

May–July 2020

In March 2020, schools were closed due to the COVID-19 pandemic, creating uncertainty in education. Many STEM enrichment activities for students were cancelled.

The *Stay at home* activity was launched to allow school students to stay connected with STEM from April to July. Students could log in and take part whether they were at school or at home, reconnecting with their teachers and each other.

2,500 STEM professionals signed up to take part and inspire students across the UK. Over 800 schools registered for their students to stay engaged with science, engineering and maths.

The Circle Zone, in *I'm a Mathematician, Stay at home*, ran over 7 weeks as part of the *Stay at home* activities, instead of the usual two. This Zone was funded by UKRI.

- 33 mathematicians created profiles in the Zone, and 33 engaged with students in live chats and answering questions. 25 of these mathematicians were new to the activities.
- Mathematicians from a broad range of areas and career stages took part. For example, Hannah West is a PhD student using maths to understand how to deliver cancer treatment, Arick Shao is a Senior Lecturer researching differential equations for mathematical modelling, and Alan Champneys is researching mathematical modelling about how to return safely from work after the first wave of COVID-19. On average, 5 mathematicians attended each live chat session.
- 170 students from 10 schools all over the UK logged into the Zone. 6 of these schools had taken part in a previous *I'm a...* activity.
- 21% of active students were from Widening Participation schools, and 53% from Underserved Schools.

Key activity figures

The Circle Zone was one of the quieter zones in the *Stay at home* activity. Numbers were similar to that of a normal zone, with 17 live chats across the zone.

In chats, discussions were on topic. There were many questions about the applications of mathematics in everyday situations, such as the role mathematics plays in medicine.

All of the 10 schools took part with maths classes.

	ZONE	STAY AT HOME AVERAGE
Schools	10	32
Students logged in	170	682
% of students active	62%	57%
Questions asked	16	178
Questions approved	12	151
Answers given	82	421
Scientist comments	14	95
Student comments	0	18
Votes	56	350
Live chats	17	55
Lines of live chat	3359	13374
Average lines per chat	198	227

Fewer students than anticipated took part in the activities, likely due to difficulties teachers faced with remote teaching and online learning.

28% of non-participating teachers told us they had been too busy to fit in a live chat due to an increase in workload. Others shared that their students were particularly struggling with online curriculum learning, and were unable to offer extra-curricular activities.

A majority of students took part from home. This led to a lower average percentage of active students (57%) due to challenges faced by teachers to engage classes and issues with access to technology at students' homes.

School activity

Presdales School, Ware [U]
(52 4)

Victoria Primary School, Edinburgh
(14 11)

Beech Hill Community Primary School,
Wigan [WP/U]
(10 24)

Aldridge School, Walsall [WP]
(9 11)

Mount Stuart Primary, Cardiff
(7 17)

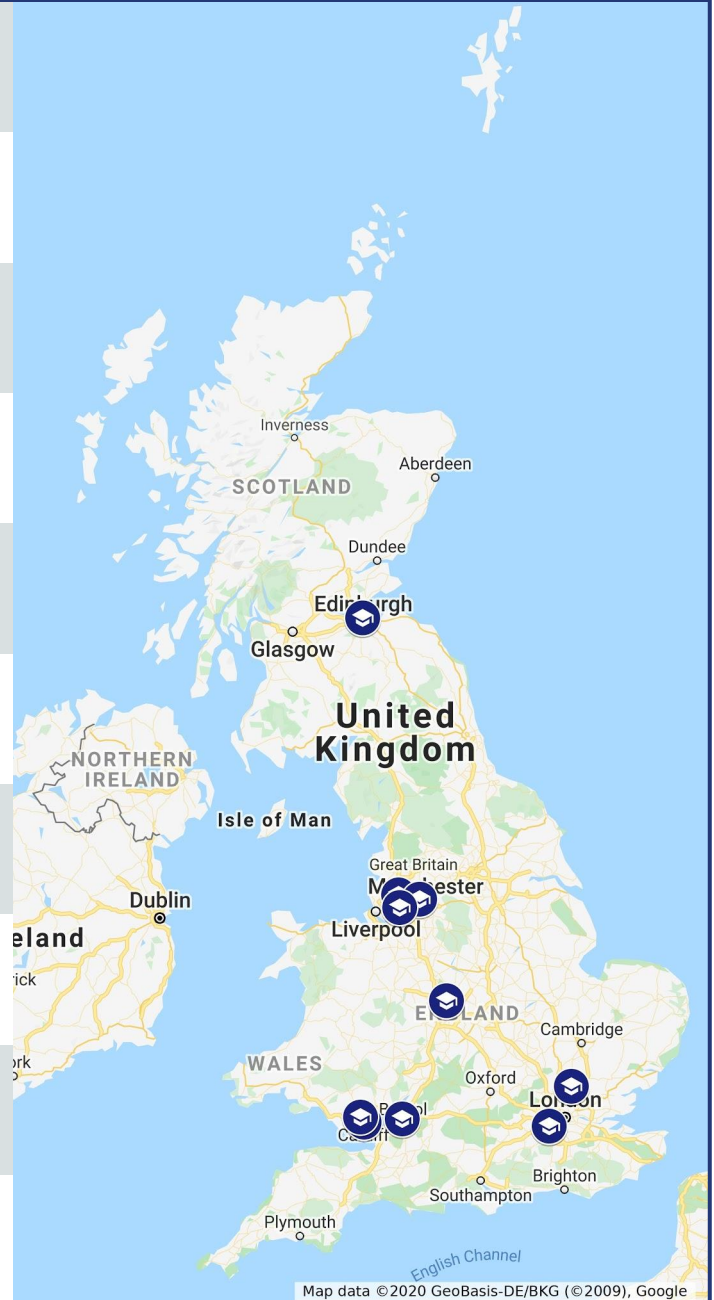
Horfield CE Primary School, Bristol
(7 15)

St Mark's CE Primary School, Manchester
(6 33)

Wargrave CE Primary School,
Newton-le-Willows [WP]
(5 62)

Lady Eleanor Holles School, Hampton
(5 11)

Whitchurch High School, Cardiff
(2 4)



Map and table (above) show schools with students who actively participated in the zone.

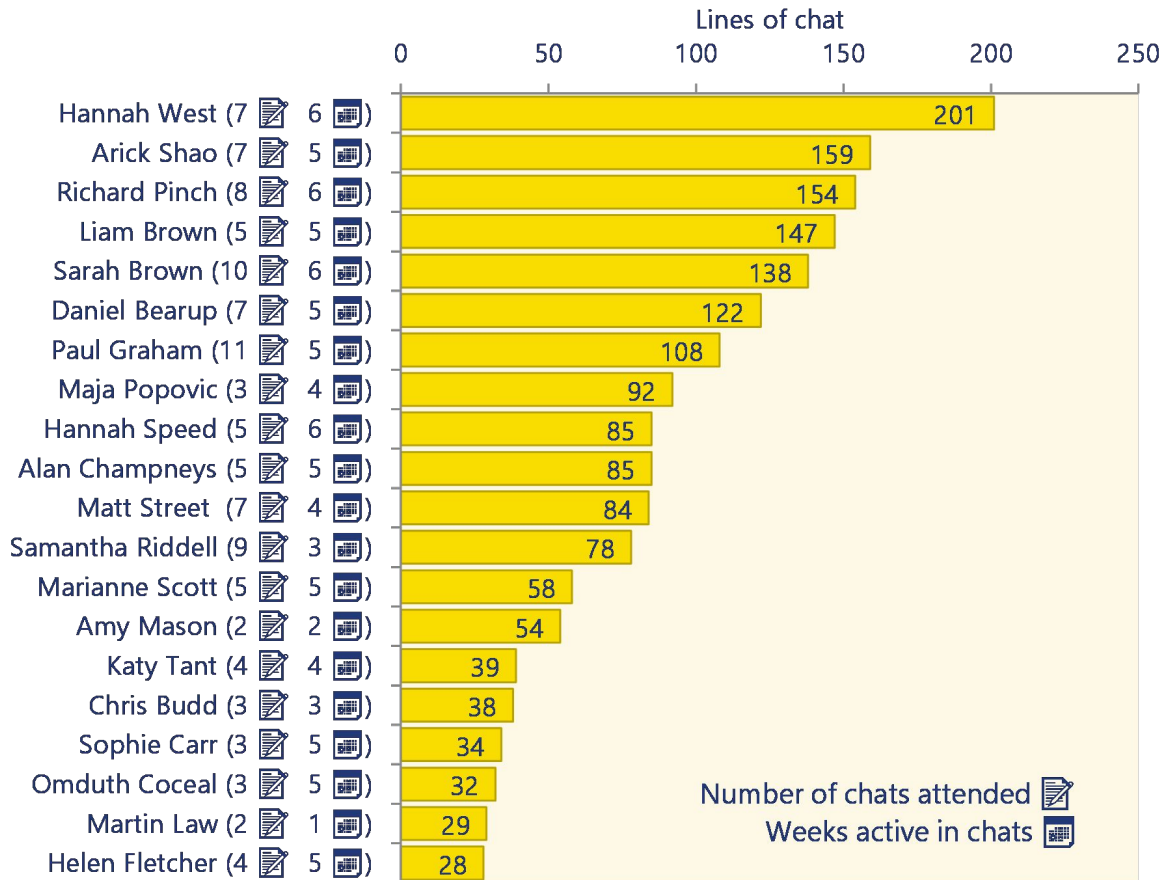
Numbers next to schools represent the number of active users [] and average lines of live chat per active user [].

We want to increase the participation of under-represented groups going into STEM careers. Find out what we mean by our under-served (U) and WP schools (WP), and how you can support us in working with more of these at: about.imascientist.org.uk/under-served-and-wp/

Scientist activity

33 mathematicians were active in the zone, writing 1868 lines of live chat and providing 33 answers to posted questions.

20 most active mathematicians in live chat



10 most active mathematicians in posted answers



See all the participating scientists: circle20.imamathematician.uk/mathematicians/

Examples of good engagement

Many conversations were an opportunity for students to find out about the applications of maths in everyday life, such as in this example about medicine. This allows students to see the different way maths applies to careers available to them, and the transferability of maths skills and knowledge:

PeteT How does maths help wiyh medicines

HannahWest @PeteT: Good question. Maths helps in lots of ways. For example I use maths to look at how much of a medicine we need to achieve a good treatment

HannahWest @PeteT: I also use maths to see how blood flows in our veins which helps us to deliver the medicine



PeteT @HannahWest: how do you do that

HannahWest @PeteT: Well our blood is a fluid. We can use maths to tell us how a fluid moves. For example we can use maths to work out how much water is flowing through a hose pipe



HannahWest @PeteT: in the same way we can use maths to work out how much blood flows through our veins

In this example, Sarah explains she was also unaware of the applications of maths previous to her career, allowing the student to relate to the scientist, and showing the student the range of possible careers:

 **4 EvieA:** @Sarah do you work with the nhs [Reply](#) 

 **Sarah:** @EvieA: I work in partnership with the respiratory division in the Nottingham Hospital :) [Reply](#) 

 **4 EvieA:** @Sarah: wow that sounds like an important job, I didn't think about how maths can be used in ways affecting our bodies [Reply](#) 

 **Sarah:** @EvieA: Yes I didn't realize this either! Maths is actually used a lot in medicine for example in modelling tumour growth, finding our how our brains work and what happens in the airways of asthmatics (my work) [Reply](#) 

Mathematician of the Week

Students voted each week for their favourite mathematician to be named *Mathematician of the Week*.

The four *Mathematicians of the Week* were **Sarah Brown, Hannah West, Paul Graham, and Chris Budd**. The overall winner of the Circle Zone was **Sarah Brown**.



Feedback from the Circle Zone



Donna Rawling
@DdR333

Calling all budding mathematicians
imamathematician.uk
 Those fantastic [@imamathsuk](https://twitter.com/imamathsuk) now have live Maths
 Chats available to book Chat with
 Mathematicians, answering your maths questions and
 discussing career opportunities and latest projects
[#STEM](https://twitter.com/STEM) [#STEAM](https://twitter.com/STEAM) [#MakerEd](https://twitter.com/MakerEd)

I just want to say a huge thank you to the Mathematicians for giving up your time, you are all clearly passionate about your work and had some amazing answers. Thank you so much. -- Teacher



I felt that I encountered some really good questions. That is, questions which challenged me to think about what my work was really all about, and not just take things for granted. Also pleased to have an opportunity to tell students a bit about what a mathematician does all day (which is almost never staring at long lists of numbers -- Richard Pinch, Mathematician

[I enjoyed the chat] because we have found out a lot of new things! -- Student

Feedback from across the Stay at home activity

Everything was amazing! I was astounded by the questions that the children were asking and about how well the scientists answered their questions. My class were really inspired and have realised what a wide variety of careers use Science. They believe that they can do it too. -- Teacher



Ailith Ewing
@Ailith_Ewing

I decided to take part in [@imascientist](#) to remind me why I enjoy being a scientist, to remind me what was important about my work and to learn from the enthusiasm of students and other scientists alike. It worked. I am grateful. Highly recommend to scientists at all career stages

1:20 PM · Jul 27, 2020 · Twitter Web App

Was just as much a benefit for me as for students. Isolated working from home, the chats were just what I needed to lift my spirits and get excited about science! -- Elena Maters, Scientist



I'm a Scientist Team Retweeted

_DHSPHysics
@_DHSPHysics

Thank you [@imascientist](#) for providing our pupils with the opportunity to talk to scientists today. They thought it was "so cool" and we were very impressed by their questions! 🐾🧠👁️

1:32 PM · May 27, 2020 · Twitter for iPhone

Thank you scientists very interesting answers loved this might be a scientist for my job! -- Student

I'm a Scientist has been a lifeline for me, I'm isolating on my own and it can be really lonely. I have really enjoyed chatting to students and scientists and learning so much! -- Chloe, Scientist

im so happy this was a homework enrichment! :-) -- Student

That was the academic highlight of the lockdown so far. It was fast and furious wasn't it!? So many students signed up and all engaged. Again a big thank you from me and year 7! -- Head of Year 7, Bournemouth School



Lucie Evans ▶ I'm a Scientist, Get me out of here
22 mins · 🌐

Just had the most wonderful 40 minutes of live chat with 9 of your scientists and 22 of my year 8 students. The scientists were superb and the students absolutely loved their chat time. They're scrutinising all the answers now and deciding who to vote for! Thank you so much for running this during lockdown, it's really helped to keep them motivated and engaged.



I was just so impressed by what I think is a huge effort by all involved to support and inspire young students (many of whom are struggling to keep motivated during these uncertain times). Much thought and care was clearly given to each answer and my students have all contacted me since to say that they had "the best time!" -- Teacher