #mathscpdchat



DMaths MCCT @DeeVijayan · Sep 20

...

Replying to @becatherfold

Changing teacher thinking. A lot of maths teachers were not taught using manipulatives hence find it difficult to teach using these.



James @JameswSwann · 16h

...

Replying to @becatherfold

Getting teachers to not skip the concrete part of learning because of the low level disruption and lack of pedagogical understanding.



Peter 🇪🇬 @mmmurmuration · Sep 21

...

Replying to @becatherfold

Not enough manipulative to go around is my #1 barrier



Joseph Oak @JosephOak35 · Sep 20

...

Replying to @becatherfold

Teacher subject knowledge. The abstract is the easy bit that we as adults are familiar with. The skill is breaking this down into bite sized chunks based on understanding rather than simply reciting a method because...



Dame Karen Clyne 🇺🇰 @queenkarenclyne · Sep 21

...

Replying to @becatherfold

Chn having the space to access them at their tables/on their desk & 'organise' them. Classroom storage. Cost (numicon & individual base 10, Diennes, Cuisenaire) for every class.



Elaine Joyce @ej5351 · 16h

...

Replying to @becatherfold

another word to make maths sound tricky.. pity us elderly supply teachers reading the planning! 😊



Joanne Green @MsJoanneGreen · Sep 20

...

[#mathscpdchat](#) [@becatherfold](#) I've just seen this! Each classroom having these or the department purchasing them for each department to use - for a whole school approach.



Rebecca Atherfold @becatherfold · Sep 20

What barriers are there to using manipulatives? [#mathscpdchat](#)

... except this expression of the view that all the 'barriers' can be overcome:



Mr Darby @DeputyDarbs · Sep 21

...

Replying to [@becatherfold](#)

Nothing that is not solvable over a few years period of time, manipulatives are essential.

Respondents to the host's final question ...



Rebecca Atherfold @becatherfold · 15h

...

Where would you recommend going for CPD in manipulatives?
[#mathscpdchat](#)

Offered some possible starting points for teachers in this situation:



Joanne Green @MsJoanneGreen · Sep 20

...

[#mathscpdchat](#) [@becatherfold](#) Just seen this question too! I don't know.



Rebecca Atherfold @becatherfold · Sep 20

Where would you recommend going for CPD in manipulatives?
[#mathscpdchat](#)

For example, in this conversation ...



Darren Elgar @ElgarDarren · 15h

...

Replying to @becatherfold

I have found Peter Mattocke Youtube videos really helpful.

youtube.com/c/PeterMattock

In fact I was helping a year 9 student I tutor with algebra using cuisenaire rods on mathsbot this evening.

$2w+y=b$ with the white yellow and black rods She could see that the $2w=b-y$ very easily



youtube.com

Peter Mattock

Here you can find all the videos I produce about using manipulatives to teach maths in schools. If ...



Rebecca Atherfold @becatherfold · 15h

...

Ooo I haven't seen these! Videos are so helpful for this I think

[#mathscpdchat](#)



Pip - Mathematics @AccomplishEdu · 14h

...

Important to refer to the lengths of the rods being equivalent to and avoid fruit salad algebra



Mr Mattock FCCT NPQSL @MrMattock · 15h

...

Replying to @becatherfold and @ElgarDarren

Always happy to do some online or face to face training with people as well. My website (link in bio) has details.



Darren Elgar @ElgarDarren · 15h

...

Have you mentioned you have a book out? 😊



Mr Mattock FCCT NPQSL @MrMattock · 15h

...

Didnt need to, has already been done!

Lisa 🌱 @Elsie2110 · 15h

Replying to @MsJoanneGreen and @becatherfold

I recommend Visible Maths by @MrMattock for people after further information on representations, but I haven't read Helen's book to know if it's comparable. #MathsCPDChat

... and in this ...



Kathryn (ObjectiveEd) @ed_objective · 15h
Replying to @becatherfold and @PardoeMary
@helenjwc



Dr Helen J. Williams 🇪🇺 🇷🇺 @helenjwc · 14h
And @MichaelOllerton and def join @ATMMathematics - attend their conference if you can!
ATM begun as the Association for Teaching Aids in Mathematics.



Mike Ollerton @MichaelOllerton · 12h
Replying to @becatherfold
From my experience of @ATMMathematics conferences the sessions I attend are a powerful pedagogical mix of inquiry/problem solving and use of manipulatives. Presenters are far more interested in how delegates solve problems rather than merely getting 'right' answers.



Mary Pardoe @PardoeMary · 15h
Replying to @becatherfold
atm.org.uk

mei.org.uk

[#mathscpdchat](https://twitter.com/mathscpdchat)

... and in this ...



Simon Cox @MathsMrCox · 15h
Replying to @becatherfold
For algebra tiles I'd recommend @EmathsUK blogs and videos. We used them when looking to embed algebra tiles into our teaching.
emaths.co.uk/index.php/blog..



Rebecca Atherfold @becatherfold · 15h
Replying to @MathsMrCox and @EmathsUK
I need to invest the time to do this [#mathscpdchat](https://twitter.com/mathscpdchat)



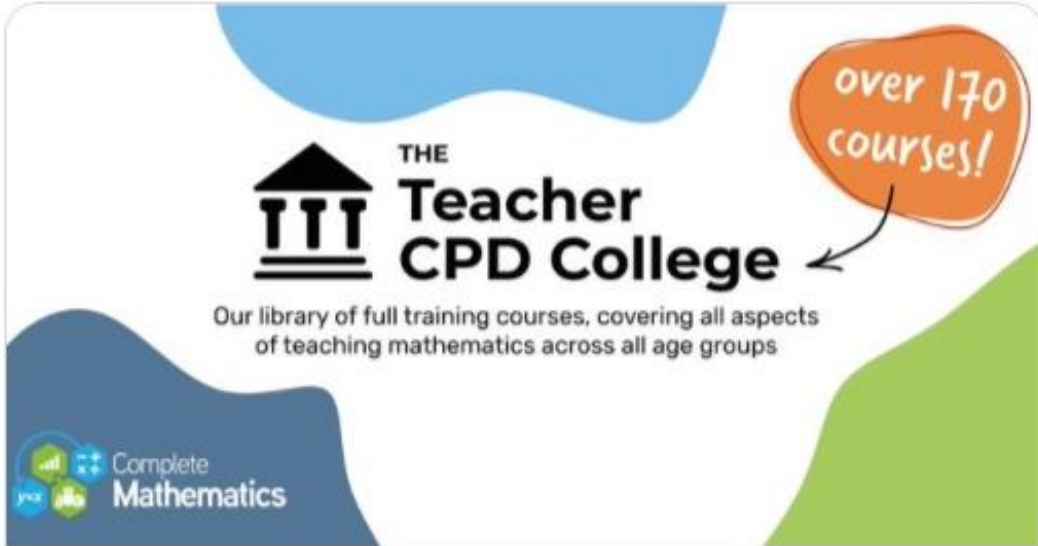
Mark McCourt @EmathsUK · 14h



We also have some fantastic courses on using Algebra Tiles in the Complete Maths CPD college... like these three, for example:

courses.completemaths.com/view/courses/a...

courses.completemaths.com/view/courses/t...



THE Teacher CPD College

Our library of full training courses, covering all aspects of teaching mathematics across all age groups

Complete Mathematics

courses.completemaths.com

Complete Mathematics
Provider of Complete Mathematics CLASSROOM Complete Mathematics TUTOR Complete Mathematics CPD Serving over 20000...



Catherine Edwards @Edwards08C · 15h



Replying to @becatherfold

Complete maths cpd college has a bunch of good videos [#mathscpdchat](#)



Rebecca Atherfold @becatherfold · 15h



I agree - they are really good at helping me get my head around concepts [#mathscpdchat](#)

... and this...



Mr Mattock FCCT NPQSL @MrMattock · 15h



Replying to @becatherfold

Got to give a late shout out to @berniewestacott whose knowledge here is nearly unparalleled. [#mathscpdchat](#)

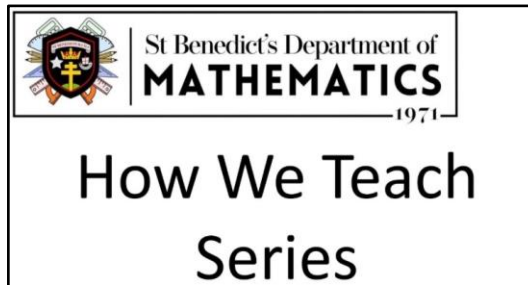
 **Rebecca Atherfold** @becatherfold · 15h ...
Replying to @MrMattock and @berniewestacott
Totally - his video with Craig Barton is fab #mathscpdchat

 **bernie westacott** @berniewestacott · 14h ...
Than you, Rebecca. That's really kind of you.


 **Brooke Hunter** @BrookeEHunter · 14h ...
@berniewestacott YouTube videos or @LaSalleEd CPD videos with @StudyMaths

 **Brooke Hunter** @BrookeEHunter · 14h ...
Massively informed the following for me

 **Brooke Hunter** @BrookeEHunter · Jul 5
As a Maths department we have been using our gain time to look at 'How We Teach' through topic based sessions led by @TrembleJennifer and I with the aim to discuss and develop consistent methods, language, representations etc.



... and this ...

 **Maths** @MathsRSmith · 15h ...
Replying to @becatherfold
@Mannermetics has some fab videos on his website!

 **Tom Manners** @Mannermetics · 15h ...
Thank you! Kind of you to mention me :)

Child number 2 kinda put a pause on that side of my work... hoping I get to do more in the future though!

... and in these 'single' tweets:



Rebecca Atherfold @becatherfold · 15h

...

Replying to @becatherfold

My recommendation would be the oak academy videos - they follow the @MathsMastery scheme (according to my sons' school) and CPA is embedded



Kate Kellner-Dilks @Kate_KDilks · 14h

...

Replying to @becatherfold

Great question!

If you're in /near /can get to Herts...

@Hertsmaths have face-to-face training on exactly this... in November, courses for each year grp (Y1 to Y6).

Focusing on manipulatives as the C in CPA.

Year 3:

cpd.hertsforlearning.co.uk/courses/bookin..

Year 4:

cpd.hertsforlearning.co.uk/courses/bookin..



Dr Jess M #AntiRacist @drjessm · 14h

...

Replying to @becatherfold

@pdLouiseP would be my go-to



Amy How @rekenrek101 · Sep 21

..

Replying to @becatherfold

Can I interest you in unique Rekenrek CPD? 😊



Anna Pandrich @AnnaPannaTW · 14h

...

Replying to @becatherfold

There will be someone in your local maths hub who is brilliant I would expect.

Finally, this comment, to which Rebecca replied, was made (not as a reply to any particular question) during the chat ...



Joanne Green @MsJoanneGreen · 20h

...

@becatherfold #mathscpdchat Pupils and students do need something that they can move around, as the physical movement helps them to concentrate and remember. I've even used pencils when I haven't got anything else to use. Pencils are great for algebra $a+b=c$



Rebecca Atherfold @becatherfold · 20h

...

Replying to [@MsJoanneGreen](#)

Totally agree. When we trialled bead strings with 16 -18 year olds they commented really positively about having something to actually do
[#mathscpdchat](#)

... and these were the host's last words at the end of the chat:



Rebecca Atherfold @becatherfold · Sep 20

...

That hour has made my head spin! Sorry if I missed out any comments - I'm looking forward to going back and reading them all. Please stay and chat and if it is of interest I have a manipulatives in FE webinar with the ETF coming up in November! [#mathscpdchat](#)