

December 2021

The Nuclear Zone (nuclear21.imascientist.org.uk/) ran from 29 November to 17 December and was funded by the **South West Nuclear Hub** and **STFC**.

The Zone featured scientists working on nuclear technology within the UK.

Throughout December, Covid-19 cases in schools remained at an all time high. This meant there was less activity within the Zone than expected.

Key activity figures

	Zone
Schools	12
Students logged in	388
Students active	96%
Scientists	41
Questions asked	259
Questions approved	63
Answers given	419
Scientist comments	1
Student comments	1
Live chats	18
Lines of live chat	9,612
Average lines per live chat	534
Votes cast	241

Scientists

41 scientists created a profile in the Zone. You can see who took part at nuclear21.imascientist.org.uk/scientists

The winning scientist with the most votes from students was **Luke Townsend**, Postdoctoral Researcher at University of Sheffield.

Students

388 students from 12 schools across the UK logged into the Zone.

74% of active students were from target schools: 51% from underserved schools and 32% from widening participation schools.

Live chats

18 live chats booked by teachers for school classes took place during the activity. Additionally, there were 4 chats scheduled, open to all the students.

An additional 2 live chats were booked but were cancelled.

There was one live chat where a single account was used to ask questions on behalf of the class. It is also common for students to share login details or computers during live chats. Therefore, the number of students reached will be higher.

On average, 3 scientists attended each live chat.

School activity

Students from 12 schools across the UK participated in the Zone. In addition to live chats booked by teachers, there were 3 Thursday evening chats scheduled for the students and their families.

School	WP/U status	Active users	Chats attended	Chat lines (total)	Chat lines (per user)	Questions approved	Votes
South Molton Community College, South Molton	U	108	4	967	9	13	103
St Bridget's Primary School & Nursery Class, Glasgow City ¹	WP	54	2	786	15	0	16
Birkdale Preparatory School, Sheffield	-	46	3	1,040	23	0	0
Devonport High School for Girls, Plymouth	-	28	1	239	9	7	1
Malmesbury Primary School, Morden	WP	28	2	447	16	3	24
Plympton Academy, Plymouth	-	27	2	264	10	7	22
The Henry Box School, Witney	U	26	1	263	10	26	26
Lynn Grove Academy, Great Yarmouth	WP/U	24	1	511	21	0	23
The Holy Cross School, New Malden	U	23	1	576	25	6	22
Denbigh Primary School, Luton	WP/U	15	1	161	11	0	3
Prendergast Vale School, London	WP	2	0	0	0	1	1
Rockland St Mary Primary School, Norwich*	WP	1	1	15	15	0	0

* In these chats teachers typed questions on behalf of their students, with the chat displayed on a screen.

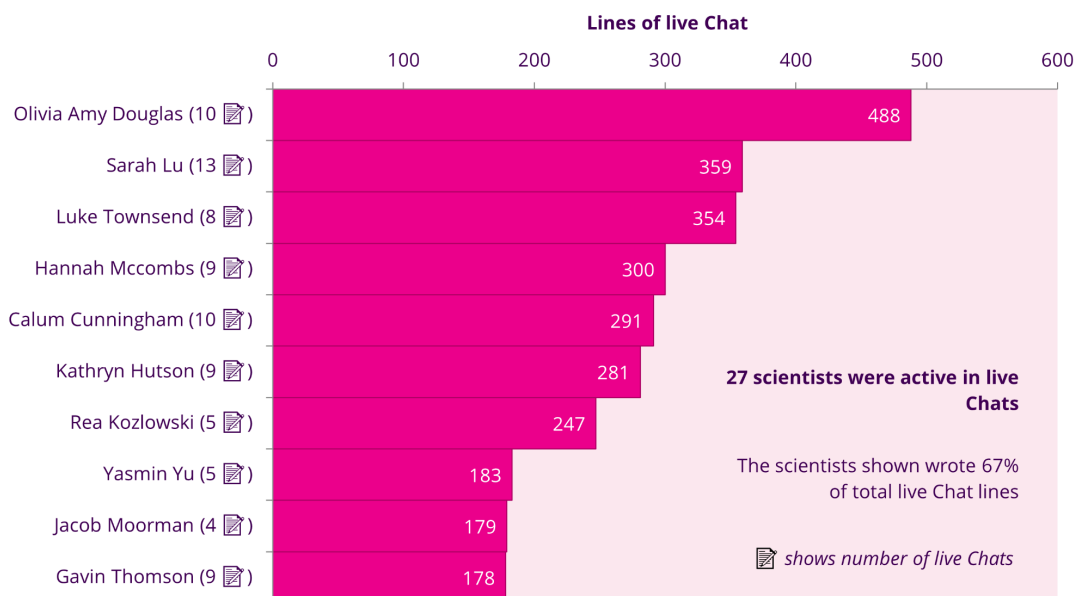
We want to increase the participation of under-represented groups. Find out what we mean by under-served (U) and widening participation (WP) schools, and how you can support us in working with more of these: about.imascientist.org.uk/under-served-and-wp

¹ Two classes took part from this school

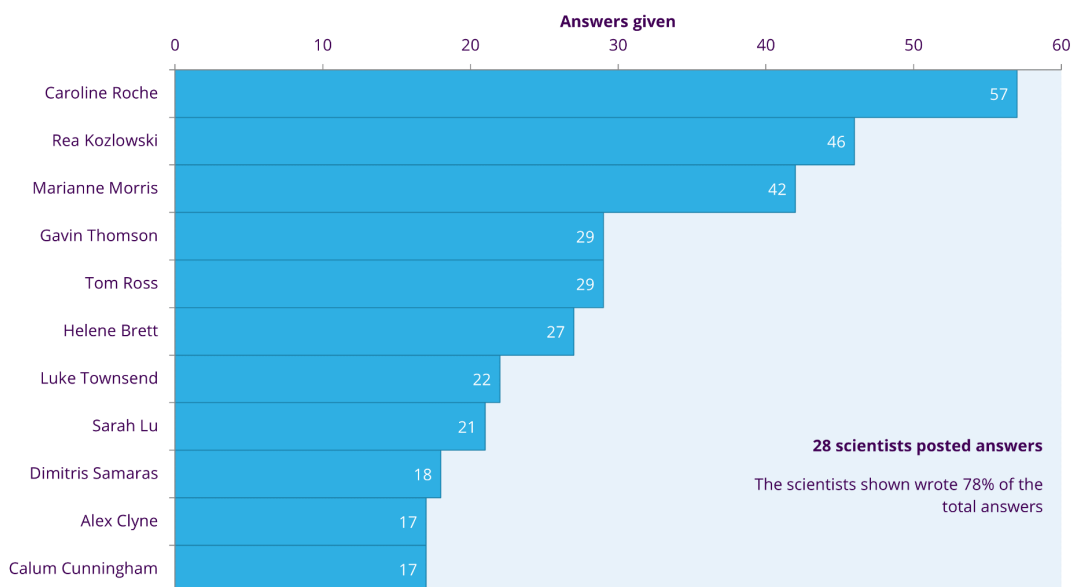
Scientist activity

During the Zone, 31 scientists interacted with students by writing 4,263 lines of live chat, and providing 419 answers to 63 posted questions.

10 most active scientists in live Chats

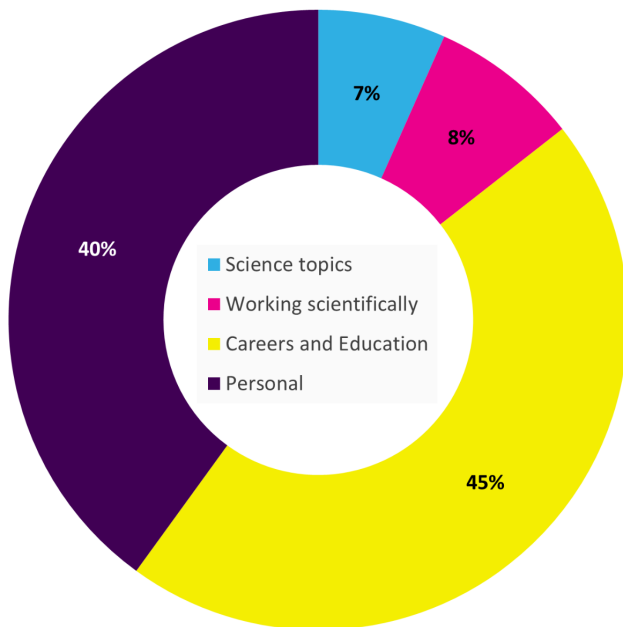


10 most active scientists in posting answers



Questions in Ask section

The chart below shows an analysis of questions students sent to the engineers. Questions are coded into overarching categories. The examples are coloured by category.



Why don't birds get electrocuted when they land on an electric wire?

Does nuclear waste affect climate change?

Why is your research important?

What's interesting about science?

Have you ever been injured during an experiment?

Why did you decide to become a scientist?

Do you wear a lab coat?

What is your favourite Lord of the Rings film?

What is your favourite chemical reaction?

Good engagement

Being able to see how science is relevant to everyday life and how certain knowledge or science can be utilised is an important part of Science Capital.

Student 1: Would nuclear power ever be used to power cars?

Callum (scientist): *I doubt it, the cars would need to be very big so the nuclear material can be safely shielded (this makes sure no radiation gets out and harms the driver or passenger)! However, lots of submarines are powered by nuclear reactors.*

Student 1: How will all this research affect us?

Luke (scientist): *My work on nuclear waste disposal will hopefully have a positive impact on you and everyone in the next 10 years as my research helps to decide whether or not radioactive waste disposal is safe. If you look in the news, we've recently been looking for a site to dispose our waste in so things are happening now!*

Student 1: So it helps out with the environment?

Luke (scientist): *Yes exactly! We want to make sure that the environment is clean and safe for 10s to 100s of 1000s of years to come and that's what my research helps with*

Subject specific questions can help generate interest and knowledge about the scientific field.

Student 1: What is nuclear power?

Callum (scientist): *Nuclear power involves using nuclear fuel (uranium) to heat up water or gas and make heat. This heat is then used to make steam which turns giant turbines and makes electricity (like how wind turbine produces electricity)*

Student 1: Could we use the heat energy from the waste power to create electricity using geothermal production ways?

Luke (scientist): *This is an excellent question and one that has been thought about before. As far as I'm aware it's not something that we're planning to do as waste is quite hazardous and building a power plant that would utilise this is very difficult. But that's a fantastic question! We can actually recycle some waste and reuse it in a reactor though!*

Connecting with scientists over shared interest and learning that they are "regular people" can help students relate to them. This makes it easier for students to see themselves in science-related careers.

Student 1: What's your favourite science?

Enrique (scientist): *They all work hand in hand (but probably physics... don't tell chemistry I said that)*

Student 2: I won't (ssshhh)

Student 1: When you aren't sciencing, what do you do?

Hannah (scientist): *I listen to music quite a lot, especially Taylor Swift, haha. I play guitar too and enjoy walking on the beach near where I live (when it's not dark and raining in Cumbria)*

Student 1: OMG Cumbria looks amazing :) Taylor Swift is legendary.

Hannah (scientist): *Cumbria is beautiful! Quite often nuclear sites are located in remote places (for obvious reasons), but these places often are very beautiful!*

Student 1: Yes I have seen pictures. Looks like a place to visit :)

Information on the scientists careers can provide insight into how variable careers can be and what students may need to do to get there.

Student 1: What made you want to learn about nuclear power?

Jordan (scientist): *I am really passionate about climate change and making sure the world moves away from fossil fuels - nuclear is a clean and reliable source of energy that can support renewables like solar and wind when the sun doesn't shine and the wind doesn't blow*

Student 1: How did you get into your job?

Elen (scientist): *I did chemical physics at university and was always interested in the nuclear industry. After graduating, I looked for graduate schemes in the nuclear industry - specifically as a chemist as this is what I did best and enjoyed most. Then started at NNL*

Scientist of the Week

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

The Scientists of the Week were:



Callum Evans, Nucleargraduates Programme Member and PLant Facing Technical at Sellafield Ltd

Scientist winner

The scientist of week 2 was also the overall winner, with the most votes at the end of the Zone was:

- **Luke Townsend**, Postdoctoral Researcher at University of Sheffield

As Zone winner, they receive £500 to spend on further public engagement projects.



"Thank you so much to all the students who voted for me. I thoroughly appreciate the time they took to come along to the chats and engage with myself and the other scientists. The whole process was really fun for me; chatting to the students about science (and anything else interesting), as well as thinking about my research in new ways, made the experience one that I'll value and remember for years to come."

You can read their full statement at <https://ias.im/448.629>

Feedback

A massive thank you to all you for your help and inspiration for our students today

Teacher

Thank you everyone, there were a lot of good replies. I know a lot more about nuclear power now.

Student

Thanks so much

You asked some great questions and made me smile.

Helene (scientist)



Luke Townsend
@LukeTTownsend

Thanks to @imascientist and @SWNuclearHub for organising this event, it was fantastic to be involved. And a massive thank you to all the students who voted for me - I'm over the moon! 😊☢️



St. Bridget's Primary
@StBridgetsPS

R17 had a very informative live chat in the Nuclear Zone @imascientist Thanks to the scientists for spending the time answering in detail the numerous questions, many linked to the environment. @TBF_Glasgow #STEM #DYW @STEMglasgow #OurDearGreenPlace



Denbigh Primary
@denbighprimary

Year 6 have been extremely lucky to be able to talk to not just 1 nuclear scientist, but 8! We really enjoyed asking them questions. We now have a few budding nuclear scientists in the year group. @imascientist #stem @Psqm_HQ

Thank you for the chat and taking time out of your day to do this.

Student