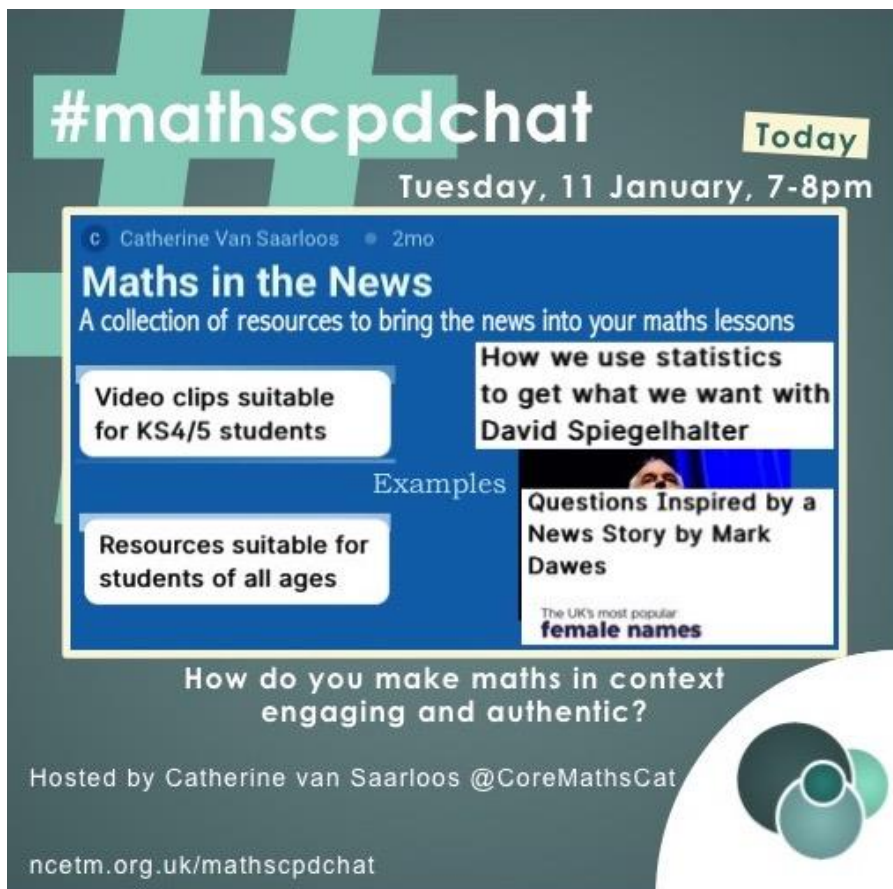


## #mathscpdchat 11 January 2022

How do you make maths in context engaging and authentic?

Hosted by [Catherine van Saarloos](#)

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



**#mathscpdchat** Today  
Tuesday, 11 January, 7-8pm

C Catherine Van Saarloos • 2mo

**Maths in the News**  
A collection of resources to bring the news into your maths lessons

Video clips suitable for KS4/5 students

How we use statistics to get what we want with David Spiegelhalter

Examples

Resources suitable for students of all ages

Questions Inspired by a News Story by Mark Dawes  
The UK's most popular female names

How do you make maths in context engaging and authentic?

Hosted by Catherine van Saarloos @CoreMathsCat

ncetm.org.uk/mathscpdchat

The links shared during this discussion were:

[Core Maths Winter Festival](#) which is comprised of six talks by inspirational speakers. These live online sessions during January are designed to appeal to all maths teachers, regardless of how much experience of Core Maths you have had. It was shared by [Catherine van Saarloos](#)

[The Teaching Maths for Social Justice Network](#) which is a network for teachers of mathematics in all school phases committed to addressing issues of equity and social justice in the classroom. It was shared by [Catherine van Saarloos](#)

[Maths and Climate Change](#) which is a suite of climate change focussed resources for both Level 3 Core Maths and Key Stage 3 from MEI created in collaboration with the Royal Meteorological Society. It was shared by [Catherine van Saarloos](#)

[Try being a Data Detective](#) which is one of the sets of resources from the AMSP which showcase the maths in different careers. As in all these resources it contains a video paired with activities designed to give students a real taste of what an 'interpreting data' job may entail. It was shared by [Catherine van Saarloos](#)

[Big corp power](#) which are resources from The Economist Educational Foundation. They address issues concerned with big corporations (such as Amazon). For example, what happens when their actions start affecting lives and communities? It was shared by [Catherine van Saarloos](#) and [The Economist Educational Foundation](#)

[Numeracy in the news](#) which are schemes of work, one-off lessons and workshops from The Economist Educational Foundation. They are designed to help students use their numeracy skills in real-world contexts, and understand links between numbers and big issues that shape their lives. It was shared by [The Economist Educational Foundation](#)

[The world in 2022](#) which are activities and discussions from The Economist Educational Foundation. Every week a new story that has hit the headlines is explored! It was shared by [The Economist Educational Foundation](#)

[Vaccine effectiveness](#) which is the Government's COVID-19 vaccine surveillance report for week 1 of 2022. Teachers have used data and graphs in it to raise issues, prompt discussion and generate mathematical learning. It was shared by [Jude Mortimer](#)

[Math on Trial: How Numbers Get Used and Abused in the Courtroom](#) which is a book by Leila Schneps and Coralie Colmez in which the 'stories' of ten different trials show how 'in the wrong hands maths can be deadly'! It was shared by [Sarah Denison](#)

[Nightmare numbers: the maths mistakes that have led to engineering errors](#) which is an extensive, illustrated article by Matt Parker. It was shared by [Mary Pardoe](#)

[Realistic Mathematics Education](#) which is a problem-solving approach to learning and teaching secondary mathematics which 'helps my pupils to visualise and put maths into real life contexts'. It was shared by [Mary Pardoe](#)

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

Many people who eventually contributed to the discussions did not reply to the host's first question, possibly because when they joined the chat Catherine had already posted more questions ...



**Catherine van Saarloos** @CoreMathsCat · 19h

...

Welcome to #mathscpdchat on making maths in context engaging and authentic!

Use #mathscpdchat in all responses.

Q1 Please let us know which phase you work in and something (other than maths) that you are interested in.



... but those that did reply were:



**Catherine Edwards** @Edwards08C · 19h

...

Replying to @CoreMathsCat

Secondary (11-16) and making my own clothes



**Miss Ward-Gow** @mcwardgow · 19h

...

Replying to @CoreMathsCat

Secondary and gaming 😎 #mathscpdchat



**Sarah Denison** @SarahDenisonMEI · 19h

...

Replying to @CoreMathsCat


Now work for MEI but before worked in 11-18 schools.


I am interested in board games 😊

 **James Maloney** @JamesWMaloney · 19h ...  
Replying to @CoreMathsCat  
Evening! Work in FE. GCSE resits and Core Maths. Interested in, amongst other things, Lego! #mathscpdchat

 **Dimitris Georgalis** @pelkiotis · 19h ...  
Replying to @CoreMathsCat  
I work for Leeds sixth form and apart from maths I enjoy fantasy books, games, the whole lore #mathscpdchat

 **Jude Mortimer** @Littlemissmath5 · 19h ...  
Replying to @CoreMathsCat  
Hello!!  
I work in adult education and I like running 🏃, and I'm interested in LOTS of things! #mathscpdchat


 **Martyn (He/Him)** @martynyeouk · 19h ...  
Replying to @CoreMathsCat  
Hello! I'm a primary school teacher that is also interested in ITT education :)  
#mathscpdchat

 **Martyn (He/Him)** @martynyeouk · 19h ...  
Oh dear I've seen other people's answers - Im interested in singing and dancing too (I have a life outside of school!)  
#mathscpdchat


To every person who replied to Q1 the host responded with a 'Welcome' tweet ... and this one resulted in the sharing of more information:


 **Tom Rainbow** @CoreMathsTom · 19h ...  
Replying to @CoreMathsCat  
I work for MEI and I am interested in anything to do with toilet paper.  
#mathscpdchat

 **Catherine van Saarloos** @CoreMathsCat · 19h ...  
Welcome Tom! Not climbing...? #mathscpdchat

 **Tom Rainbow** @CoreMathsTom · 19h ...  
That's a secondary interest :) #mathscpdchat

Replies and conversations in response to Catherine’s Questions 2a and 2b ...

 **Catherine van Saarloos** @CoreMathsCat · 19h ...  
Q2a Think back over your lessons from this year – please share an experience (good or bad) of supporting students to apply maths in a context. #mathscpdchat

 **Catherine van Saarloos** @CoreMathsCat · 19h ...  
Replying to @CoreMathsCat  
Q2b What was your motivation for selecting that particular context? #mathscpdchat

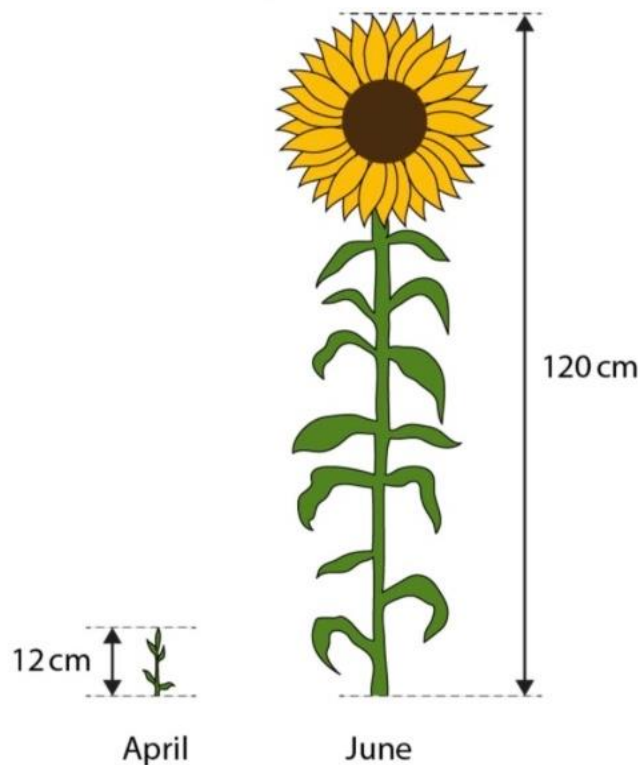
... included this discussion ...










 **Martyn (He/Him)** @martynyeouk · 19h ...  
Replying to @CoreMathsCat  
Lots of the lessons from @NCETM documents use real life contexts. Did one today about a plant growing 10 times longer...#mathscpdchat

*‘I planted a twelve centimetre sunflower plant in the garden in April. By June it was ten times the original height. What was the height of the sunflower in June?’*

$$12 \text{ cm} \times 10 = 120 \text{ cm}$$

- *‘Twelve centimetres times/multiplied by ten is equal to one hundred and twenty centimetres.’*



-  **Catherine van Saarloos** @CoreMathsCat · 19h ...  
This looks great, did the students find it engaging? [#mathscpdchat](#)
-  **Martyn (He/Him)** @martynyeouk · 19h ...  
They seemed to engage - they certainly do when it is in a context more than when it is not. [#mathscpdchat](#)
-  **Martyn (He/Him)** @martynyeouk · 20h ...  
Replying to @CoreMathsCat and @NCETM  
We did spend a lot of the lesson discussing the need to use 'cm' to put it in context [#mathscpdchat](#)
-  **Tom Rainbow** @CoreMathsTom · 20h ...  
Replying to @martynyeouk @CoreMathsCat and @NCETM  
What year group was that with Martyn? [#mathscpdchat](#)
-  **Martyn (He/Him)** @martynyeouk · 20h ...  
Year 4 :) [#mathscpdchat](#)
-  **Tom Rainbow** @CoreMathsTom · 20h ...  
Did the context help them do you think? [#mathscpdchat](#)
-  **Martyn (He/Him)** @martynyeouk · 20h ...  
This one more so than others - they certainly understood scaling easier thanks to the picture [#mathscpdchat](#)
-  **Martyn (He/Him)** @martynyeouk · 20h ...  
Replying to @martynyeouk @CoreMathsCat and @NCETM  
Although some of the problems in @mathsnoproblem can be a little far fetched...Had something about buying 10,000 apples recently!  
[#mathscpdchat](#)
-  **Tom Rainbow** @CoreMathsTom · 20h ...  
Would you buy that many in a lifetime? Nice Fermi estimation problem.  
[#mathscpdchat](#)



**Economist Foundation** @Econ\_Foundation · 20h ...

We have a nice resource that could help - it's about mega corporations and just how much £1million and trillion really are. Check it out at [talk.economistfoundation.org/projects/big-c...](http://talk.economistfoundation.org/projects/big-c...) (Session1) xmathscpdchat



[talk.economistfoundation.org](http://talk.economistfoundation.org)

Resources

For this Project, we've created two versions: one for UK English spelling, and one for US American ...

... this conversation ...



**Sarah Denison** @SarahDenisonMEI · 19h ...

Replying to @CoreMathsCat

I had a student say they didn't need maths as wanted to be a nurse. Got a friend to share some real drug calculations and did them in class. Was very valuable (& I learnt a lot!) #mathscpdchat



**Jude Mortimer** @Littlemissmath5 · 20h ...

Replying to @SarahDenisonMEI and @CoreMathsCat

Love this. I frequently use maths in a context but usually something I've chosen - so not quite this personal - need to try it more. #mathscpdchat



**Sarah Denison** @SarahDenisonMEI · 19h ...

Replying to @SarahDenisonMEI and @CoreMathsCat

We looked at lethal doses as well so they could see if any mistakes might have been fatal #mathscpdchat



**Catherine van Saarloos** @CoreMathsCat · 19h ...

Replying to @SarahDenisonMEI

That sounds great - did you notice a difference in the student's attitude after that? #mathscpdchat



**Sarah Denison** @SarahDenisonMEI · 19h ...

I did actually. Probably both because they realised there were applications they hadn't thought of but also because I had listened and tried to find something valuable for them which they appreciated #mathscpdchat



**Mary Pardoe** @PardoeMary · 19h

...

Maths calculation errors also sometimes lead to engineering errors!

[inews.co.uk/news/long-read..](https://www.inews.co.uk/news/long-read..)

[#mathscpdchat](#)



[inews.co.uk](https://www.inews.co.uk)

**Nightmare numbers: The maths mistakes that led to engineering errors**  
Mathematics allows us to build bolder structures and machines, but even today we still get our figures wrong sometimes, writes Matt Parker



**Tom Rainbow** @CoreMathsTom · 19h

...

I will be reading that later...thanks for sharing Mary. [#mathscpdchat](#)



**Sarah Denison** @SarahDenisonMEI · 20h

...

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

I think the impact of errors is super interesting, this is great thank you  
[#mathscpdchat](#)

... three short conversations, this ...



**Tom Rainbow** @CoreMathsTom · 19h

...

Replying to [@CoreMathsCat](#)

Talking to students about debt and exponential functions is always fun. Exponential is a term that has become much more common in the past couple of years...the use of mathematical language in connection to the pandemic has interesting. [#mathscpdchat](#)



**Catherine van Saarloos** @CoreMathsCat · 20h

...

Replying to [@CoreMathsTom](#)

Do you think algorithm has become a dirty word? [#mathscpdchat](#)





**Tom Rainbow** @CoreMathsTom · 20h

...

It certainly has negative connotations in educational circles I think...which could be a good thing when it comes to maths, never been a fan of algorithms in maths, even when teaching discrete/decision maths.

[#mathscpdchat](#)

... and this ...



**James Maloney** @JamesWMaloney · 19h

...

Replying to [@CoreMathsCat](#)

Bad experience - probability where I didn't 'sell' it as well as previous years and the context felt a bit tenuous at the end. Also forgot the connections that would make the maths 'pop!'

[#mathscpdchat](#).



**Catherine van Saarloos** @CoreMathsCat · 19h

...

I think that can be a danger sometimes when we feel like we should use a context so force it in.

Personally I think it is more powerful if we use context less but ensure that it is really meaningful and authentic when we do. [#mathscpdchat](#)



**James Maloney** @JamesWMaloney · 19h

...

Absolutely, it is a balance. And when it is it actually makes the generalisation of the mathematical ideas easier. [#mathscpdchat](#)

... and this ...



**James Maloney** @JamesWMaloney · 19h

...

Replying to [@CoreMathsCat](#)

Good experience teaching tax to students - all the different types, where they pay tax day to day (VAT etc,) and looking at their pay slips.

[#mathscpdchat](#)



**Catherine van Saarloos** @CoreMathsCat · 19h

...

Have you experienced high levels of student engagement with this?

[#mathscpdchat](#)



**James Maloney** @JamesWMaloney · 19h

...

Oh completely, makes me busy as they have so many questions. But that's not a prob. And you have to take the time to explain how HMRC do their calculations. But they'll refer back to it often. And it gets them engaged in exam Qs as they can see themselves in the Q! [#mathscpdchat](#)

... and this single reply:




**Dimitris Georgalis** @pelkiotis · 19h


...

Replying to [@CoreMathsCat](#)

I had some cylinders cut from mild carbon steel, accurate measurements with scales and rulers and they were finding density, mass and volume, cross checking with validated data, [#mathscpdchat](#)

Replies to Catherine's Questions 3a and 3b ...


 **Catherine van Saarloos** @CoreMathsCat · 20h ...  
Q3a In lessons (at any level) do you tend to teach the mathematical skills first and then demonstrate how they are applied in context or start with the context and teach the skills as the need arises? #mathscpdchat

 **Catherine van Saarloos** @CoreMathsCat · 20h ...  
Replying to @CoreMathsCat  
Q3b What have you found to be the benefits and challenges of each approach? #mathscpdchat

... revealed that contributors to this chat adopt different approaches for various reasons. For example, it may be hard to find any context that both makes sense to pupils and provides opportunities for them to learn some particular maths, as was discussed by both of the Catherines:

 **Catherine Edwards** @Edwards08C · 20h ...  
Replying to @CoreMathsCat  
Skills then application, but I mention the application when teaching the skills.

I struggle with this with harder skills, where the "real"/most common application is beyond their knowledge. Deciding to teach lots of extra knowledge to be able to apply #mathscpdchat

 **Catherine van Saarloos** @CoreMathsCat · 20h ...  
Yes it is much easier in #CoreMaths because there isn't the amount of new content coming in. More about applying the skills you have acquired previously. #mathscpdchat


 **Catherine Edwards** @Edwards08C · 20h ...  
Some topics are really easy, but others it feels like you are inventing a scenario where no one would actually use that skill, just so you can have context. I've become happier in saying, this is a building block towards something contextual in the future.  
#mathscpdchat

 **Catherine van Saarloos** @CoreMathsCat · 20h ...  
That is a great strategy and I think if they get a lot out of your authentic contextualised lessons when you do them then they will have more faith when you say this. #mathscpdchat

But when a suitable context is 'findable' so pupils have opportunities to learn particular maths as a need to use it arises when trying to answer questions that the context suggests/generates/raises ...

 **Jude Mortimer** @Littlemissmath5 · 20h ...  
Replying to @CoreMathsCat  
Takes away the 'why are we doing this?' question. #mathscpdchat and is real-life problem-solving

... although ...

 **Jude Mortimer** @Littlemissmath5 · 20h ...  
Replying to @CoreMathsCat  
More preparation time needed but much more fun to plan #mathscpdchat


... and:









 **Tom Rainbow** @CoreMathsTom · 20h ...  
Replying to @CoreMathsCat  
When I put the context first, the effect on how authentic the task feels is remarkable...perhaps it makes it more challenging to teach and benefits from greater flexibility but the rewards are significant. It can make maths come alive for some students. #mathscpdchat

Several teachers discussed ways in which teaching Core Maths had provided opportunities for them to discover/work out how it is possible to help students understand and do mathematics while exploring aspects of contexts in which interesting questions arise naturally. For example:


 **Tom Rainbow** @CoreMathsTom · 20h ...  
Replying to @CoreMathsCat  
Until I taught Core Maths I almost always did the former and knew I could do better. Then Core Maths came along, I was emancipated...and have never looked back. #mathscpdchat


 **Catherine van Saarloos** @CoreMathsCat · 20h ...  
Replying to @CoreMathsTom  
I feel the same - context was a tag on for me when I first started teaching. "You have mastered it without words now lets add some!"  
Putting the context first and starting with a purpose has been a game-changer. #mathscpdchat

 **Sarah Denison** @SarahDenisonMEI · 20h ...  
This absolutely but the context needs more careful consideration than I had realised. For example if the maths is tricky it is good to use a context students have some inherent understanding of to help with cognitive load  
#mathscpdchat

-  **Catherine Edwards** @Edwards08C · 20h ...  
Some topics are really easy, but others it feels like you are inventing a scenario where no one would actually use that skill, just so you can have context. I've become happier in saying, this is a building block towards something contextual in the future.  
[#mathscpdchat](#)
-  **Sarah Denison** @SarahDenisonMEI · 21h ...  
Replying to [@CoreMathsTom](#) and [@CoreMathsCat](#)  
So true but is always interesting discussing them [#mathscpdchat](#)
-  **Tom Rainbow** @CoreMathsTom · 21h ...  
Which always feels better in Core Maths as you don't have the tick tick tick of passing time so ringing loudly in your ears and so you can have those really valuable discussions with your class. [#mathscpdchat](#)
-  **Catherine Edwards** @Edwards08C · 21h ...  
This is my quandary at GCSE, there is so much content to cover it's hard to justify the time for really interesting context. [#mathscpdchat](#)
-  **James Maloney** @JamesWMaloney · 21h ...  
Yep, I think at GCSE it has to be selective when to use context. One thing I'm looking at is using context more in revision time, when bringing together topics. Hoping to make revision more interesting too, rather than more exam Qs! [#mathscpdchat](#)
-  **James Maloney** @JamesWMaloney · 20h ...  
You need to have the confidence to go with the contextual flow and see which way it takes you. [#mathscpdchat](#)
-  **Tom Rainbow** @CoreMathsTom · 20h ...  
Confidence is so important in teaching isn't it, it means you can take risks and that's when the real magic happens. Those tricky classes where everything has to be tied down are really missing out! [#mathscpdchat](#)
-  **Jude Mortimer** @Littlemissmath5 · 18h ...  
So agree with this :-)

People also mentioned questions that come into pupils' minds during discussions that happen when they are exploring contextual situations:

-  **Tom Rainbow** @CoreMathsTom · 21h ...  
Which always feels better in Core Maths as you don't have the tick tick tick of passing time so ringing loudly in your ears and so you can have those really valuable discussions with your class. [#mathscpdchat](#)


 **Economist Foundation** @Econ\_Foundation · 21h ...  
Replying to @CoreMathsTom @SarahDenisonMEI and @CoreMathsCat  
Those are the best! What are some of the most interesting questions your students have asked? #mathscpdchat


 **Tom Rainbow** @CoreMathsTom · 21h ...  
Crikey, it's hard to recall. I remember a student questioning the reliability of a result we got when we got some Y10s to help us with a simulation task...led into a whole unexpected week on outliers/standard deviation. #mathscpdchat

 **Economist Foundation** @Econ\_Foundation · 21h ...  
Questions about reliability are brilliant - and so cross-curricular too! #mathscpdchat

(In the last two sequences of tweets above, one of Tom Rainbow's tweets has been shown twice because, while being part of one conversation, it also generated another conversation. 'Thread branching' of that kind is common during Twitter discussions!)

The first reply to Catherine's Questions 4 and 4b ...

 **Catherine van Saarloos** @CoreMathsCat · 21h ...  
Q4 Have you ever used (or been prepared to use) a challenging or potentially emotive/controversial context in your lessons? Please elaborate on how you chose the context and why you felt comfortable with it #mathscpdchat

 **Catherine van Saarloos** @CoreMathsCat · 21h ...  
Replying to @CoreMathsCat  
Q4b Are there contexts that you would like to use but don't yet feel confident or comfortable using? Please elaborate #mathscpdchat

... was from Catherine herself:

 **Catherine van Saarloos** @CoreMathsCat · 20h ...  
I am very comfortable talking about social justice contexts but would not like to do anything that felt too personal to the student. Bigger issues feel safer to me #mathscpdchat

These tweets generated several discussions. 'Haram' subjects were mentioned in one tweet:

 **Catherine Edwards** @Edwards08C · 20h ...  
Replying to @CoreMathsCat  
Always have the have my explanation for why prepared when I teach interest. Discussion around why they need to learn a Haram subject. Same when there is any kind of gambling #mathscpdchat

(Meaning of 'Haram':

An Arabic term meaning **forbidden or unlawful**. In the case of Islamic finance, Muslims cannot invest in, acquire, or otherwise engage in transactions that involve forbidden products and activities such as pork-related products, alcohol gambling, and pornography. The opposite of haram is halal. )

There was much discussion about Covid pandemic-data contexts, and some debate about how they might be used:

-  **Sarah Denison** @SarahDenisonMEI · 21h ...  
Replying to @CoreMathsCat  
I think the data around the pandemic has been fascinating & probably very engaging but there have been obvious concerns. I have tried to use data about cases or vaccinations rather than e.g. deaths or hospitalisations to avoid causing distress but it is really tricky #mathscpdchat
-  **CantabKitty BSc** @CantabKitty · 21h ...  
Agree. I'm sticking to vaccinations and testing data for younger years. Still it could lead to awkward parental complaints if they happened to be antivaxers. And I'm not shying away from case numbers for exp/log lessons. It's important, I feel they need to know it. #mathscpdchat
-  **Jude Mortimer** @Littlemissmath5 · 21h ...  
Totally - they need to know the facts #mathscpdchat

Several other people agreed. And the conversation continued:

-  **Economist Foundation** @Econ\_Foundation · Jan 11 ...  
Really important to bring parents into the conversation, however daunting their views might be. We have some tips for managing difficult conversations on our help page!
-  **Sarah Denison** @SarahDenisonMEI · Jan 11 ...  
That is really useful thank you #mathscpdchat
-  **James Maloney** @JamesWMaloney · 20h ...  
Replying to @CoreMathsCat  
We've talked about CoVid. I've done it in scientific terms as much as possible but have warned students, as it can be highly emotive for some. (I have found a few it has affected and have welcomed talking about it through numbers though - like it helps explain it.) #mathscpdchat



**Jude Mortimer** @Littlemissmath5 · 20h

...

Replying to @CoreMathsCat

We're always looking at charts/current news/ politics - perhaps more relevant as I teach adults. So lots of room to disagree but as long as you can back up your claims from the data!! 😊 #mathscpdchat



**Economist Foundation** @Econ\_Foundation · 20h

...

Interesting! Tomorrow our resource is about covid graphs and whether they suggest we should tighten or relax restrictions. You'll find it hot-off-the-press here: [talk.economistfoundation.org/headlines/](https://talk.economistfoundation.org/headlines/) #mathscpdchat



[talk.economistfoundation.org](https://talk.economistfoundation.org)

Headlines

Topical Talk: Where young people discuss current affairs



**Jude Mortimer** @Littlemissmath5 · 20h

...

Nice! I shall investigate that. We had a bit of a chat last night over which was worse - a more transmissible variant or a more deadly one.

#mathscpdchat



**Jude Mortimer** @Littlemissmath5 · Jan 11

...

Also looked at this graph from @IndependentSage - lots to unpick here.

#mathscpdchat

indie\_SAGE

### Vaccine effectiveness against Omicron and Delta: infection

Figure 6. Vaccine effectiveness against symptomatic diseases by period after dose 1 and dose 2 for Delta (black squares) and Omicron (grey circles) for a) recipients of 2 doses of AstraZeneca(ChAdOx1-5) vaccine as the primary course and Pfizer (BNT162b2) or Moderna (mRNA-1273) as a booster; b) recipients of 2 doses of Pfizer vaccine as the primary course and Pfizer or Moderna as a booster, and c) 2 doses of Moderna as a primary course (insufficient data for boosters after a Moderna primary course)

Supplementary data is not available for this figure.

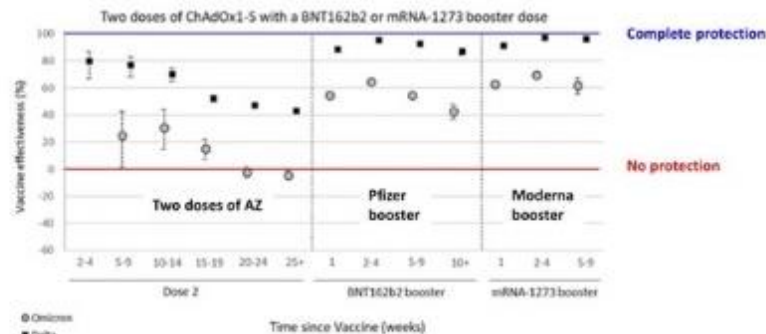




Chart from [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1045073/Vaccine\\_surveillance\\_report\\_week\\_1\\_2022.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1045073/Vaccine_surveillance_report_week_1_2022.pdf)

 **Tom Rainbow** @CoreMathsTom · Jan 11 ...  
I saw that - there were three other graphs alongside it, all of which took a bit of looking at to get your head around, which for me makes them a good/interesting graph. #mathscpdchat

 **Economist Foundation** @Econ\_Foundation · Jan 11 ...  
Replying to @Littlemissmath5 @CoreMathsCat and @IndependentSage  
Great example. You could get some good discussions going here by asking students to come up with questions about the graph - maybe using "should we..." and "what if..." sentence starters. #mathscpdchat


 **Tom Rainbow** @CoreMathsTom · Jan 11 ...  
Lovely idea, especially when their predictions can be checked alongside the real data in a few day's time. #mathscpdchat

 **Jude Mortimer** @Littlemissmath5 · Jan 11 ...  
Totally! Great idea 💡 it actually led onto what would happen next & in the future. How long the boosters would be effective for. #mathscpdchat

 **CantabKitty BSc** @CantabKitty · 20h ...  
Oooh timely! I'm literally spending this week teaching probability to year 10, using covid data. Trying to make a point to discuss and state assumptions.

Gender issues were mentioned:

 **Martyn (He/Him)** @martynyeouk · 20h ...  
Replying to @CoreMathsCat  
Following a conference from @LGBTQ\_Centre  
  
I made one of my questions gender neutral. I thought it would throw up lots of questions - but the children didn't bat an eyelid! #mathscpdchat


 **Catherine Edwards** @Edwards08C · 20h ...  
We've been switching to using they, and making sure "boy" names cook and "girl" names do sport etc. Kids haven't commented. #mathscpdchat

Dealing with controversial issues/contexts was discussed:


 **James Maloney** @JamesWMaloney · 20h ...  
Replying to @CoreMathsCat  
Previous years - cancer treatment and screening, Brexit, badger culling, conservation etc.

 **Catherine van Saarloos** @CoreMathsCat · 20h ...  
How did you get the confidence to use these contexts? #mathscpdchat



 **James Maloney** @JamesWMaloney · 20h ...  
Making sure I had facts & figures from both sides & knew lots of the arguments made by each side. Also really important I think was making students aware that I would be 'helping' both sides - to help make sure the minority view would be supported. [#mathscpdchat](#)

 **James Maloney** @JamesWMaloney · Jan 11 ...  
Replying to [@CoreMathsCat](#)  
Important to acknowledge my own biases as well. Students know my general view but also know that they can change my mind with a good argument - helps them think the debates are worth having and it's not just an exercise. Which makes it more authentic. [#mathscpdchat](#)


 **Tom Rainbow** @CoreMathsTom · 20h ...  
Replying to [@CoreMathsCat](#)  
I wonder whether maths teachers can learn a lot from talking to teachers of other subjects - students learn about all sorts of emotive/distressing things elsewhere in school...how do other subject teachers deal with these topics? [#mathscpdchat](#)

 **James Maloney** @JamesWMaloney · 20h ...  
Yes and I think we could look at using to numbers to actually help reduce the emotive/distressing aspects. [#mathscpdchat](#)

People tweeted about ways of approaching issues that may arise when exploring contexts involving obesity and BMI (Body Mass Index):

 **Tom Rainbow** @CoreMathsTom · 20h ...  
Replying to [@CoreMathsCat](#)  
...one instance was the Edexcel Core Maths pre-release document which focussed on obesity rates. I didn't feel comfortable about it really, at least not until it became clear that my students hadn't given it a second thought. [#mathscpdchat](#)

 **James Maloney** @JamesWMaloney · 20h ...  
Oh yes, I used BMI once! That was a mistake! Had to bring up all the criticisms of the formula to help. [#mathscpdchat](#)

 **CantabKitty BSc** @CantabKitty · 20h ...  
If students are made aware of the limitations of BMI then it's fine to do imo. Esp as it is probably taught in their PE lessons anyway. Everyone should be aware of it's limitations. Avoid it as a simple "real life" ex of formula. I use Physics formula for that. [#mathscpdchat](#)

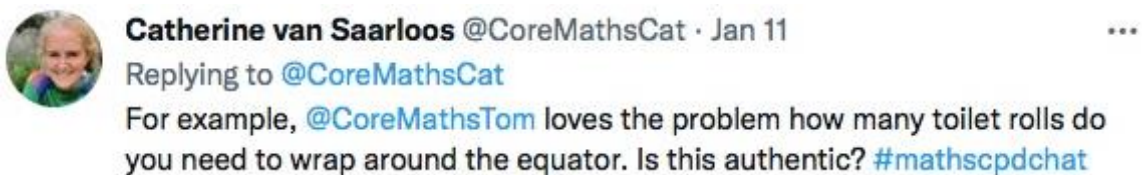
 **James Maloney** @JamesWMaloney · 20h ...  
Yes! I was a little naive in using as a simple real-life example! [#mathscpdchat](#)

The screenshots below show conversations generated by, and some single replies to, Catherine's Question 5. Teachers discussed some characteristics and non-characteristics of authentic contexts for maths learning, and mentioned that students need to have had some experience of a context in order for it to be effective for their learning. **Click on any of the following screenshots-of-a-tweet to go to that actual tweet on Twitter.**

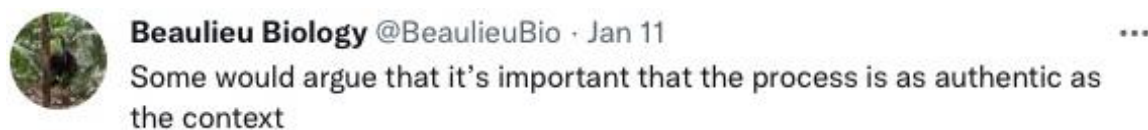
The following conversations and replies were all generated by this question from [Catherine van Saarloos](#) ...




... who immediately followed it with this example ...




... which generated this conversation between [Tom Rainbow](#), [Catherine van Saarloos](#) and [Beaulieu Biology](#):



Catherine's 'example' also prompted these single replies from [Emma B Maths](#) and [Catherine Edwards](#):

 **Catherine van Saarloos** @CoreMathsCat · Jan 11 ...  
Replying to @CoreMathsCat  
For example, @CoreMathsTom loves the problem how many toilet rolls do you need to wrap around the equator. Is this authentic? #mathscpdchat

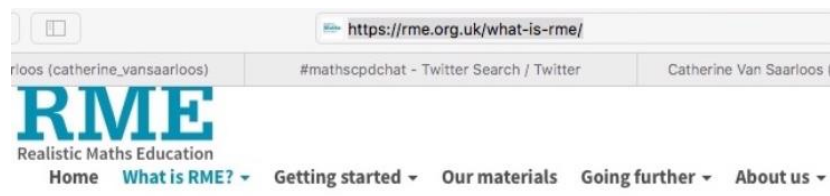
 **Emma B Maths** @CardiffMaths · Jan 11 ...  
Replying to @CoreMathsCat and @CoreMathsTom  
I'd say it's something that someone (not necessarily you) would do in real life. I would say no toilet rolls question. This is more about wonderment. It's not authentic

 **Catherine Edwards** @Edwards08C · Jan 11 ...  
Replying to @CoreMathsCat and @CoreMathsTom  
Is the question what is contextual and what is an interesting problem to solve, but has no real life need/use #mathscpdchat

and her Question 5 prompted single replies from [Mary Pardoe](#) and [Catherine Edwards](#):

 **Catherine van Saarloos** @CoreMathsCat · Jan 11 ...  
Q5 What makes a context 'authentic'? For you, does it have to be something that you would do in 'real-life'? #mathscpdchat


 **Mary Pardoe** @PardoeMary · Jan 11 ...  
Replying to @CoreMathsCat  
A context that students can make sense of? #mathscpdchat  
[rme.org.uk](http://rme.org.uk)



You are in: [Home](#) / [What is RME?](#)


## What is RME?

Realistic Mathematics Education (RME) builds deep, long-term mathematical understanding by starting from contexts that students can make sense of.

 **Catherine Edwards** @Edwards08C · Jan 11 ...  
Replying to @CoreMathsCat  
Not necessarily what you would do in "real life" but I feel it needs to have a efficiency about it i.e. using the method isn't really convoluted and has some benefit over another.  
[#mathscpdchat](#)


and Question 5 also generated this conversation between [Catherine van Saarloos](#), [Catherine Edwards](#) and [Tom Rainbow](#):

 **Catherine van Saarloos** @CoreMathsCat · Jan 11 ...  
Q5 What makes a context 'authentic'? For you, does it have to be something that you would do in 'real-life'? [#mathscpdchat](#)

 **Catherine Edwards** @Edwards08C · Jan 11 ...  
Replying to @CoreMathsCat  
I've forgotten the name, but where you do things in a complicated way because you have the skills. So for example I quilt, when I make quilts I do the calculations for measurements, but other quilters do a scale drawing. Just because you can doesn't mean you should? [#mathscpdchat](#)

 **Catherine van Saarloos** @CoreMathsCat · Jan 11 ...  
This is a great point and I think it relates to authentic problems often having several solutions. [#mathscpdchat](#)

 **Catherine Edwards** @Edwards08C · Jan 11 ...  
Which when you're trying to link it to a specific skill is a bit of a pain!  
[#mathscpdchat](#)


 **Tom Rainbow** @CoreMathsTom · Jan 11 ...  
Yes, you're right; even in Core Maths lessons, I'd be lying if I were to claim that I didn't think 'OK, we have to cover Spearman's Rank'. But I would develop the thinking in a different way to A level because my students had been 'trained' to discuss context. [#mathscpdchat](#)


and Question 5 also prompted a conversation between [Catherine van Saarloos](#), [Em Bell](#), [Catherine Edwards](#) and [Tom Rainbow](#):

 **Catherine van Saarloos** @CoreMathsCat · Jan 11 ...  
Q5 What makes a context 'authentic'? For you, does it have to be something that you would do in 'real-life'? [#mathscpdchat](#)

 **Em Bell** @El\_Timbre · Jan 11 ...  
Replying to @CoreMathsCat  
Q5 - Can the students use their own life experiences to access the context? That's authentic to me [#mathscpdchat](#)

 **Catherine Edwards** @Edwards08C · Jan 11 ...  
This is where I struggle at the moment, the students own life experiences. Even things as seemingly straight forward as a recipe question and the students don't know what the ingredients are. #mathscpdchat


 **Em Bell** @El\_Timbre · Jan 11 ...  
Circle Theatre Tickets comes to mind #GCSEMaths #mathscpdchat


 **Catherine Edwards** @Edwards08C · Jan 11 ...  
Trying to balance between exposure to new things and actually getting maths done! I know other faculties in school plan for context, eg bring in mince pies for the kids when teaching Christmas Carol. It just feels like there are some many possible contexts for maths #mathscpdchat

 **Tom Rainbow** @CoreMathsTom · Jan 11 ...  
A double edged sword perhaps...but worth grasping the nettle I think (to mix metaphors) #mathscpdchat

Em's question above also generated this exchange between her and [Emma B Maths](#):


 **Em Bell** @El\_Timbre · Jan 11 ...  
Replying to @CoreMathsCat  
Q5 - Can the students use their own life experiences to access the context? That's authentic to me #mathscpdchat

 **Emma B Maths** @CardiffMaths · Jan 11 ...  
Replying to @El\_Timbre and @CoreMathsCat  
Yes but they haven't ever paid bills so is calculating a bill not an authentic learning context? I don't think they should be age linked. It's something that relevant to their current OR future lives to my mind

 **Em Bell** @El\_Timbre · Jan 11 ...  
Yes - they know what a bill is though. They have some knowledge of it. #mathscpdchat

and the host's Question 5 prompted consecutive comments from [Jude Mortimer](#) and [James Maloney](#):

 **Catherine van Saarloos** @CoreMathsCat · Jan 11 ...  
Q5 What makes a context 'authentic'? For you, does it have to be something that you would do in 'real-life'? #mathscpdchat

 **Jude Mortimer** @Littlemissmath5 · Jan 11 ...  
I think authentic involves things that you would really do. I have come across some very contrived functional skills exam questions that involve real-life things but you would NEVER do IRL! @becatherfold remember coat hangers and dress sizes! Or late trains 🚪 !! #mathscpdchat



**James Maloney** @JamesWMaloney · Jan 11

Been told by construction students so many times, “don’t need to know conversion, I’d just remeasure it!” #mathscpdchat

(to read the discussion sequence generated by any tweet look at the ‘replies’ to that tweet)

Catherine’s Questions 6 and 6b ...



**Catherine van Saarloos** @CoreMathsCat · Jan 11

Q6 We are now going to look at snippets from resources, here is the first one taken from @Econ\_Foundation latest #TopicalTalkProject  
You can download it from here: [talk.economistfoundation.org/projects/big-c...](http://talk.economistfoundation.org/projects/big-c...) #mathscpdchat

This pie chart shows the total value of the things in the white box.  
**It adds up to \$2,459,820,000,000 – over \$2.4 trillion.**

- £ The estimated cost to vaccinate the global population against covid-19
- £ The wealth of Elon Musk, the richest man in the world
- £ The value of Amazon, one of the biggest corporations in the world
- £ The combined economies of of Sri Lanka, Costa Rica, Lithuania, Uganda, Iceland and Jamaica



What do you think each part of the pie chart represents? Find one thing you agree with your partner about and one thing you disagree about.

Imagine the answers have been revealed. Which answer would be the most disappointing? Why?



**Catherine van Saarloos** @CoreMathsCat · Jan 11

Replying to @CoreMathsCat

Q6 NB Talking about global inoculation is maybe a moot point as it looks as though we may need regular boosters – I believe this is for an initial double dose.



**Catherine van Saarloos** @CoreMathsCat · Jan 11

Q6b Which maths skills are being applied when working on this task?  
Where could you take it next? #mathscpdchat

... generated this conversation:



**Jude Mortimer** @Littlemissmath5 · Jan 11

Replying to @CoreMathsCat and @Econ\_Foundation  
Great resource but makes me 🙄 #mathscpdchat

 **Tom Rainbow** @CoreMathsTom · Jan 11 ...  
It makes me 🤔 so it's a great resource. #mathscpdchat


 **Sarah Denison** @SarahDenisonMEI · Jan 11 ...  
Replying to @CoreMathsCat and @Econ\_Foundation  
I really like this! #mathscpdchat

 **Mary Pardoe** @PardoeMary · Jan 11 ...  
Yes ... it can generate much discussion! NB ... this from RME  
([rme.org.uk/what-is-rme/ab...](http://rme.org.uk/what-is-rme/ab...))  
#mathscpdchat

Over the long term, RME classrooms come to exhibit a class-wide commitment to learning from each other. These shifts make space for more students to contribute ideas and engage confidently in democratic, mathematical debate. They also profoundly change commonplace assumptions about what it is to do mathematics. Aligned with the creative work of mathematicians, RME exposes students to the experimental and exploratory aspects of mathematical problem solving. But, this mathematics also belongs to students' everyday experiences and perspectives—worldviews that may not otherwise find footing in the annals of mathematical history.

 **Sarah Denison** @SarahDenisonMEI · Jan 11 ...  
Replying to @CoreMathsCat  
I would certainly get some standard form in here as I think it really benefits from authentic real world data. Make comparisons about size etc  
#mathscpdchat

The host's Questions 7, 7a and 7b ...

 **Catherine van Saarloos** @CoreMathsCat · Jan 11 ...  
Q7a The next snippet is taken from the new @MEIMaths @RMetS resources  
Q7 NB 50 million trees is how many @WoodlandTrust are proposing to plant by 2025. According to a video in the task, 30 football pitches is how much tropical forest is being cut down every min. #mathscpdchat



### Estimate

- How does 50 million trees compare with the number of trees in 30 football pitches of forest?
- Estimate the number of trees you could fit in 30 football pitches
- Estimate the land required to plant 50 million trees.



**Catherine van Saarloos** @CoreMathsCat · Jan 11

...

Replying to @CoreMathsCat @MEIMaths and 2 others

Q7b What are your initial feelings when presented with this estimation question?

You can download the full resources from here: [mei.org.uk/resource/08983](http://mei.org.uk/resource/08983)

...

#mathscpdchat



[mei.org.uk](http://mei.org.uk)

Resource - MEI

... prompted this reference to authenticity ...



**Em Bell** @El\_Timbre · Jan 11

...

Linking this to Q5 - are the students familiar with trees and football pitches? I'd say they were to different extents - this makes the context authentic => #mathscpdchat

... and this comment:



**Sarah Denison** @SarahDenisonMEI · Jan 11

...

Replying to @CoreMathsCat @MEIMaths and 2 others

This is really interesting. First thought is that I have no idea of the answer and I want to get stuck in! #mathscpdchat

Questions 8 and 8b ...



**Catherine van Saarloos** @CoreMathsCat · Jan 11

...

Q8a Our final snippet is from @Advanced\_Maths World of Work resources. What responses do you think you might get from students?

#mathscpdchat






Here are two groups of customers.

If you had to give one number that represents what a white Lego figure spends, what would it be?



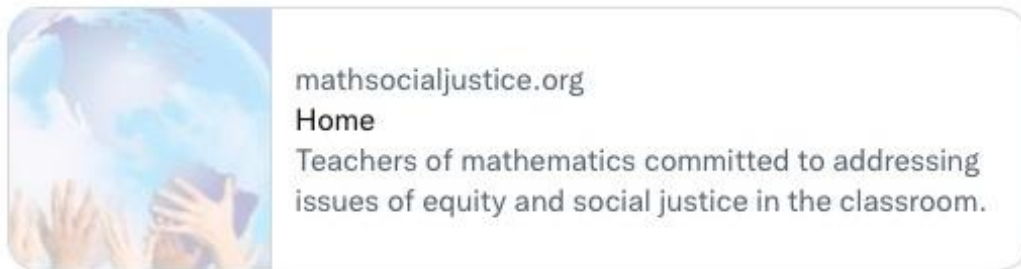
 **Catherine van Saarloos** @CoreMathsCat · Jan 11 ...  
Replying to @CoreMathsCat  
Q8b You can find this activity and others in the collection here:  
[amsp.org.uk/resource/where...](http://amsp.org.uk/resource/where...) (in Try Being a Data Detective Version A)  
[#mathscpdchat](#)

... were posted just before the end of the chat, so there was only one response:

 **Jude Mortimer** @Littlemissmath5 · Jan 11 ...  
Replying to @CoreMathsCat and @Advanced\_Maths  
Nice! Great discussion to be had there [#mathscpdchat](#)

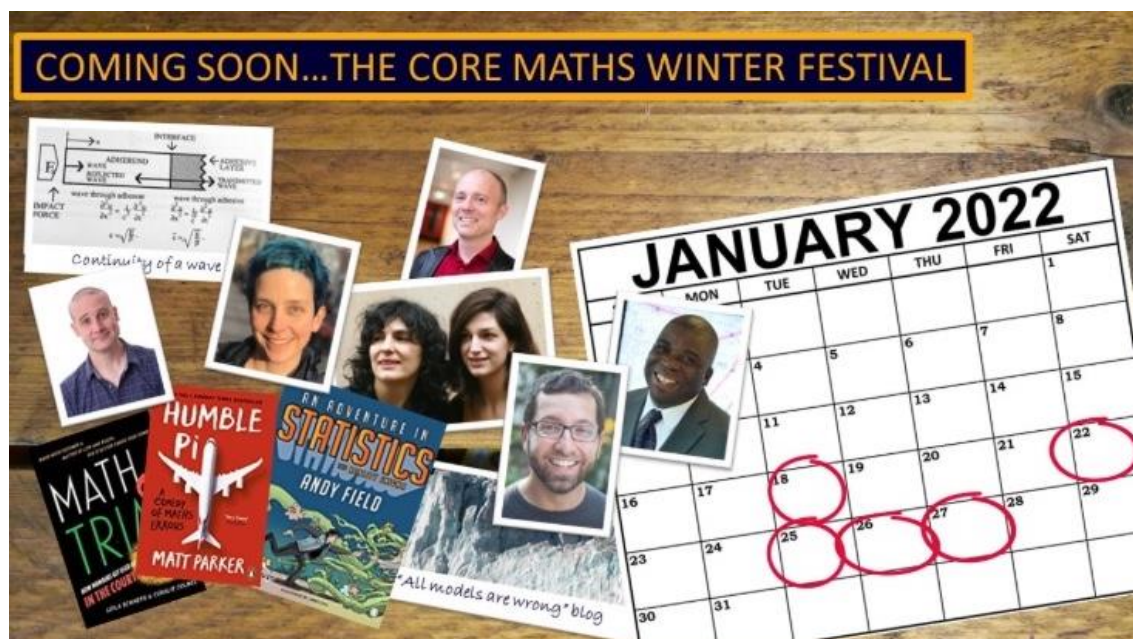
At the very end of the chat the host, Catherine van Saarloos, posted this information:

 **Catherine van Saarloos** @CoreMathsCat · Jan 11 ...  
Some of you may like to join a network of maths teachers addressing issues of equity here: [mathsocialjustice.org](http://mathsocialjustice.org) @PeteWrightIOE [#mathscpdchat](#)



mathsocialjustice.org  
Home  
Teachers of mathematics committed to addressing issues of equity and social justice in the classroom.

 **Catherine van Saarloos** @CoreMathsCat · Jan 11 ...  
Our free online [#CoreMathsFestival](#) starts next Tuesday and will provide plenty of inspiration for developing your teaching of maths in context. We would love for you to join us: [amsp.org.uk/events/details...](http://amsp.org.uk/events/details...)  
[#mathscpdchat](#)



**COMING SOON...THE CORE MATHS WINTER FESTIVAL**

The graphic features a collage of items related to the festival:
 

- A diagram titled "Continuity of a wave" showing wave reflection and refraction at an interface between two media.
- Portrait photos of several speakers: Matt Parker, Andy Field, and others.
- Book covers for "HUMBLE Pi" by Matt Parker and "A REVENUE IN STATISTICS" by Andy Field.
- A calendar for January 2022 with dates 18, 19, 20, 25, 26, and 27 circled in red, indicating the festival dates.
- A quote: "All models are wrong" - blog.