

#mathscpdchat 11 October 2022

What are the greatest challenges in teaching GCSE resit students, and how do you respond to 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 symbol on the left. The text '#mathscpdchat' is prominently displayed in white. To the right, it says 'Today' in a yellow box, followed by 'Tuesday, 11 October, 7-8pm'. A central photograph shows three women sitting at a table with various educational materials. Below the photo, the discussion topic is repeated: 'What are the greatest challenges in teaching GCSE resit students, and how do you respond to them?'. At the bottom, it lists the host 'Rebecca Atherfold @becatherfold' and the website 'ncetm.org.uk/mathscpdchat'. The NCETM logo is in the bottom right corner.

The following questions from the host were addressed:

1. How are you finding the first post-lockdown cohort? Are there noticeable differences from students whose GCSE grades were Centre/teacher assessed?
2. What did you use to determine your students' starting points this year, apart from their previous grades?
3. How do you decide what to cover in your scheme of learning?
4. What resources do you love for resit?
5. We know that resit results are horribly low. If you had a magic wand, what would you do to improve the situation?
6. If you had one top tip for teaching GCSE resit, what would it be?
7. What would you like to have/happen/exist to support you better?

A full illustrated summary of the discussions generated by these questions follows, after a list of the links shared during this #mathsCPDchat.

[Checkpoints](#) which are NCETM resources. They are diagnostic tasks, designed to help teachers see what mathematical understanding students have retained. It was shared by [Rebecca Atherfold](#)

[MEI Resources](#) which is where on the MEI website you will find resources to support resit Level 2 Mathematics teaching and learning. They are presented in collections with headings such as *Desmos for GCSE Maths*, *Securing key skills in Number*, *Maths at work guides*, *A bundle of Graphs app*, *MEI Conference 2022 session resources*, and so on. It was shared by [Elizabeth Hopker](#)

[A new maths GCSE curriculum for post-16 resit students](#) which is where you can find a report from MEI that outlines a curriculum for a new qualification focussing on the maths needed for everyday life and work, which also has sufficient rigour to meet the requirements of a GCSE qualification. It was shared by [Elizabeth Hopker](#)

[Teaching for Mastery: questions, tasks and activities to support assessment Year 5](#) which is a PDF document from the NCETM. The questions, tasks and activities, with detailed guidance about using them, provide a useful vehicle for assessing whether students have mastered the mathematics involved. It was shared by [Elizabeth Hopker](#)

[The Focussed 15 - TEC Partnership](#) which are documents collected/presented on a padlet by [Emma Bell](#) from the C4ME Team at Grimsby Institute (Part of the TEC Partnership) CfEM. They consist of fifteen interconnected topics which vary in size and difficulty, but build over time to give a rounded, good level of mathematical understanding for GCSE resit students. It was shared by [Emma Bell](#)

[Standards Unit: Improving learning in mathematics](#) which are resources, built on research evidence and developed from the work of Susan Wall and Dr Malcolm Swan. They offer practical and effective ways to improve learning in mathematics, and were originally designed for post-16 mathematics, although they have for years been used very effectively across the whole secondary phase. It was shared by [Emma Bell](#)

[CfEM Action Research findings 2020/21](#) which is where on the Education and Training Foundation (ETF) website you will find research reports written by Action Research Groups in summer 2021, and other material from the ETF's *Centres for Excellence in Maths* (CfEM). It was shared by [Elizabeth Hopker](#)

[Quibans: Questions inspired by a news story](#) which are (106 presently) well-illustrated resources (teacher guides) created by [Mark Dawes](#) in which he shows in detail how news items can be used to provoke mathematical questions and support learning. Lesson materials are provided for each of the 106 items/guides. It was shared by [Elizabeth Hopker](#)

[Mathematics Pret Homeworks](#) which is a 'website for maths teachers to share their homework creations'. It was shared by [Elizabeth Hopker](#)

[People Maths: Hidden Depths](#) which is an e-book from the ATM. The activities use people to form the moving pieces of, for example, a puzzle, a calculation, a diagram or a demonstration. The emphasis is on discussion within the group taking part in order to support/enhance the learning of those students. It was shared by [Mary Pardoe](#)

[Algebradabra - Developing a better feel for school algebra](#) which is an e-book from the ATM by [Dietmar Küchemann](#). It is a collection of twenty sets of five related algebra tasks to help students develop a better feel for school algebra. It was shared by [Mary Pardoe](#)

[NCETM Secondary Archive](#) which is the part of the NCETM website where you will find an archive of all Secondary Magazines. Images from Issues [67](#), [68](#) and [72](#) were shared during the chat. It was shared by [Mary Pardoe](#)

[The Map of Mathematics](#) which 'is a map of mathematics as it stands today, mathematics as it is practised by mathematicians'. It was shared by [Mary Pardoe](#)

To the host's 'Welcome' tweet ...



Rebecca Atherfold @becatherfold · 17h

...

Welcome to tonight's [#mathscpdchat](#)! Our topic is GCSE resit. Remember to include [#mathscpdchat](#) in all your tweets, including replies. If you would like to introduce yourself and briefly describe your setting, please do below!



... there were the following replies from some of the contributors-to/observers-of the chat:



Rebecca Atherfold @becatherfold · 17h

...

Replying to @becatherfold

I'll go first - I'm Rebecca and work in a London FE college, where we teach GCSE to all our students (e.g. no functional skills) [#mathscpdchat](#)



James Maloney @JamesWMaloney · 17h

...

Replying to @becatherfold

Evening! GCSE Resits at an FE college. Some FS (mainly E3) for learners without prior attainment mainly. FS commonly for apprentices. [#mathscpdchat](#)



Director of Maths @DirectorMaths · 17h

...

Replying to @becatherfold

Gemma, secondary 11-18 in Yorkshire. Our sixth form is shared across three schools in our trust with students commuting between each school. [#mathscpdchat](#)



Rebecca Atherfold @becatherfold · 17h

...

Replying to @DirectorMaths

[#mathscpdchat](#) Hi Gemma, really interested to hear from colleagues in schools as well as FE!



Jude Mortimer @Littlemissmath5 · 17h

...

Replying to @becatherfold

I'm Jude and teach one day a week in an adult college. Previously taught GCSE resit but they have cancelled classes this year due to low enrolments and just offering FS. [#mathscpdchat](#)



Elizabeth Hopker @lihopker · 17h ...

Replying to @becatherfold

Joining and very excited - I'm Liz and I'm a maths education support specialist at MEI. Up until the end of August I was at a London FE college teaching FS Maths up to Level 1 and GCSE (also Core Maths).

#mathscpdchat



Hannah Neech #FE @neechmaths · 16h ...

Replying to @becatherfold

Evening, sorry so late! I'm Hannah and I teach GCSE maths to adults in an FE college as well as one 16-18 ESOL group.



Joanne Green @MsJoanneGreen · 17h ...

#mathscpdchat @becatherfold Hello everyone 😊 My name is Joanne and I work supply: nursery to college, and I'm working my way up to teach in university. My preferred subjects are Maths and Chemistry. Being a supply gives me the opportunity to teach all subjects.



Joanne Green @MsJoanneGreen · 17h ...

#mathscpdchat @becatherfold My current school is an outstanding high school where I'm in the maths department 🥰 They are a great team

The host's FIRST QUESTION ...



Rebecca Atherfold @becatherfold · 17h ...

#mathscpdchat so, my first question tonight is - how are you finding the first post lockdown cohort? Are there noticeable differences from the CAG/TAG students?

... prompted the following conversation about important skills students have not yet acquired:



Stuart @need_coffee_now · 17h ...

Replying to @becatherfold and @PardoeMary

There are noticeable gaps in learning, especially in those quick recall skills such as number bonds and times tables.



Rebecca Atherfold @becatherfold · 17h ...

Replying to @need_coffee_now and @PardoeMary

#mathscpdchat more so than previously? Makes sense - they still missed a lot of F2F teaching



Stuart @need_coffee_now · 17h ...

Replying to @becatherfold and @PardoeMary

#mathscpdchat I think that's part of it. We, as educators, take that these skills have been learned for granted



Rebecca Atherfold @becatherfold · 17h

...

Replying to @need_coffee_now and @PardoeMary

#mathscpdchat yes - and assume they have retained it too! Would love to hear how you been supporting students with this!



Stuart @need_coffee_now · 17h

...

Replying to @becatherfold and @PardoeMary

#mathscpdchat we've needed to interweave the skills throughout lessons, especially in addition and subtraction. Getting pupils to recognise that 7 can be a 3 and a 4, then the lightbulb flicks on

Missed topics, rather than lack of fundamental skills, were also mentioned ...



James Maloney @JamesWMaloney · 17h

...

Replying to @becatherfold

When there's gaps they're more likely to be whole topics, rather than maybe parts of it. Where foundation students often did miss out parts of the syllabus (trig values, I'm looking at you!) lockdowns seem to mean more topics missed. Understandably so. #mathscpdchat



Rebecca Atherfold @becatherfold · 17h

...

Replying to @JamesWMaloney

#mathscpdchat I do wonder if that will be a legacy of the advance information?

... but observations reported in this conversation were more positive:



Director of Maths @DirectorMaths · 17h

...

Replying to @becatherfold

Students seem more switched on for resit this year. It's also felt nicer to teach, the last few years there has been an air of "why didn't you give me the grade first time..?" #mathscpdchat



Rebecca Atherfold @becatherfold · 17h

...

Replying to @DirectorMaths

Yes - same they seem more energised somehow #mathscpdchat



Director of Maths @DirectorMaths · 17h

...

Replying to @DirectorMaths and @becatherfold

Also because of the advance info they seem to have a better idea of exactly what they need to work on. #mathscpdchat

A teacher of adults commented ...



Hannah Neech #FE @neechmaths · 17h

...

Replying to @becatherfold

Not applicable to me so much since I teach adults

... and there was this quote-retweet of Question 1:



Joanne Green @MsJoanneGreen · 19h

...

#mathscpdchat @becatherfold The Year 7 are truly amazing, wonderful, beautiful pupils. Absolute joy to teach. They are clever too. They are interested, keen to learn, want to please and listen, respectful, I could go on and on and on 😊



Rebecca Atherfold @becatherfold · 19h

#mathscpdchat so, my first question tonight is - how are you finding the first post lockdown cohort? Are there noticeable differences from the CAG/TAG students?

The host's SECOND QUESTION ...



Rebecca Atherfold @becatherfold · 17h

...

Q2 - The resit year is really more like 8 months - time is such an issue. What did you use to determine your students starting point this year? Apart from their previous grade #mathscpdchat

... was followed by a further question from her ...



Rebecca Atherfold @becatherfold · 17h

...

Replying to @becatherfold
#mathscpdchat and how useful was it??

... which directly prompted a short three-tweet conversation:



Elizabeth Hopker @lihopker · 18h

...

Replying to @becatherfold

On enrolment my old college used grades and BKSBS initial assessments if no grades. Then, the plan was to do baseline assessments in week 4/5 for GCSE and BKSBS/Century Tech for FS. #mathscpdchat But realistically, ongoing in class mini-assessment/questioning is more telling

(Note: BKSBS is a company that 'develops and supplies EdTech products to improve English and maths skills'.)



James Maloney @JamesWMaloney · 18h

...

Replying to @lihopker and @becatherfold

Yep, fairly easy to predict what Qs on an exam the grade 3s are likely to have missed or got wrong. Ongoing highlights the depth of understanding of a topic. #mathscpdchat



Elizabeth Hopker @lihopker · 18h

...

Replying to @JamesWMaloney and @becatherfold

Absolutely - and the misconceptions that learners need to work through before being able to be confident and successful with topics

#mathscpdchat

All the other conversations generated by the SECOND QUESTION were prompted by replies to it. This was a comment pointing out an advantage of teaching GCSE resit in a school, rather than in a college ...



Director of Maths @DirectorMaths · 17h

...

Replying to @becatherfold

I guess this is where being a school/trust comes in handy but we got their papers back, made a QLA and went from there putting a “maximum impact SoL” together #mathscpdchat



Rebecca Atherfold @becatherfold · 17h

...

Replying to @DirectorMaths

#mathscpdchat That's a real advantage - all my students are completely new to me

... and a resource popular with college teachers was discussed:



Em Bell @EI_Timbre · 17h

...

Replying to @becatherfold

I've heard great things about some colleges using the @NCETM checkpoints to inform planning with Post16. #mathscpdchat



Rebecca Atherfold @becatherfold · 17h

...

Replying to @EI_Timbre and @NCETM

#mathscpdchat They are such a great resource! Love them!

	<p>ncetm.org.uk</p> <p>Checkpoints – new diagnostic classroom activities... A year's worth of resources and professional development are being produced to support ...</p>
---	--



James Maloney @JamesWMaloney · 17h

...

Replying to @becatherfold @EI_Timbre and @NCETM

We've not used these. Investigation time... #mathscpdchat

-  **Holly Connor** @hollyconnor52 · 15h ...
Replying to @JamesWMaloney @becatherfold and 2 others
And me Maloney! Investigation time!
-  **Em Bell** @EI_Timbre · 17h ...
Replying to @JamesWMaloney @becatherfold and @NCETM
The teacher notes that accompany them are awesome. And the only place the slides mention y7 is on the title :) #mathscpdchat
-  **MrsD** @MrsDMaths · 17h ...
Replying to @EI_Timbre @JamesWMaloney and 2 others
They are so so so good #mathscpdchat
-  **James Maloney** @JamesWMaloney · 17h ...
Replying to @MrsDMaths @EI_Timbre and 2 others
You like them then Sarah? 😊 #mathscpdchat
-  **MrsD** @MrsDMaths · 17h ...
Replying to @JamesWMaloney @EI_Timbre and 2 others
Little bit 😊

Ways in which 'Initial Assessment' (IA) of FE students starting a GCSE resit course may be unhelpful or counterproductive were discussed:

-  **James Maloney** @JamesWMaloney · 18h ...
Replying to @becatherfold
Initial Assessment - one calc paper sat in first week in Maths. Starting point is then combo of that and grade. Fast track identified for Nov resit from IA. Personally not convinced of how useful it is, (IA needed for audit purposes) #mathscpdchat
-  **Rebecca Atherfold** @becatherfold · 18h ...
Replying to @JamesWMaloney
#mathscpdchat yes there are a lot of boxes to tick with IAs etc
-  **Elizabeth Hopker** @lihopker · 18h ...
Replying to @JamesWMaloney and @becatherfold
Personally, I find the IA or mock exams being needed for audit purposes such an ongoing struggle in FE - particularly with enrolment throughout the year. #mathscpdchat
-  **Holly Connor** @hollyconnor52 · 16h ...
Replying to @lihopker @JamesWMaloney and @becatherfold
And in terms of engaging the learners and a positive start to term, it's the worst thing we can do!



MathSmart Martin Newton @martinnewton112 · Oct 11 ...
#mathscpdchat @JamesWMaloney @lihopker I think there are so many other ways of assessing once students are in the class. Being responsive in class especially with resit students is crucial. A more formal assessment often confirms their negative beliefs that they bring to maths



Rebecca Atherfold @becatherfold · Oct 11 ...
Replying to @martinnewton112 @JamesWMaloney and @lihopker
Absolutely this "Welcome to GCSE resit - here's another version of that exam we know you failed" isn't the message we want to send!



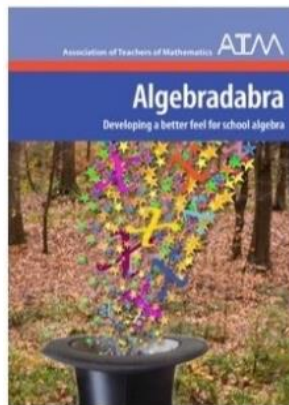
James Maloney @JamesWMaloney · Oct 11 ...
Replying to @becatherfold @martinnewton112 and @lihopker
As a resit teacher it can feel a bit, "You've just had 5 years of algebra, now it's my job to finally make you love it! And in a shortened time frame!" Got to think of new ways to come at it. (This is the bit where I complain about the syllabus.) #mathscpdchat



Rebecca Atherfold @becatherfold · Oct 11 ...
Replying to @JamesWMaloney @martinnewton112 and @lihopker
Oh I hear you!! #mathscpdchat



Mary Pardoe @PardoeMary · Oct 11 ...
Replying to @JamesWMaloney @becatherfold and 2 others
Have you used this?
atm.org.uk/shop/All-Books..
#mathscpdchat



Algebradabra - Developing a better feel for school algebra ebook

Algebradabra e-book - Developing a better feel for school algebra ebook, by Dietmar Küchemann

Non-Member Price: £7.00
Member Price: £5.25

Quantity [Add to cart](#)



James Maloney @JamesWMaloney · Oct 11 ...
Replying to @PardoeMary @becatherfold and 2 others
I have not. It's gone on the list! Thanks. #mathscpdchat



Rebecca Atherfold @becatherfold · Oct 11 ...
Replying to @PardoeMary @JamesWMaloney and 2 others
I am going to do some serious shopping at the next conference!!
#mathscpdchat



James Maloney @JamesWMaloney · Oct 11

...

Replying to @becatherfold @martinnewton112 and @lihopker

Building relationships feels even more important than it did in school. Getting students onside can help massively. The news is great for that. Fermi'd my way through some topical issues etc, good for building number sense and four operations. #mathscpdchat



Rebecca Atherfold @becatherfold · Oct 11

...

Replying to @JamesWMaloney @martinnewton112 and @lihopker

Yes - its nice to have space to talk and get to know them #mathscpdchat

QUESTION 2 also prompted this conversation ...



Sir Raymond ❤️ @RMcstravick · 18h

...

Replying to @becatherfold

Result from GCSE. We use Ccea examining in Northern Ireland. They sit 2 units so may have passed 1 already and may only have to sit 1 more unit as its carried over.



Rebecca Atherfold @becatherfold · 18h

...

Replying to @RMcstravick

#mathscpdchat that sounds interesting - I need to learn more about that



James Maloney @JamesWMaloney · 18h

...

Replying to @RMcstravick and @becatherfold

I'm quite taken by a return to modular for resits. (Appreciating the myriad problems!) #mathscpdchat

... this single reply ...



Hannah Neech #FE @neechmaths · 17h

...

Replying to @becatherfold

Short 30 min paper and century diagnostic. Paper one done much more informally this year with students self marking straight away. Intended for giving immediate feedback and helping students to identify their own strengths/weaknesses. More useful than previous more formal baselines.

... and this:



Joanne Green @MsJoanneGreen · Oct 11

...

#mathscpdchat @becatherfold School does midterm assessments and 2 lessons as a Check Point revision to revise and practise Assessment topics. Pupils who struggle with any part, a teaching assistant will tutor them and return them to class.



Rebecca Atherfold @becatherfold · Oct 11

...

Replying to @MsJoanneGreen

Sounds great to have the resources to tutor! #mathscpdchat

QUESTION 3 ...



Rebecca Atherfold @becatherfold · 19h

...

Q3 - Sticking with time. How do you decide what to cover in your SoL?
[#mathscpdchat](#)

... prompted thoughts about 'curriculum maps' in this conversation:



Elizabeth Hopker @lihopker · 19h

...

Replying to [@becatherfold](#)

Personally, ever since I was introduced to Emeny's map of interconnected maths topics, that plays a big part. Additionally, teaching maths not just as separate topics, but connected topics and linking through is key for a SoL. Then, adapting the SoL to each class [#mathscpdchat](#)



Rebecca Atherfold @becatherfold · 19h

...

Replying to [@lihopker](#)

That was really influential for me too [#mathscpdchat](#)



Elizabeth Hopker @lihopker · 19h

...

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

Also the Focused 15 [@EI_Timbre](#) , and the SoLs produced and shared by yourself [@becatherfold](#) and from some of the CfEMs (Leyton). They give great ideas not just for topics, but also levels of entry for ss.
[#mathscpdchat](#)



Rebecca Atherfold @becatherfold · 19h

...

Replying to [@lihopker](#) and [@EI_Timbre](#)

Thank you! [#mathscpdchat](#)



Jude Mortimer @Littlemissmath5 · 18h

...

Replying to [@lihopker](#) [@becatherfold](#) and [@EI_Timbre](#)

Yep love [@EI_Timbre](#) Focused 15!



Em Bell @EI_Timbre · 18h

...

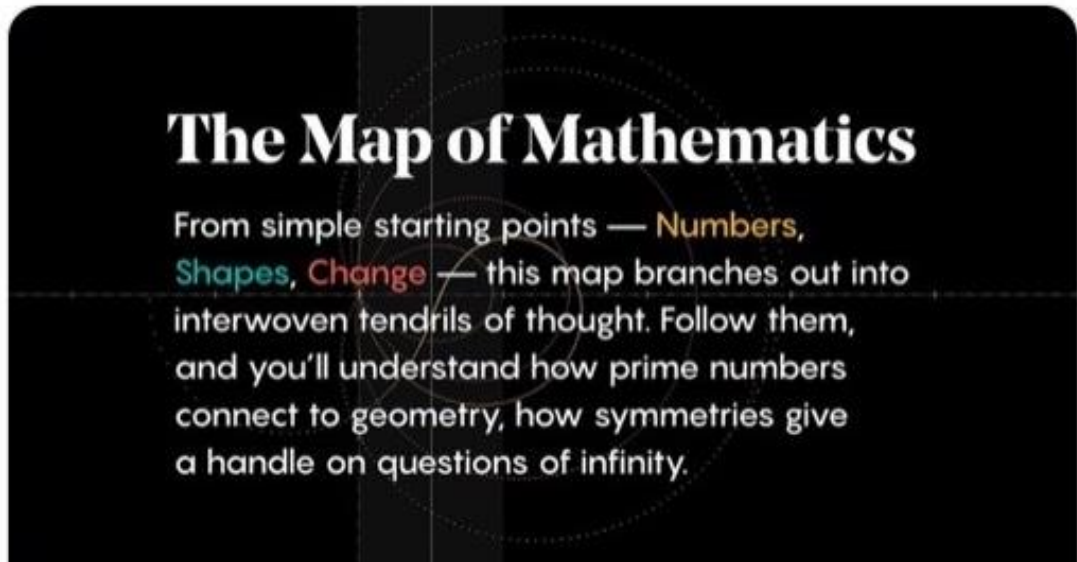
Replying to [@Littlemissmath5](#) [@lihopker](#) and [@becatherfold](#)



(Note: Links to CfEM action research reports, such as *Improving the motivation and engagement of maths GCSE resit students in FE colleges*, and the work of teachers at Leyton Sixth Form College, and to Emma Bell's Focused 15 padlet of resources, are provided above.)



Mary Pardoe @PardoeMary · 18h
Replying to @lihopker and @becatherfold
And there is this one (map) ...
quantamagazine.org/the-map-of-mat..
[#mathscpdchat](#)



quantamagazine.org
The Map of Mathematics | Quanta Magazine
Explore our surprisingly simple, absurdly ambitious and necessarily incomplete guide to the boundless mathematical universe.

(Note: A link to this map, which is interesting but probably not helpful in planning GCSE resit Schemes of Work, is provided above.)



Rebecca Atherfold @becatherfold · 18h
Replying to @PardoeMary and @lihopker
I haven't seen this - bookmarking for later! [#mathscpdchat](#)

These comments were about prioritising aspects of maths on which to focus with resit students ...



James Maloney @JamesWMaloney · Oct 11
Replying to @becatherfold
A focus on Number and Proportional Reasoning as it's such a big part of the syllabus and underpins so much. Some topics only taught to cohorts ready for them. Revisiting topics regularly and key skills every lessons.
[#mathscpdchat](#)



Rebecca Atherfold @becatherfold · Oct 11

...

Replying to @JamesWMaloney

PR really is crucial isn't it? #mathscpdchat

... and teachers looked at how to address the content of GCSE Higher tier maths:



Hannah Neech #FE @neechmaths · Oct 11

...

Replying to @becatherfold

Not entirely sure as not involved in creating it but seems similar to focused15. Last year some teachers trialled interleaved approach vs linear. This year back to more linear scheme but adapted to include a bit of interleaving for some topics like statistics. #mathscpdchat



Hannah Neech #FE @neechmaths · Oct 11

...

Replying to @neechmaths and @becatherfold

Very little time in SOL (if any at all) for grade 5 topics is a challenge with adults - some more than capable of a 5. Have to stretch more able students with extra online learning on century as just not enough time. #mathscpdchat



Rebecca Atherfold @becatherfold · Oct 11

...

Replying to @neechmaths

Yes I feel that with adults and some 16-19. I'm teaching a higher group this year. We are seeing more and more students who are capable but weren't in school in the UK last year #mathscpdchat



Hannah Neech #FE @neechmaths · Oct 11

...

Replying to @becatherfold

I have a couple of adults who are probably entering higher but we don't actually teach higher - they are having to self teach using mathsgenie etc. alongside attending the Foundation lessons. Only works for those who are very motivated #mathscpdchat



Rebecca Atherfold @becatherfold · Oct 11

...

Replying to @neechmaths

It's not easy. I am adding related higher topics to our foundation SOL where they fit and then will give them a paper to complete at the end of November and take it from there #mathscpdchat

This was a single reply ...



Stuart @need_coffee_now · Oct 11

...

Replying to @becatherfold

Place Value and number is the foundation for maths, followed by calculation. Measures are great to use during contextual problem solving #mathscpdchat

... and there were the following tweets:



Joanne Green @MsJoanneGreen · Oct 11
[#mathscpdchat](#) @becatherfold What is SoL? ...



Rebecca Atherfold @becatherfold · Oct 11

Q3 - Sticking with time. How do you decide what to cover in your SoL?
[#mathscpdchat](#)



Rebecca Atherfold @becatherfold · Oct 11 ...

Replying to @MsJoanneGreen
Scheme of learning [#mathscpdchat](#)



Joanne Green @MsJoanneGreen · Oct 11 ...

[#mathscpdchat](#) @becatherfold School uses Edexcel and as a whole package, supplemented with online games. Planners help the pupils be organised. All lessons start and end the same so are consistent. Some lessons have two teachers, and they are split into 2 groups.



Rebecca Atherfold @becatherfold · Oct 11

Q3 - Sticking with time. How do you decide what to cover in your SoL?
[#mathscpdchat](#)

Rebecca's QUESTION 4 ...



Rebecca Atherfold @becatherfold · Oct 11 ...

Q4 - What resources do you love for resit? It can be hard to find things that are mathematically and age appropriate.... [#mathscpdchat](#)

... in this conversation prompted several resource suggestions that included Emma Bell's padlet mentioned earlier ...



Em Bell @El_Timbre · Oct 11




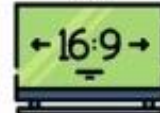



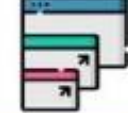


Replying to @becatherfold

I like the F15 (but I am biased!) :) padlet.com/emmabellmei/f15

This links to Q3 too.

Formulated with lots of past exam data... #mathscpdchat

This is YOUR year!

FF01	FF02	FF03	FF04	FF05
Types of Number 	Using Number 	Simple Probability 	Ratio 	Measures 
FF06	FF07	FF08	FF09	FF10
Rounding & Approximation 	Perimeter, Area & Volume 	Proportion 	Simplify & Solve 	Percentages 
FF11	FF12	FF13	FF14	FF15

padlet.com
The Focused 15 - TEC Partnership
Documents from the C4ME Team at Grimsby Institute (Part of the TEC Partnership) CfEM



Rebecca Atherfold @becatherfold · Oct 11

Replying to @El_Timbre

I'm going to sing the praises of @mathsbox1 and @MathsPadNicola here - great resources to support post 16 students #mathscpdchat



Em Bell @El_Timbre · Oct 11

Replying to @becatherfold @mathsbox1 and @MathsPadNicola

Oooh good call!!! #mathscpdchat



Milena Lee @MathsSecondary · Oct 11

Replying to @becatherfold @El_Timbre and 2 others

Yes! Maths box seconded... Not seen the other



Milena Lee @MathsSecondary · Oct 11

Replying to @MathsSecondary @becatherfold and 3 others

Ps, just followed @MathsPadNicola , looks great! Thanks #mathscpdchat



Rebecca Atherfold @becatherfold · Oct 11

...

Replying to @MathsSecondary @El_Timbre and 2 others

The core and support booklets have some amazing activities that really get the students to think - but that are also totally accessible. Big recommend from me #mathscpdchat

... and resources created primarily for Core Maths were discussed:



James Maloney @JamesWMaloney · Oct 11

...

Replying to @becatherfold

I started using Core Maths topics and contexts. E.g. finance, payslips. Talking around the skills a bit more.

Our lesson structure is 5Rs, but individual resources or activity type is a balance of familiarity by using regularly but not so regularly they get bored! #mathscpdchat



Elizabeth Hopker @lihopker · Oct 11

...

Replying to @JamesWMaloney and @becatherfold

I love using Core Maths topics and contexts - I think you can also bring it down to FS maths too. quibans.blogspot.com - is brilliant for ideas! #mathscpdchat



Jude Mortimer @Littlemissmath5 · Oct 11

...

Replying to @lihopker @JamesWMaloney and @becatherfold

Totally! I've been looking at inflation, energy increases and tax with my L2 lot recently. Gives percentages a purpose. #mathscpdchat



Rebecca Atherfold @becatherfold · Oct 11

...

Replying to @JamesWMaloney

And it will be useful whether they leave with GCSE or not #mathscpdchat

In a long 'conversation' various resources were recommended, including these from MEI:



Elizabeth Hopker @lihopker · Oct 11

...

Replying to @becatherfold

@MEImaths has a resource page mei.org.uk/resources/?cur... in addition to resources for a post-16 contextualised GCSE resit mei.org.uk/about-mei/what.., and the contextualisation toolkit



mei.org.uk
Resource - MEI



Elizabeth Hopker @lihopker · Oct 11



Replying to @becatherfold

Also, lots of resources from appendices in CfEM action research. et-foundation.co.uk/professional-d..

Mathsbot is great for manipulatives and other tech tools.

prethomework.weebly.com - Pret homework also has a good collection of things that can be adapted/modified



et-foundation.co.uk

Action Research - The Education and Training Foundation

The Centres for Excellence in Maths (CfEM) Action Research teacher recruitment and dissemination of findings.



Elizabeth Hopker @lihopker · Oct 11



Replying to @lihopker and @becatherfold

Twitter is great, as are discussing with other teachers - CfEM networks or NCETM GCSE resit maths working groups can be a great source for that!

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



Em Bell @El_Timbre · Oct 11



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



Elizabeth Hopker @lihopker · Oct 11



Replying to @becatherfold

Also, lots of things on desmos which were developed during the pandemic can be great for catch up/adaptation now. Particularly for visualising things.

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



Hannah Neech #FE @neechmaths · Oct 11

...

Replying to @becatherfold

We've been provided with a set of exam questions to incorporate into each lesson - this has been an excellent resource though more restrictive and less space for the many other excellent resources out there!

#mathscpdchat



Hannah Neech #FE @neechmaths · Oct 11

...

Replying to @neechmaths and @becatherfold

I like mathsgenie for adults - not the most exciting but they know it's all there with answers and videos and sorted by grade so many like this.

#mathscpdchat



Rebecca Atherfold @becatherfold · Oct 11

...

Replying to @neechmaths

It's a really popular resource and I can see why - you can see your progress and the steps you need to take #mathscpdchat



Milena Lee @MathsSecondary · Oct 11

...

Replying to @becatherfold

We use Birmingham maths booklets each year, they are great both to use with a teacher and students independently



Rebecca Atherfold @becatherfold · Oct 11

...

Replying to @MathsSecondary

I don't know these - would you have a link please? #mathscpdchat



Mary Pardoe @PardoeMary · Oct 11

...

Replying to @becatherfold

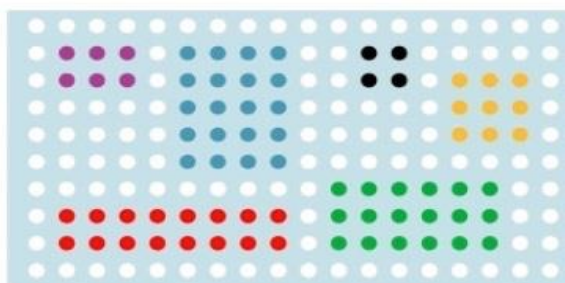
In the archived NCETM Secondary Magazine ...

[ncetm.org.uk/news-features/...](https://ncetm.org.uk/news-features/) ... are some articles that might be useful ... because they are a bit 'different' ... e.g. these are from Issues 67, 68 and 72

#mathscpdchat



Make 'filled in' rectangles:



Ask yourself questions about composite and prime numbers.

Explore some number sequences that you can generate, such as the sequence of squares, 1, 4, 9, 16...

What happens when you explore 'tilted' rectangles?



In what ways are different right-angled triangles on the board related to each other?

For example:



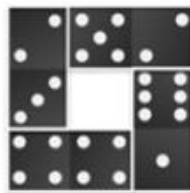
- It is easy to see, by noticing the number of the smallest right-angled triangles composing each larger triangle, that the areas of the similar right-angled triangles shown in this diagram are in the ratios 1:3:4:9:12. Can I show using Pythagoras' theorem that their lengths are in the ratios $1:\sqrt{3}:2:3:2\sqrt{3}$?
- Is it possible to obtain each triangle shown in the diagram from every other one that is shown by combining mathematical transformations of rotation, reflection and enlargement?



What trapezia are on the board? Many pairs of trapezia are congruent, but are any pairs similar?



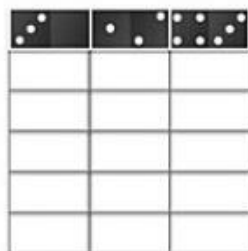
This is another well-known domino puzzle. In this 'hollow' square of four dominoes the sum of the dots on each of the four sides is 9:



composed by the author
from images of dominoes
by [Jelte](#)

Arrange the 28 dominoes of a complete double-6 set into seven hollow squares so that in each square the sum of the dots on each of the four sides is equal.

Many domino puzzles are about arranging dominoes to form 'solid' rectangles, as in this Dudeney 'magic square' puzzle. Complete this 6x6 square formed with dominoes so that the sum of the pips in every row, column and diagonal is 13.



composed by the author
from images of dominoes
by [Jelte](#)

This puzzle can be extended to an investigation: is there just one way of arranging 18 dominoes to make a magic square with a row, column and diagonal total of 13? Can 18 dominoes be arranged to make other 6x6 number squares in which the sum of the pips in every row, column and diagonal



Elizabeth Hopker @lihopker · Oct 11

...

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

Also, the primary and secondary NCETM year resources can be useful [@becatherfold](#) - I've lost the link, but I know you used them as inspiration for research! They need to be adapted, but useful for mastery pedagogy [#mathscpdchat](#)



Rebecca Atherfold @becatherfold · Oct 11

...

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

I did indeed - there is a lot there for GCSE resit [#mathscpdchat](#)

The (linked-to-Twitter) screenshots below show all the replies to Rebecca’s Questions 5 and 6, and the discussions that they generated. Teachers discussed whether the options currently available for students who, having ‘failed’ GCSE Mathematics in its present form, want to obtain a ‘Pass’ grade in it, or in something equivalent, are ‘fit for purpose’ and made suggestions for possible ways forward.

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



There was a single reply, in the form of a quote-retweet, from [Martin Newton](#):




The following conversation, involving [Hannah Neech](#), [Rebecca Atherfold](#) and [Susan Okereke](#) ended with the question ‘is the GCSE resit fit for purpose?’ ...



 **Hannah Neech #FE** @neechmaths · Oct 11 ...
Replying to @neechmaths @becatherfold and 2 others
@DoTheMathsThing Apologies I probably explained that badly
#mathscpdchat

 **Rebecca Atherfold** @becatherfold · Oct 11 ...
Replying to @neechmaths @JamesWMaloney and @DoTheMathsThing
I thought that was an interesting suggestion. @DoTheMathsThing is
awesome!

 **Susan Okereke** @DoTheMathsThing · Oct 11 ...
Replying to @becatherfold @neechmaths and @JamesWMaloney
Oh thank you! 😊 It's great to see discussions happening about gcse resit.
It's such an important qualification, especially for our most disadvantaged
students... and the question 'is the gcse resit fit for purpose?'... is
provocative but worth asking #mathscpdchat





... and some radical suggestions were included in this long discussion between [James Maloney](#),
[Elizabeth Hopker](#), [Rebecca Atherfold](#) and [Neil Jones](#):

 **James Maloney** @JamesWMaloney · Oct 11 ...
Replying to @becatherfold
A magic, magic, MAGIC wand would see a bespoke syllabus stripped of
certain topics, with the SoL based on vocational qualification. So An Man
students wouldn't do angles but Construction would etc. Algebra probably
limited to substitution. #mathscpdchat

 **Elizabeth Hopker** @lihopker · Oct 11 ...
Replying to @JamesWMaloney and @becatherfold
Likewise, I think maybe an even more magic wand would be to really drill
down the key topics/skills that absolutely everyone needs at a grade 4,
then give students the optional extra content. Similar to university. BUT I do
have caveats and it might not suit all #mathscpdchat

 **James Maloney** @JamesWMaloney · Oct 11 ...
Replying to @lihopker and @becatherfold
I absolutely do see the problems. But yes, a grade 4 should be what will
employers want their employees/trainees to be able to do fluently. And
what will students need to be successful adults. #mathscpdchat

 **Rebecca Atherfold** @becatherfold · Oct 11 ...
Replying to @JamesWMaloney
That's interesting... our students switch vocational quite a lot
#mathscpdchat

-  **James Maloney** @JamesWMaloney · Oct 11 ...
Replying to @becatherfold
True. Not normally within the year though. #mathscpdchat
-  **Elizabeth Hopker** @lihopker · Oct 11 ...
Replying to @JamesWMaloney and @becatherfold
I did once have a student who switched 3 times... #mathscpdchat also, college shopping - so attending one college for 1 week, then another for a week, then a 3rd and deciding in week 4
-  **James Maloney** @JamesWMaloney · Oct 11 ...
Replying to @lihopker and @becatherfold
Yes, I've just had some CM students moving to do A-levels. 42 days can be an annoyance! 😊 #mathscpdchat
-  **Elizabeth Hopker** @lihopker · Oct 11 ...
Replying to @JamesWMaloney and @becatherfold
Oh man! Yep, the 42 day rule can be a killer #mathscpdchat

(Note: Any student who is still on a course after 42 days have passed since he/she was enrolled on it is officially regarded as a candidate for the qualification for which the course is preparing him/her. Therefore if the student leaves the course after 42 days, in the achievement records of that school or college their absence will be recorded as a 'failure' for that qualification.)

-  **James Maloney** @JamesWMaloney · Oct 11 ...
Replying to @lihopker and @becatherfold
I was gonna say killer! But thought I was being dramatic! Consider it changed in my tweet! ;) #mathscpdchat
-  **Elizabeth Hopker** @lihopker · Oct 11 ...
Replying to @JamesWMaloney and @becatherfold
There are two of us who think it :D - though obviously used not in the literal sense! :) #mathscpdchat
-  **James Maloney** @JamesWMaloney · Oct 11 ...
Replying to @JamesWMaloney and @becatherfold
Modular exams maybe? You can use data, so we'll focus on shape and sit an exam to show you can now do this. #mathscpdchat
-  **Rebecca Atherfold** @becatherfold · Oct 11 ...
Replying to @JamesWMaloney
Yes! Make it seem more accessible #mathscpdchat



James Maloney @JamesWMaloney · Oct 11

...

Replying to @JamesWMaloney and @becatherfold

Other ideas:

A return to a proper foundation paper, not what can feel like an intermediate paper it is now.

CoF based on the idea that the majority of students will be in FE for at least 2 years?

[#mathscpdchat](#)



Rebecca Atherfold @becatherfold · Oct 11

...

Replying to @JamesWMaloney

Another big agree from me! [#mathscpdchat](#)



Elizabeth Hopker @lihopker · Oct 11

...

Replying to @JamesWMaloney and @becatherfold

Also, CoF is very confusing - old college enrolment was a grade 2 learner with an FS Level 2 doesn't need to do GCSE, but a grade 3 learner with an FS Level 2 does... [#mathscpdchat](#)



James Maloney @JamesWMaloney · Oct 11

...

Replying to @lihopker and @becatherfold

Oh don't get me on that one! I'm still waiting on an answer to something for @Craftie2004 [#mathscpdchat](#)



Neil Jones @Craftie2004 · Oct 11

...

Replying to @JamesWMaloney @lihopker and @becatherfold

I think something akin to modules? So they work on a module and then bank it - so can look to specific and relevant skills (number/ratio etc) and each module is worth points. Once certain amount of points accrued, progress just like those who achieved 4+ at school [#mathscpdchat](#)

There was a two-tweet response to Q5 from [Chris Briggs](#) ...



chris briggs @jonchristophe · Oct 11

...

Replying to @becatherfold and @JamesWMaloney

Remove funding for grades 1 to 3 in a resit and see how much more providers would give to support learners.



chris briggs @jonchristophe · Oct 11

...

Replying to @jonchristophe @becatherfold and @JamesWMaloney

And see how quickly other options would become more popular.

... and a single reply from [Milena Lee](#) ...



Milena Lee @MathsSecondary · Oct 11

Replying to @becatherfold and @JamesWMaloney

Offer a more worthwhile alternative, something between FS and GCSE maybe? #mathscpdchat

... which was quote-retweeted with a comment, by [Martin Newton](#):



MathSmart Martin Newton @martinnewton112 · Oct 11

mei.org.uk/about-mei/what.

This is still sitting on the shelf. #mathscpdchat



Milena Lee @MathsSecondary · Oct 11

Replying to @becatherfold and @JamesWMaloney

Offer a more worthwhile alternative, something between FS and GCSE maybe? #mathscpdchat

There was also this (serious?) quote-retweet of the host's Q5 by [Joanne Green](#):



Joanne Green @MsJoanneGreen · Oct 11

#mathscpdchat @becatherfold massively small groups. Pupils who lay slumped on their desk need to be given movement as the traditional environment bores them to sleep. I'd get them involved in the school musical to count movements and comments and make statistical reports.



Rebecca Atherfold @becatherfold · Oct 11

@JamesWMaloney comment leads me onto Q5. We know that resit results are horribly low. If you had a magic wand, what would you do to improve the situation? #mathscpdchat

Question 6 from [Rebecca Atherfold](#) ...



Rebecca Atherfold @becatherfold · Oct 11

Q.6 - if you had one top tip for teaching GCSE resit - what would it be? #mathscpdchat

... prompted uplifting comments from [Elizabeth Hopker](#) and [Rebecca Atherfold](#), and a description by [Gareth Fryar](#) of his situation:



Elizabeth Hopker @lihopker · Oct 11

Replying to @becatherfold

Talk to other teachers - it's a hard job, and not only do you get great inspiration and ideas, you also feel the joy of teaching GCSE resit maths and hearing about the lightbulb moments #mathscpdchat


 **Gareth Fryar** @garethfryar · 17h ...
Replying to @lihopker and @becatherfold
You're absolutely right Liz. I'm in my first year teaching at a large multi-campus college. I'm attached to the visual arts department. I share the staff room with some lovely folk but miss having the opportunity to bounce ideas around and share experiences with maths teachers.

 **Gareth Fryar** @garethfryar · 17h ...
Replying to @lihopker and @becatherfold
It leads to a feeling of remoteness which impacts on mental well-being. This is compounded by more being expected of maths and English practitioners in a decentralised structure as there's no specialist staff to signpost to.

 **Rebecca Atherfold** @becatherfold · Oct 11 ...
Replying to @lihopker
And there is such a supportive network out there! And here on twitter [#mathscpdchat](#)

There was this advice from [James Maloney](#) and [Rebecca Atherfold](#) ...

 **James Maloney** @JamesWMaloney · Oct 11 ...
Replying to @becatherfold
Build relationships. [#mathscpdchat](#)

 **Rebecca Atherfold** @becatherfold · Oct 11 ...
Replying to @JamesWMaloney
I agree with this - it helps with their attitude, behaviour and confidence. 16 - 19 years old are also v funny imo [#mathscpdchat](#)

... and this from [Emma Bell](#), [Gareth Fryar](#) and [Rebecca Atherfold](#):

 **Em Bell** @EI_Timbre · Oct 11 ...
Replying to @becatherfold
Use the Standards Unit resources 😊 [#mathscpdchat](#)
wirksworthii.nottingham.ac.uk/Improv_Learnin.

 **Gareth Fryar** @garethfryar · 17h ...
Replying to @EI_Timbre and @becatherfold
Couldn't agree more Emma. They're donkey's years old but are up there with the best resources to promote critical thinking.

 **Rebecca Atherfold** @becatherfold · 17h ...
Replying to @garethfryar and @EI_Timbre
Hard agree here too.

There was also a quote-retweet of the host's Q6 by [Joanne Green](#):



Joanne Green @MsJoanneGreen · Oct 11

...

#mathscpdchat @becatherfold do intervention classes resulting in a longer day, so the pupils can have more breaks. End those sessions with online learning games.



Rebecca Atherfold @becatherfold · Oct 11

Q.6 - if you had one top tip for teaching GCSE resit - what would it be? #mathscpdchat

QUESTION 7, the last question from the host ...



Rebecca Atherfold @becatherfold · Oct 11

...

To finish tonight - no magic wand this time, what would you like to support you better? #mathscpdchat

... prompted teachers, in this conversation, to suggest changes that they would like to see made to the present form of GCSE maths ...



Stuart 🍷 @need_coffee_now · Oct 11

...

Replying to @becatherfold

Exams to be replaced with projects and coursework. Give maths context to the lives of learners and their futures, rather than gearing them up to take a test, that once passed, is never thought of again. #mathscpdchat #controversialopinion



Rebecca Atherfold @becatherfold · Oct 11

...

Replying to @need_coffee_now

Maths that is useful - crazy talk! #mathscpdchat



Stuart 🍷 @need_coffee_now · Oct 11

...

Replying to @becatherfold

I know. I'm a maverick 🤪 #mathscpdchat



 **Rebecca Atherfold** @becatherfold · Oct 11 ...
Replying to @need_coffee_now
Maths teachers are way cooler than fighter pilots #fact

 **James Maloney** @JamesWMaloney · Oct 11 ...
Replying to @need_coffee_now and @becatherfold
Wales could be moving back to modulars, with the idea being to take away that final test importance. Of course, it may produce a testing treadmill...
#mathscpdchat

 **Rebecca Atherfold** @becatherfold · Oct 11 ...
Replying to @JamesWMaloney and @need_coffee_now
Be interesting to see though - something has to change #mathscpdchat

... and having 'more time' was mentioned:

 **Milena Lee** @MathsSecondary · Oct 11 ...
Replying to @becatherfold
A little bit more time?

 **Hannah Neech #FE** @neechmaths · Oct 11 ...
Replying to @MathsSecondary and @becatherfold
This 👍

There was this reminder ...

 **MathSmart Martin Newton** @martinnewton112 · Oct 11 ...
Remember MEI are here to help. We have a growing team of FE specialist including me, @El_Timbre , @lihopker ... we love working with FE.
#mathscpdchat

 **Rebecca Atherfold** @becatherfold · Oct 11
To finish tonight - no magic wand this time, what would you like to support you better? #mathscpdchat

 **Rebecca Atherfold** @becatherfold · Oct 11 ...
Replying to @martinnewton112 @El_Timbre and @lihopker
Absolutely!! #mathscpdchat

... and lastly there was thanks ... and a request!

 **James Maloney** @JamesWMaloney · Oct 11 ...
Replying to @becatherfold
Thanks! Could you do my photocopying for me? #mathscpdchat

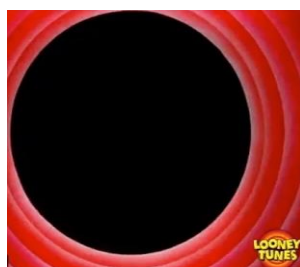
 **Rebecca Atherfold** @becatherfold · Oct 11 ...
Replying to @JamesWMaloney
Sure





 **James Maloney** @JamesWMaloney · Oct 11 ...
Replying to @JamesWMaloney and @becatherfold
And thanks for tonight! Plenty to go away and think about. #mathscpdchat

This was the host's last tweet of the chat, and more thanks:

 **Rebecca Atherfold** @becatherfold · Oct 11 ...
So our #mathscpdchat hour is up! I'm going to have a good look back as I am sure I have missed things - so I am sure I haven't finished tweeting for the night! Thank you all very much!



 **James Maloney** @JamesWMaloney · Oct 11 ...
Replying to @becatherfold
Thank you! Great discussion. #mathscpdchat

 **Elizabeth Hopker** @lihopker · Oct 11 ...
#mathscpdchat Thanks Bec - brilliant chat and discussion - can't believe it's after 8pm already!