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.

I'm a Scientist, Stay at home 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.

An amazing 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 Food Zone ran over 7 weeks as part of the *Stay at home* activities, instead of the usual two. Students from science and food technology classes took part. This Zone was funded by UKRI.

- 31 scientists created profiles in the Zone, and 30 engaged with students in live chats and answering questions. 28 of these scientists were new to the *I'm a Scientist* activities.
- Scientists from a broad range of areas and career stages took part. For example, Duncan Gaskin is a lab technician testing birds who get sick, Martin Lott is a bioinformatician studying microbes on food, and Boglarka Gulyas is PhD student studying urban agriculture. On average, 6 researchers attended each live chat session.
- 146 students from 18 schools all over the UK logged into the Zone. 11 of these schools had taken part in a previous *I'm a Scientist* activity.
- 23% of active students were from Widening Participation schools, and 46% from Underserved Schools.
- 20 live chats took place during the event.

Key activity figures

The Food Zone was one of the quieter zones in the Stay at home activity. Numbers were similar to that of a normal zone, with 18 live chats across the zone.

There were just 19 questions posted in Ask. Students asked their questions in the live chats, where discussions were very on topic.

	ZONE	STAY AT HOME AVERAGE
Schools	18	32
Students logged in	146	682
% of students active	51%	57%
Questions asked	19	178
Questions approved	17	151
Answers given	51	421
Scientist comments	5	95
Student comments	0	18
Votes	106	350
Live chats	20	55
Lines of live chat	3,501	13,374
Average lines per chat	175	227

Students were interested in all things food, and asked scientists about their individual research areas which they had read about on the profiles. There were questions about growing food, farming, bacteria and food related illnesses, as well as general conversations about the meat industry and different diets.

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

Hope Brook CE Primary School, Longhope [U] (22 👤 45 💬)

Howell's School, Cardiff (16 👤 6 💬)

All Saints Catholic College, Huddersfield [WP] (11 👤 9 💬)

Bournemouth School, Bournemouth [U] (9 👤 9 💬)

St Ursula's Convent School, London (9 👤 6 💬)

The Petchey Academy, London [WP] (8 👤 12 💬)

Humphrey Perkins School, Loughborough (8 👤 11 💬)

Rampton Primary School, Retford [U] (7 👤 19 💬)

Merchiston Castle School, Edinburgh (7 👤 8 💬)

St Bridget's Primary School, Glasgow City [WP] (7 👤 7 💬)

Spalding High School, Spalding [U] (7 👤 6 💬)

Millais School, Horsham [U] (3 👤 20 💬)

Furness College, Barrow-in-Furness [U] (3 👤 16 💬)

Samuel Ward Academy, Haverhill [U] (3 👤 13 💬)

Clytha Primary School, Newport [U] (3 👤 8 💬)

Furness Academy, Barrow-in-Furness [WP/U] (2 👤 15 💬)

Chard School, Chard (1 👤 43 💬)

Copthall School, London [WP] (1 👤 3 💬)

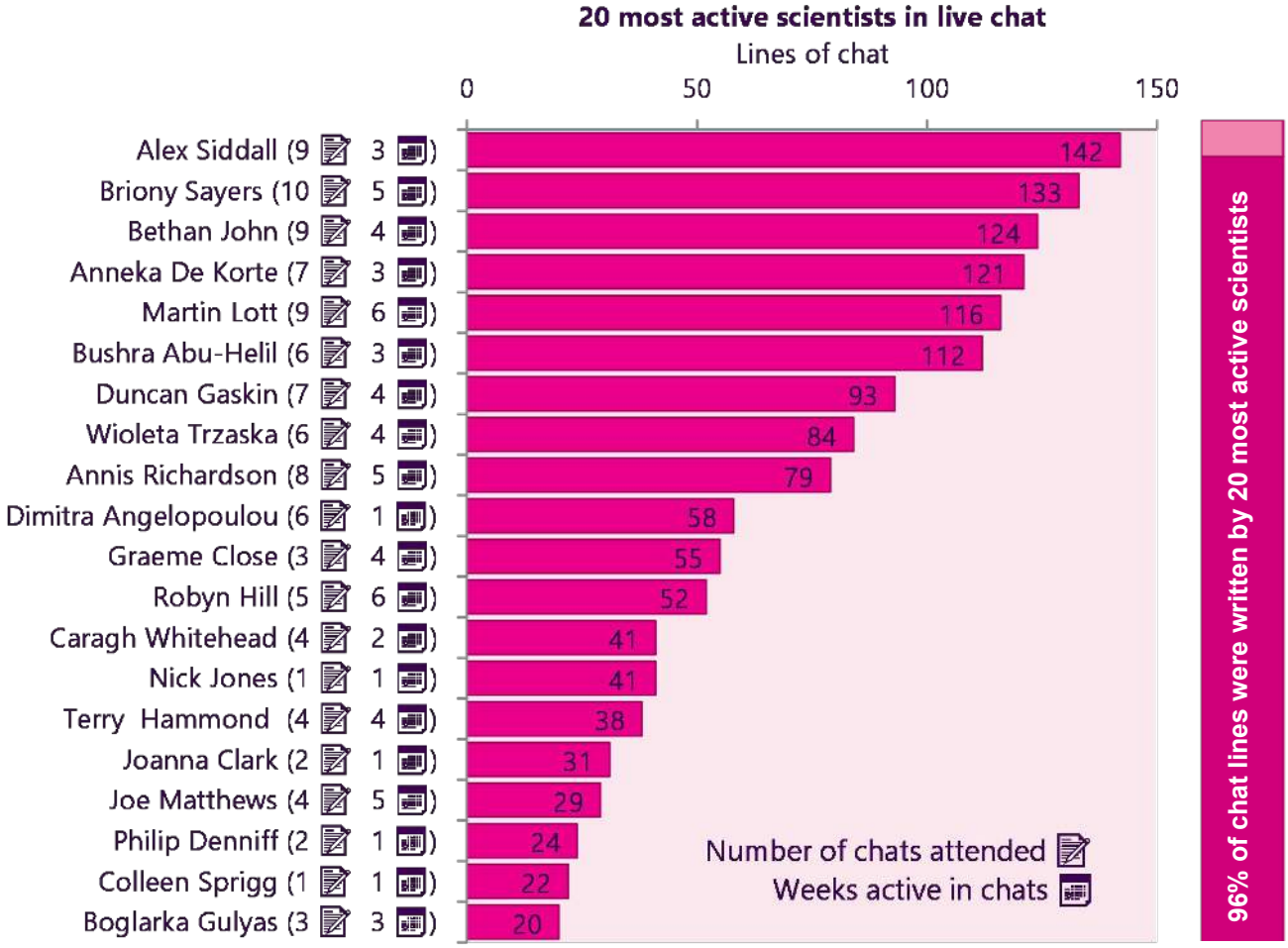
Map (above) and table (left) show schools with students who actively participated in the zone.

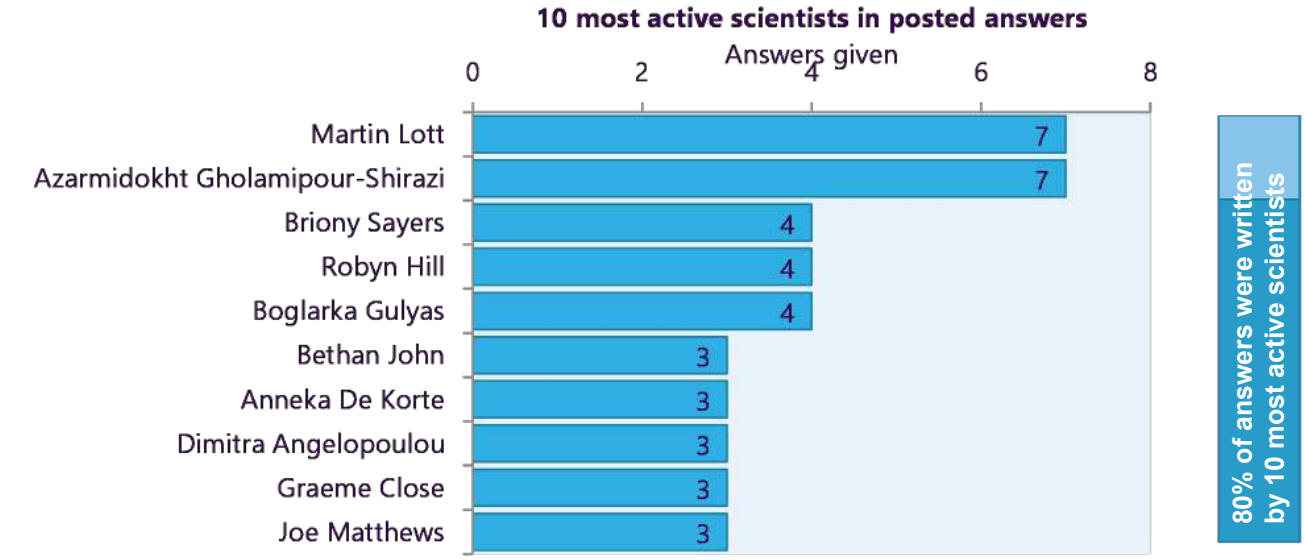
Numbers next to schools represent the number of active users [👤] and average lines of live chat per active user [💬].

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

30 scientists were active in the zone, writing 1481 lines of live chat and providing 51 answers to posted questions.





See all the participating scientists: food20.imascientist.org.uk/scientists/

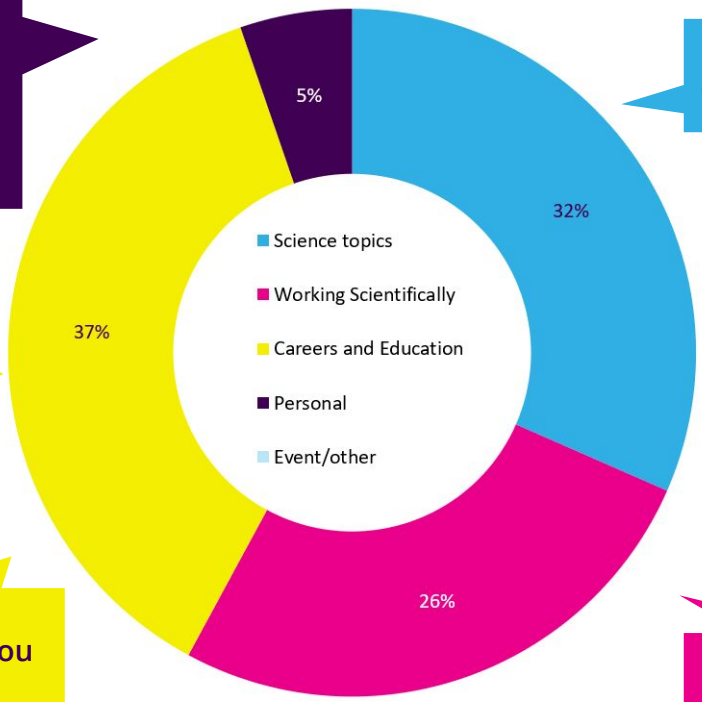
Popular topics

Frequent words used in live chats by students and scientists

Question themes and example questions

Have you changed any of your habits, since beginning this job?

How do we digest food?



In the future, what comes next in your job, where does it take you?

What is the longest you could live without food?

In this career path, what has surprised you most about this job?

How is your work going to create healthier and better food for the future?

How do you think Covid-19 will impact food science?

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Funded by UK Research and Innovation

Examples of good engagement

Students were interested in the scientists work they read about on their profiles. They often asked about methods used in research, increasing students' knowledge and understanding, and the applications of science:

Max G @Bushra what different conditions are the chickens in to measure their poo for hapiness

Bushra @Max G: when I talk about happiness i am refering to welfare so ensuring they have a good-wellbeing. In this case I can measure if they are eating enough/getting enough nutrients and water, if they have picked up particular bad bacteria or pathogens from their enviroment, and to make sure they are developing into healthy birds

Max G @Bushra: what kind of methods have you come up with so far?

Bushra @Max G: This is my phd project and I only started in October so at the moment I am doing broad data gathering so trying lots of different methods. One is to look at the bacteria so the faecal microbiome, which I do my extracting the DNA and sequencing it! Another way is to look for molecules that are produced either by the chickens body or the bacteria that might suggest something is not quite right with the bird.

Max G @Bushra: and if something was wrong how would you come to the solution of how it went wrong from the poo?

Bushra @Max G: At the moment, vets can run tests using the chickens blood if they are suspected of being unwell. For my experiments I will be taking the blood and faeces at the same time to make sure I am getting the same information. Using chicken poo instead of blood is less stressful for the animals and can easily be collected by the farmer!

Max G @Bushra: how do you distinguish which poo is for which chicken

Bushra @Max G: each chicken has an induvidual arm band with a barcode so I can montior them throughout their lives. I use about 50 chickens in a flock of 1000 so it can take some time to locate the ones I need and the wait for it to poo but it is all part of science!

Max G @Bushra: are these egg laying chickens or eating chickens or for other uses?

Bushra @Max G: At the moment I work with chickens that are for meat production but my aim is to be able to apply my findings to other poultry species so not just laying chickens but also turkeys, geese and ducks

There were also discussions about the broader range of applications of food science, such as in this conversation about how Briony's research is helping soldiers from getting PTSD:

Deansr @Briony What is your work doing to reduce PTSD?

Briony @Deansr: Hi! so I'm working to see if we can help soldiers become less likely to get PTSD by changing the bacteria in their gut! this is by feeding them more polyphenols (antioxidants) and prebiotics - like dietary fibre! if we can increase the good bacteria this might help with mental health and reduce inflammation (its thought that PTSD is low grade inflammation)

Deansr @Briony: if it works well could it be used for more mental health issue like schizophrenia?

Briony @Deansr: that is such a great question! studies have actually found that people with schizophrenia have differences in their gut biomes compared to people without the mental disorder! so theoretically if we can work out how to get rid of those differences - we might be able to mitigate *some* of the schizophrenia. this is very very hypothetical but it has been looked at for things like depression too! he amazing thing about using nutrition to change the gut bacteria is that it's usually preventative and also it's not usually got potentially serious side effects like medication can have!

Scientists of the Week

Students voted each week for their favourite scientist to be named *Scientist of the Week*.

The five *Scientists of the Week* were **Duncan Gaskin, Briony Sayers, Bushra Abu-Helil, Joe Matthews** and **Annis Richardson.** The overall winner of the Food Zone was **Briony Sayers.**





Feedback from the Food Zone

It has been really interesting finding out about research that I didn't even know was happening! -- **Student**

It's been really great to speak to students that are similar to me when I was their age. It's nice to know you can reassure them they're awesome and going to do well. -- **Anneka de Korte, Scientist**

It has been great learning about plants and talking to you -- **Student**

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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**

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**

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