

September to December 2022

The Space Zone (Zone URL) ran from 20 September to 16 December 2022 and was funded by the UK Space Agency.

The Zone featured **20 STEM professionals** working across a variety of fields. They connected with **893 students** from across the UK. **806 students (90%) actively participated** by writing Chat lines and asking follow-up questions.

Key activity figures

	Zone
Students logged in	893
Students active	90%
Schools	31
STEM professionals	20
Live Chats booked	68
Live Chats occurred	48
Lines of live Chat	18,175
Average lines per live Chat	379
Questions asked	264
Questions approved	170
Answers given	183
STEM professionals comments	18
Student comments	7
Votes	407

Who took part?

Students from 31 schools across the UK logged into the Zone.

62% of active students were from priority schools: 40% from underserved schools and 30% from widening participation schools. Students can be from schools that are both underserved and widening participation.

A total of 407 votes were cast by students. The winning STEM professional with the most student votes was **Ben Dryer**, Space Instrumentation Research Fellow at The Open University.

Activity

68 live Chats were booked. 48 took place.

Out of the remaining 20 Chats booked, 13 were cancelled and in 7 the school did not attend and did not give notice. All schools were chased and invited to rebook. In addition to live Chats booked by teachers, there was one open Chat available to all students during Space Week

There were 4 live Chats where the teacher asked questions on behalf of their students. It is also common for students to share login details or computers during live chats. Therefore, the number of students engaged will be higher.

Students asked 264 follow-up questions of which 170 were approved and 82 were duplicates.

School activity

Students from 32 schools across the UK participated in the Zone. In addition to live Chats booked by teachers, there was one open Chat available to all students during Space Week.

School	Students logged in	Active users	Chats attended	Chat lines (total)	Chat lines (per user)	Questions approved	Votes
Reading Girls' School, Reading	104	101	3	2,318	23	42	79
Caroline Chisholm School, Northampton	79	78	3	920	12	3	7
Dagenham Park CofE School, Dagenham (WP)	68	68	2	815	12	20	41
The Holmesdale School, Snodland (WP/U)	75	66	5	966	15	20	25
St Bridget's Primary School & Nursery Class, Glasgow City (WP)	59	50	2	646	13	2	3
Malmesbury School, Malmesbury (U)	47	47	3	999	21	11	25
Lancaster Girls' Grammar School, Lancaster	55	41	2	181	4	6	14
John F Kennedy Catholic School, Hemel Hempstead (U)	47	39	2	793	20	4	15
Brighton Hill Community School, Basingstoke (U)	29	29	1	259	9	6	24
Darrick Wood School, Orpington (U)	31	29	1	335	12	0	26
Heathfield Community College, Heathfield (U)	27	27	1	222	8	4	0
Hodgson Academy, Poulton-le-Fylde	25	24	2	174	7	4	21
Featherstone High School, Southall (WP)	28	23	1	442	19	4	18
Queen Elizabeth's Girls' School, Barnet (WP)	24	23	1	183	8	0	22
Countesthorpe Leysland Community College, Leicester	19	19	1	330	17	2	17
Farr High School, Highland (U)	22	17	2	119	7	2	14

Arbroath High School, Angus (U)	17	17	2	171	10	0	9
Woodmill High School, Fife (U)	15	15	1	200	13	1	15
The West Bridgford School, Nottingham	14	15	1	285	19	20	3
Coleg Cymunedol Y Dderwen, Tondy (U)	15	15	1	141	9	1	9
St Benedict's Catholic College, Colchester (U)	15	14	1	183	13	15	13
The Norton Knatchbull School, Ashford (U)	17	12	1	145	12	2	0
Mid Yell Junior High School, Shetland Islands (U)	11	12	1	100	8	1	0
The City of Leicester College, Leicester (WP)	14	12	1	227	19	0	0
Mallaig High School, Highland (U)	10	11	1	139	13	0	4
Stirling High School, Stirling, 5726239	16	11	1	50	5	0	3
Lumley Junior School, Chester le Street	10	10	1	107	11	0	0
Halton Lodge Primary School, Runcorn* (WP/U)	0	1	1	46	46	0	0
Chewton Mendip Primary School, Somerset* (U)	0	1	1	37	37	0	0
Stoborough Church of England Primary School, Wareham* (U)	0	1	1	46	46	0	0
City of London Academy, Highgate Hill, London*	0	1	1	37	37	0	0

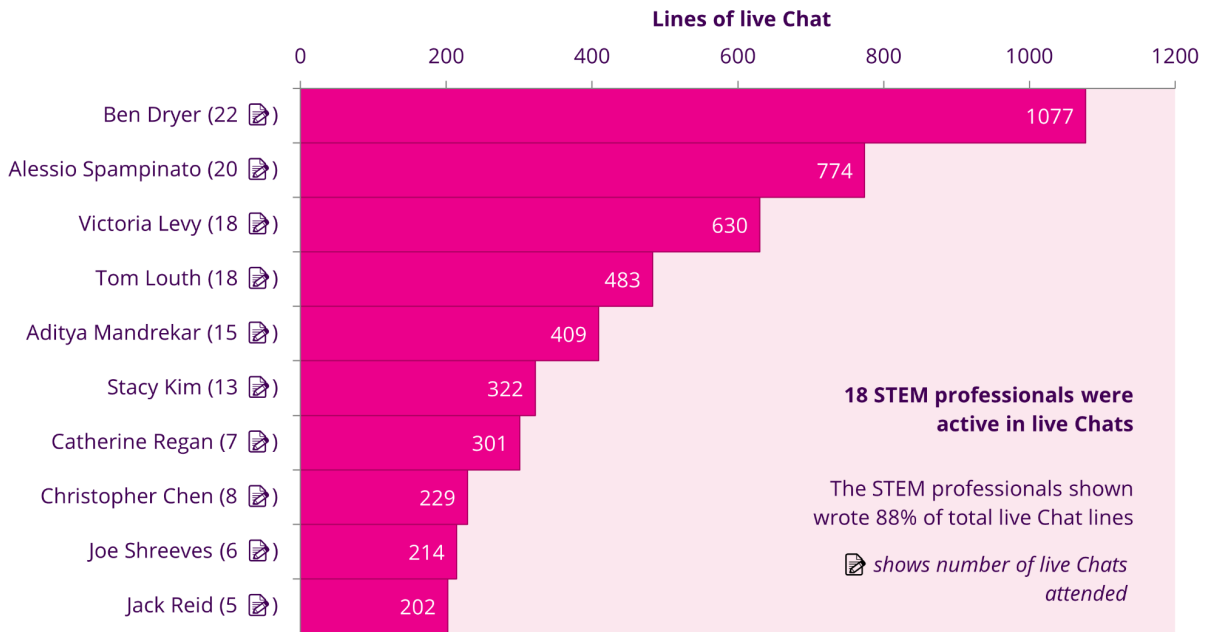
* In these chats teachers typed questions on behalf of their students, with the chat displayed on a screen.

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

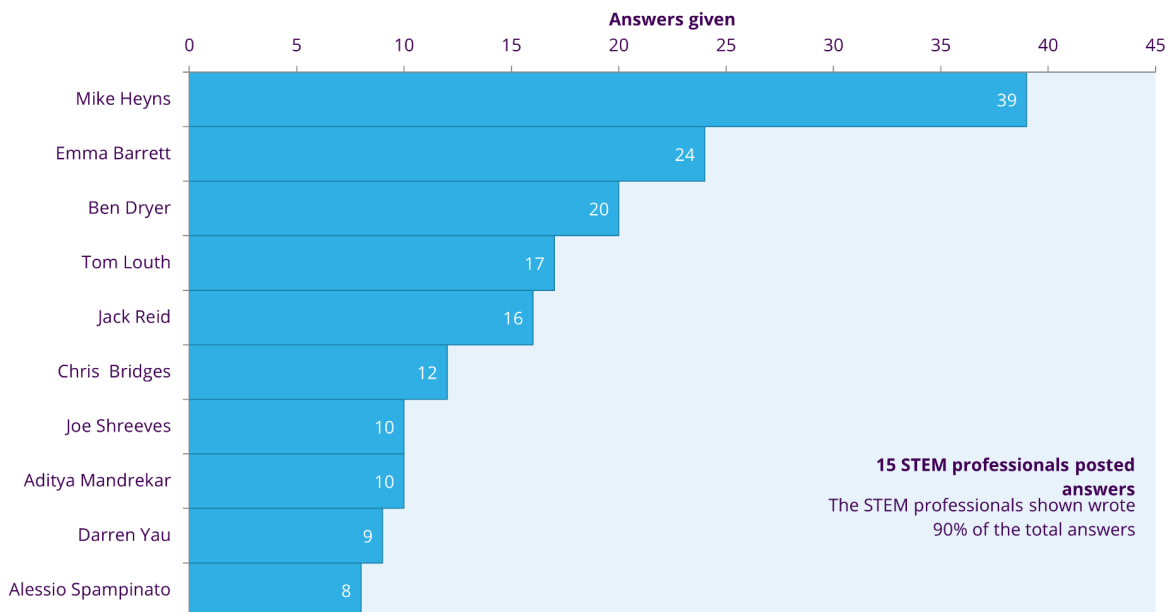
STEM professionals activity

During the Zone the STEM professionals interacted with students by writing 5,279 lines of live Chat, and providing 183 answers to 170 posted questions. On average, 3 STEM professionals took part in each live Chat.

10 most active STEM professionals in live Chats



10 most active STEM professionals in posting answers



Good engagement

Asking questions they find interesting and relatable is important to support students' science capital¹ and makes them more likely to see science as something 'for them'. These interactions are especially helpful for students to see science as relevant.

Student 1: why is space so important?

Alessio (STEM professional): Space is a fundamental part of our society in so many different ways. We put satellites in space to monitor the Earth climate, vegetation and weather. We use space for communications too. Space is also a place full of unknowns and where we have the possibility of understanding better the laws of nature.

Student 1: What do you hope to discover when you send new tech to space?

Victoria (STEM professional): I'm working on new tech which should be able to tell us how much useful water there is on the surface of the Moon, so that when we send astronauts they can use it as a resource

Student 1 That would be really useful for possible future events

Victoria (STEM professional): Hopefully it should mean that we can use the water already on the Moon and not have to spend billions sending it up there on rockets with the astronauts

Subject-specific questions are great to generate interest in the subject area and build on existing knowledge.

Student 1: What is an atomic clock?

Ben (STEM professional): Atoms vibrate in certain ways, or the electrons transition in certain ways, and it turns out you can use atoms of caesium to make a very accurate clock by counting how many times it vibrates. It's a very accurate way of keeping time

Alessio (STEM professional): It's an instrument that uses light (like lasers) to lead to a very accurate frequency measurement. One kind is based on ion traps, where you can trap a single atom using electric fields and lasers. You fire the laser at the atom and make it "oscillate" between

¹ about.imascientist.org.uk/student-impact

energetic states. That oscillation is very accurate and can provide a precise way to do many type of measurements.

Student 1: Is it a type of clock we use on earth?

Ben (STEM professional): Yes, we use them all the time to keep accurate time

Student 1: What is an interesting fact you learned about the sun?

Christopher (STEM professional): The temperature at the centre of the Sun is 15 million degrees C

Student 1: wow that's really hot

Christopher (STEM professional): So hot that atoms fuse together releasing lots of energy making the Sun shine

Student 1: oh I will make sure to look more into that when I get home

Information and advice about STEM professionals' careers can show students the range of possibilities for working in STEM and what they need to do to get there.

Student 1: Have you ever thought about another job besides studying the sun?

Jack (STEM professional): I have wondered about it, but I do not think that there is anything that I could enjoy more.

Student 1: What is the best thing about studying the sun?

Jack (STEM professional): There are so many different problems that we can address, with so many different methods. We can use pen-and-paper, telescopes, or computer simulations to study how its atmosphere is heated, where the magnetic field comes from, and how its features form.

Student 1: How did you get into this work sector? What was your step by step process?

Aditya (STEM professional): I did a lot of software programming, then did a Masters in Aerospace engineering. I then worked for a company that made parts for planes, before I was asked if I would like to join a company that makes satellites to send to space.

Student 2: What did you do for your gcse's and A-levels?

Aditya (STEM professional): Heavily Maths, Physics and Chemistry, though I studied in India and not the UK so I went through a different system. You need those three to get into engineering. I did Electrical Engineering

Conversations like this are great to build a rapport between the scientists and students. It encourages students to see STEM professionals as "normal" people with interests and hobbies.

Student 1: Do you like pizza?

Stacy (STEM professional): I'm a huge fan of pizza! My husband and I made it our mission to visit as many pizza places as we could together when we first started dating :)

Student 1: Awesome, what was the verdict - favourite pizza place?

Stacy (STEM professional): I realised I like any restaurant with wood-fired pizzas :) There was a place called Tommy's and another called Harvest where we dated (in Ohio) that I liked most!

Student 1: Are you interested in zodiac signs, if so what do you know about them?

Darren (STEM professional): Not really but I know my sign is Virgo. I'm supposed to be a perfectionist, which is kinda true I guess!

Student 2: samee

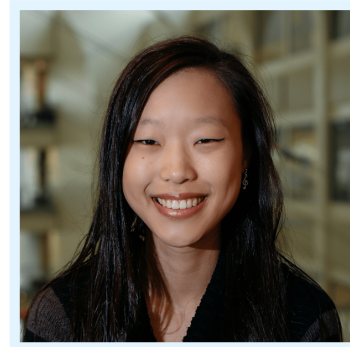
STEM professional of the Week

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

The STEM professional of the Week were:



Victoria Levy, PhD student in Space Instrumentation at the Open University



Stacy Kim, postdoctoral research associate in astrophysics at the University of Surrey

STEM professional Winner

The overall winner, with the most votes at the end of the Zone was:

- **Ben Dryer**, Space Instrumentation Research Fellow at The Open University

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



“It has been a real pleasure sharing the Space Zone with you all, I had so much fun and feel so privileged to get to share my passion for space science with you. I truly hope to see some of you in the space industry in future.”

You can read his full statement at

space22.iminspace.uk/2022/12/20/a-thank-you-from-your-winner-ben-dryer

Feedback

WOW, that was mad!! The kids absolutely loved it and asked to do it again!!!

Teacher

Thank you for answering all our questions and teaching us something new!

Student

Thank you for your time today. We have really enjoyed chatting to you all!

Student

This has been super great, one of the best sessions I have done! Thanks for the great questions.

Tom (STEM professional)



Stuart McCulley
@Mr_McCulley

A fantastic opportunity for our year 9 triple scientists today to engage with a space scientist thanks to @imascientist High quality Q&A with the very popular Stacy! #collaboration

Thank you for answering my questions, I found this very amusing listening and asking!

Student