

April–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 Tomorrow's Engineers Zone, in *I'm an Engineer, Stay at home*, ran over 12 weeks as part of the *Stay at home* activities, instead of the usual two. There were 80 live chats, compared to the usual two week zone average of 16. This Zone was funded by Tomorrow's Engineers Engineering Careers Working Group with additional funding from UKRI.

- 149 engineers created profiles in the Zone, and 146 engaged with students in live chats and answering questions. 125 of these were new to the *I'm an Engineer* activities.
- Engineers from a broad range of areas and career stages took part. For example, Amber Villegas-Williamson is a data centre engineering expert at The Uptime Institute, Fidel Olaye, tests and fixes electronics used in submarines, and Joe York-Fishers is a Graduate Trainee Engineer at Perkins Engines developing machines. On average, 7 engineers attended each live chat session.
- 841 students from 40 schools all over the UK logged into the Zone. 26 of these schools had taken part in a previous *I'm a Scientist* activity.
- 25% of active students were from Widening Participation schools, and 24% from Underserved Schools.

Key activity figures

This zone was one of the busier zones in *Stay at home* with 80 live chats and nearly 850 students.

Over two thirds of questions in Ask questions were about careers and education. Students were interested in the engineers individual projects and career paths, as well as the vast range of engineering disciplines and

Similarly in chats, many discussions were about the engineers' work. Students were interested in becoming an engineer and took the opportunity to ask about apprenticeships and university courses.

	ZONE	STAY AT HOME AVERAGE
Schools	40	32
Students logged in	841	682
% of students active	64%	57%
Questions asked	197	178
Questions approved	175	151
Answers given	970	421
Engineer comments	185	95
Student Comments	19	18
Votes	398	350
Live chats	80	55
Lines of live chat	18,052	13,374
Average lines per chat	226	227

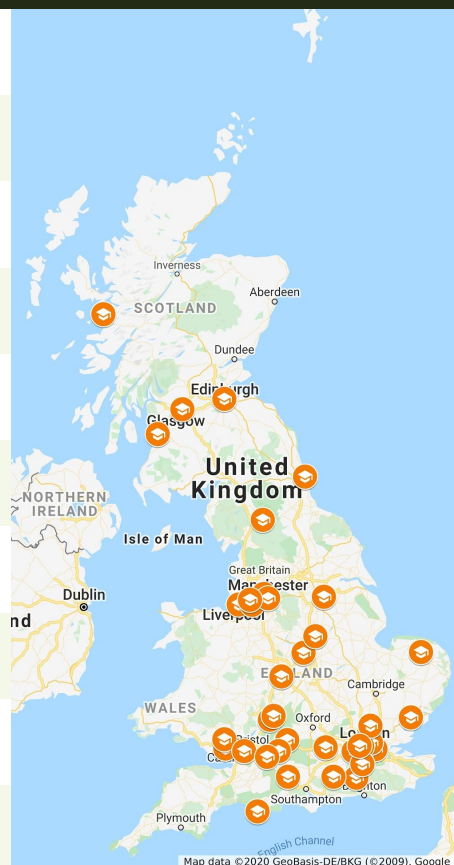
Fewer students than anticipated took part in the activities, likely due to difficulties teachers faced with remote teaching and online learning.

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

Highdown School, Reading (95  13 )	Trinity CE High School, Manchester [WP] (10  10 )
Bexley Grammar School, Welling (51  9 )	Colchester Royal Grammar School, Colchester (10  5 )
Mount Stuart Primary, Cardiff (38  29 )	Kirkby Stephen Grammar School, Kirkby Stephen [U] (9  20 )
Hill House School, Doncaster (37  6 )	Bedwas High School, Caerphilly [U] (9  11 )
Holy Trinity CE Primary School, Weymouth [WP/U] (30  11 )	Millais School, Horsham [U] (8  15 )
St Mark's CE Primary School, Manchester (25  20 )	Lady Eleanor Holles School, Hampton (7  9 )
Reepham High School, Norwich [U] (20  15 )	The University of Birmingham School, Birmingham [WP] (7  8 )
St Bridget's Primary School, Glasgow City [WP] (20  13 )	Kings Priory School, North Shields (6  10 )
The Petchey Academy, London [WP] (20  12 )	Wargrave CofE Primary School, Newton-le-Willows [WP] (5  1 )
Victoria Primary School, Edinburgh (19  12 )	Mander Portman Woodward School, London (4  10 )
Dinglewell Junior School, Gloucester [U] (18  17 )	Bohunt School, Liphook (3  19 )
Harris Academy Tottenham, London [WP] (16  6 )	Nova Hreod Academy, Swindon [U] (2 )
St Francis Xavier's College, Liverpool [WP] (15  7 )	The John Warner School, Hoddesdon [U] (2  0 )
Mallaig High School, Highland [U] (14  5 )	Kingsbury Green Academy, Calne [U] (1  14 )
Merton Park Primary School, London (12  18 )	St Bede's School, Redhill [U] (1  10 )
Ashby School, Ashby-de-la-Zouch (12  17 )	Hammersmith Academy, London [WP] (1  7 )
South Wilts Grammar School for Girls, Salisbury [U] (11  10 )	Nailsea School, Bristol (1 )
Priestley College, Warrington [U] (11  3 )	St Laurence School, Bradford-on-Avon (1 )
Sarah Bonnell School, London [WP] (10  12 )	Marr College, South Ayrshire [U] (1 )
Nottingham Girls' Academy, Nottingham [WP] (10  10 )	Pate's Grammar School, Cheltenham [U] (1 )



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

Numbers next to schools represent the number of active users () and if they took part in a live chat, the average lines of live chat per active user ()

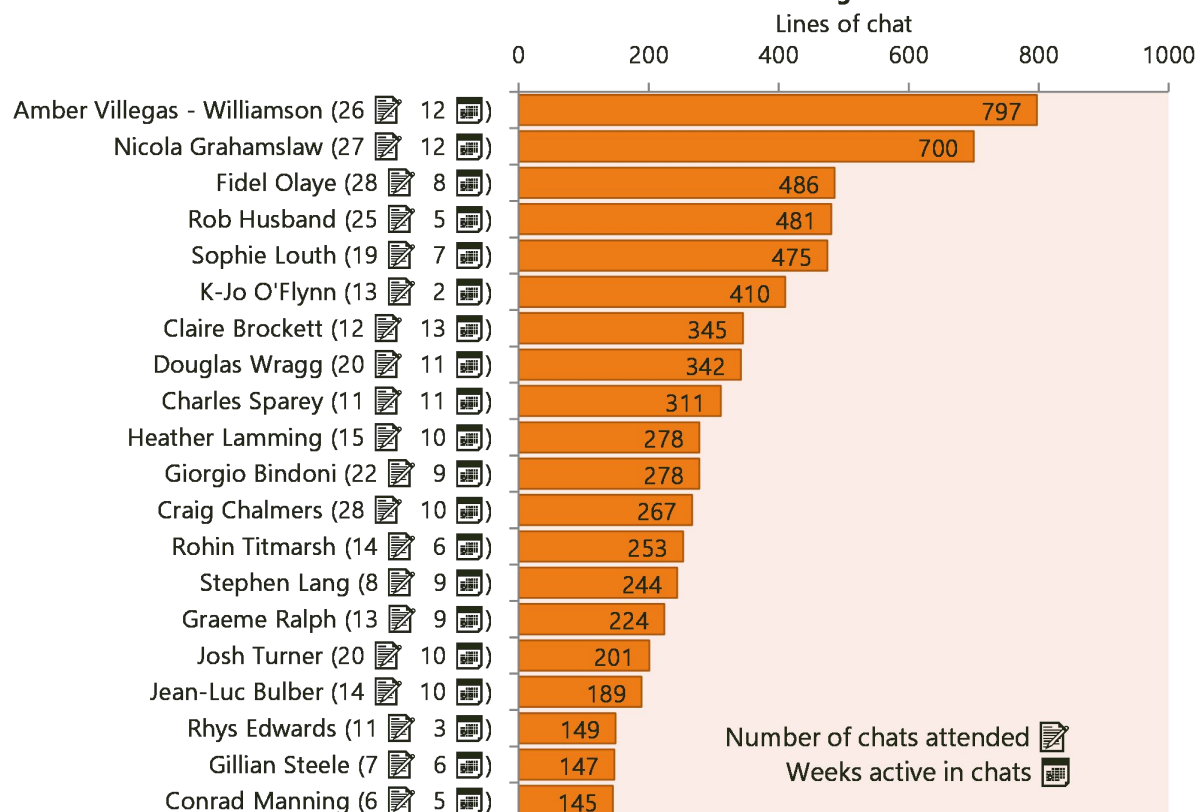
We want to increase the participation of under-represented groups going into STEM careers. Find out what we mean by our under-served (U) and WP schools (WP), and how you can support us in working with more of these at:

about.imascientist.org.uk/under-served-and-wp/

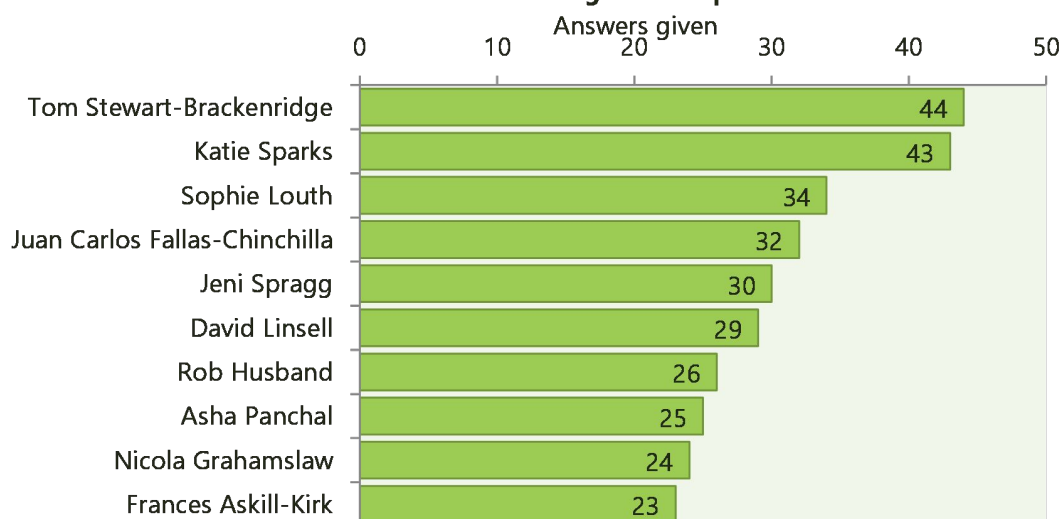
Engineer activity

146 engineers were active in the zone, writing 10,951 lines of live chat and providing 896 answers to posted questions.

20 most active engineers in live chat



10 most active engineers in posted answers



See all the participating engineers: tomorrows20.imanengineer.org.uk/engineers/

Frequent words used in live chats by students and engineers



Ask?



Examples of good engagement

Students and engineers discussed the engineers' experience of work and the diversity in the workplace, allowing students to see the importance of female engineers. Amber was very open about being the only female engineer in her team:

Jessica.W @Amber wow all men, well you can def see the need for things like these to get more girls into science and engineering

Amber @Jessica.W: We're fairly small company but very specialised company and only have 35 engineers globally. The team is diverse though (with the exception of being menmenmenmenmen). But they are brilliant and have even noticed their own bias and how others react to me.

Anxhelina @Amber have you ever been faced with inequality whilst working

Amber @Anxhelina: Lol yes, mannnny times, but I'm a "Savage" (to quote A Stallion). Lets just say it's the ONLY time they dare...;-)

Anxhelina @Amber: thats very funny and very good to know

Amber @Anxhelina: :-D I am older than some of the other ladies in the chat and I've always been the first and/or only woman in an engineering role at a company and/or site.

Conversations also focussed on the engineers' work, and the transferability of technology. This allows the students to see science and engineering in relation to their everyday life:

SamW @Graeme What kinds of things do you 3D print? Are the parts stronger, or is it used more for prototyping?

Graeme @SamW: mostly we use it for prototyping but some small parts are starting to be used. We also use it to make tooling and fixtures

SamW @Graeme: Do you find 3D printers useful? Would you recommend one for home use?

Graeme @SamW: Depends what you are trying to do? The ones we use are aimed at printing metals or plastics containing chopped fibre for certain applications so really it depends what you plan to use it for?

SamW @Graeme: Cool! What about for 'hobby work'?

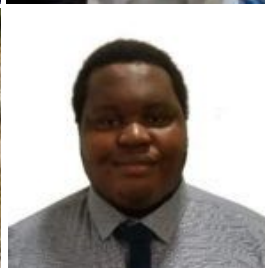
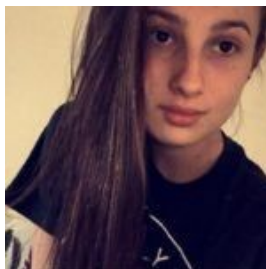
Graeme @SamW: there are some great (and not too expensive) printers out there that are great for hobby work, just do as much research and talk to users before you buy one, might find out that spending a bit more saves you in the long run!

Engineer Winners

Students voted each week for their favourite engineer to be named *Engineer of the Week*.

The 10 *Engineers of the Week* were **Will Smith, Nicola Grahamslaw, K-Jo Flynn, Sophie Louth, Beth Mortimer, Giorgio Bindoni, Leah Edwards, Heather Lamming, Fidel Olaye, and Dan Kerr.**

The overall winner was **Rohin Titmarsh.**



Feedback from the Tomorrow's Engineers Zone

Very interesting and informative, always learn new things. Also excited for the next chat!

- Student

Really liked this, because it was so simple to do. No prep, no travelling, no orientation required, just got stuck in straight away. And some great questions from the kids. - **Kevin Burke, Engineer**

This has probably been easiest outreach I've done as it fits easily into busy work schedules and can be done online!

- Amber Villegas-Williamson, Engineer

This whole thing is fantastic by the way! My year 7s loved it and I'm interested to see how the older students get on! Thanks so much for making this possible.

- Teacher, Bexley Grammar School

Thank you very much as well! It really did give me a good inside into this job! Hope you have a nice day! - **Student**

I think it's a great idea to connect schools to engineers and scientists in an informal way, and to showcase all the different things they do. It's easily accessible so lots of engineers can get involved with STEM volunteering. - **Charlotte Flower, Engineer**

Some really interesting [questions] about life in the 'real' world of work - it's really encouraging for our students to see what they are learning might actually be useful! - **Teacher, Hill House School**

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](#)

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**

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



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'm a Scientist Team Retweeted



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 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

Thank you to the funders of Tomorrow's Engineers Zone

