

March 2022

The Molecule Zone (molecule22.imascientist.org.uk) ran from 7 March to 1 April and was funded by **ScotCHEM** and **Royal Society of Chemistry**. The Zone featured scientists working in chemistry-related roles. A special focus was put on connecting **schools within Scottish university catchment areas** with local scientists working in Scotland. **14 of these schools took part.**

Towards the end of the Zone, schools experienced staff shortages due to doubling numbers of Covid-19 cases. This caused disruption to the activity and a high number of unattended Chats.138

Key activity figures

	Zone	March 2022 average
Schools	30	26
Students logged in	1,161	1,040
Students active	71%	73%
Scientists	36	33
Questions asked	322	377
Questions approved	111	123
Questions duplicated	165	202
Answers given	556	413
Live Chats requested	85	74
Live Chats taken place	55	50
Lines of live Chat	16,636	14,284
Average lines per live Chat	302	318
Votes cast	379	359

Scientists

36 scientists created a profile in the Zone.

You can see who took part at molecule22.imascientist.org.uk/scientists

The winning scientist with the most votes from students was **Mark Ridgill**, Medical Chemist at Evotec.

Students

1,161 students from 30 schools across the UK logged into the Zone.

79% of active students were from priority schools: 31% from underserved schools and 66% from widening participation schools.

Live Chats

85 live Chats were requested throughout the Zone with an additional 4 evening Chats available to all students.

55 live Chats took place. 52 of which were booked by teachers and 3 were evening Chats.

Out of the remaining live Chats, 14 were cancelled and in 19 the school did not attend and did not give notice.

There was 1 live Chat where teachers 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 reached will be higher.

School activity

Students from 30 schools across the UK participated in the Zone. In addition to live Chats booked by teachers, there were 4 evening Chats available for the students and their families.

School	Active users	Chats attended	Chat lines (total)	Chat lines (per user)	Questions approved	Votes
Co-op Academy Manchester, Manchester (WP)	165	9	1,905	12	8	5
Furness Academy, Barrow-in-Furness (WP/U)	138	6	1,276	9	11	63
Westquarter Primary School, Falkirk (WP)	87	3	992	11	2	72
Kirkbie Kendal School, Kendal	61	2	504	8	5	57
Clevedon School, Clevedon	55	2	1,073	20	39	49
Biggar High School, South Lanarkshire (U)	40	3	333	8	3	20
St Joseph's College, Dumfries & Galloway (U)	32	2	300	9	11	3
Croftfoot Primary School, Glasgow City (WP)	25	2	447	18	2	21
Harris Girls' Academy East Dulwich, London (WP)	22	1	230	11	1	17
St Dominic's High School, Belfast (WP)	21	1	122	6	0	19
Garth Hill College, Bracknell	16	1	159	10	0	0
Stirling High School, Stirling	16	1	110	7	11	1
Christopher Rawlins Primary School, Oxfordshire (U)	15	1	194	13	0	13
Carluke High School, South Lanarkshire (WP/U)	14	3	91	7	0	8
Alexandra Park Primary School, Stockport (WP)	14	1	268	19	2	2
Kirkcudbright Academy, Dumfries & Galloway (U)	13	1	103	8	0	0
Prendergast Vale School, London (WP)	12	2	258	22	0	10

St Roch's Secondary School, Glasgow City (WP)	11	1	73	7	9	1
Dagenham Park CofE School, Dagenham (WP)	11	1	172	16	0	0
St John Wall Catholic School, Birmingham (WP)	10	1	172	17	0	0
Highdown School and Sixth Form Centre, Reading	10	1	107	11	1	5
Tonyrefail Community School, Porth	9	1	104	12	0	0
North Shropshire College, Oswestry (U)	9	1	64	7	2	7
Blackburn Central High School, Blackburn (WP)	9	1	91	10	0	0
St Bridget's Primary School & Nursery Class, Glasgow City (WP)	8	1	48	6	0	0
The City of Leicester College, Leicester (WP)	7	1	86	12	0	0
John Flamsteed Community School, Ripley (U)	4	0	0	0	2	3
Queen Elizabeth's School, Barnet, Barnet	3	1	27	9	0	3
Peterhead Academy, Aberdeenshire (U)	2	0	0	0	2	0
Carmunnock Primary School, Glasgow City* (WP)	1	1	33	33	0	0

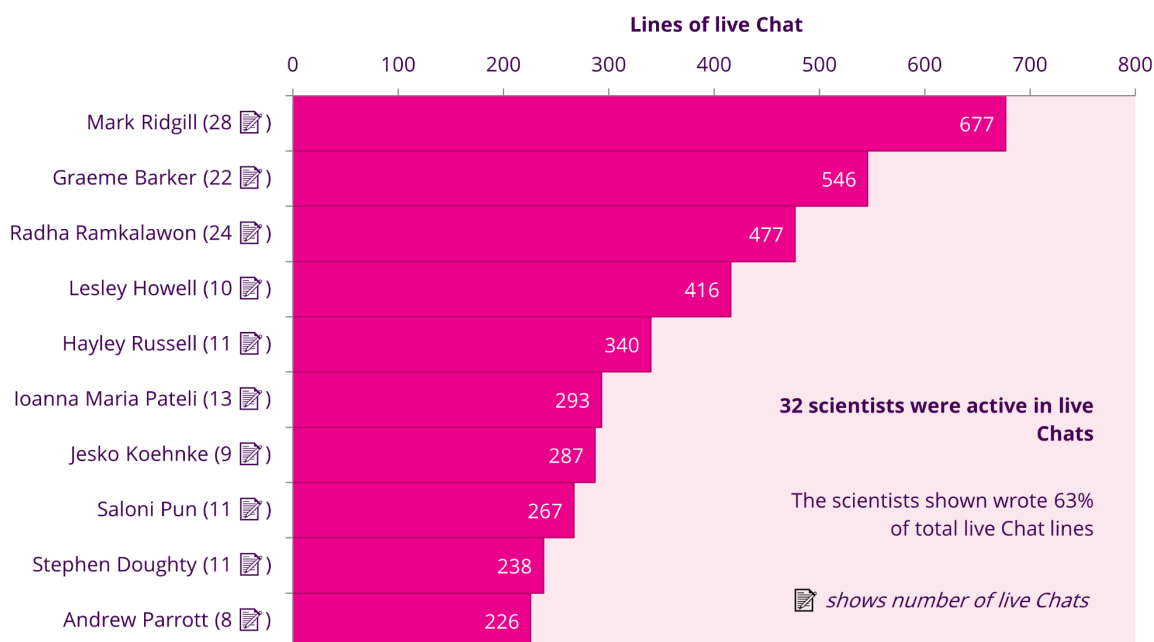
** In these chats teachers typed questions on behalf of their students, with the chat displayed on a screen.*

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

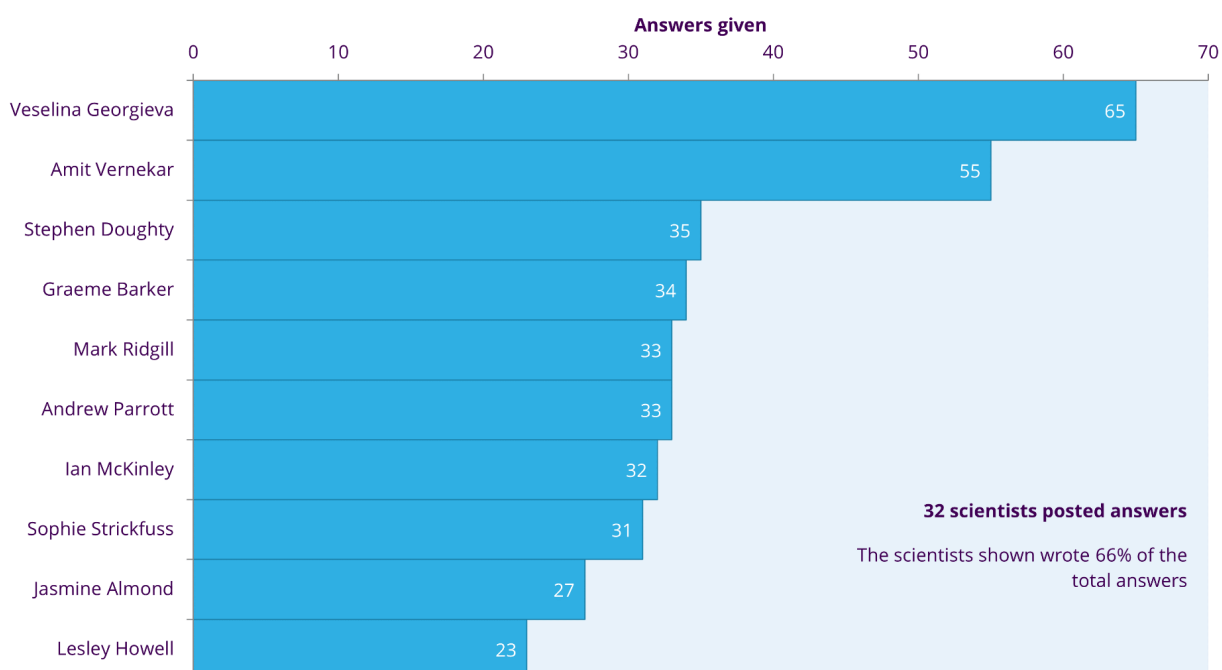
Scientist activity

During the Zone the scientists interacted with students by writing 5,974 lines of live Chat, and providing 556 answers to 111 posted questions. On average, 4 scientists attended each live Chat.

10 most active scientists in live Chats



10 most active scientists in posting answers



Good engagement

Asking questions they find interesting and relatable is important to support students' science capital and makes them more likely to see science as something 'for them'.

Student 1: Is chemistry actually useful?

Graeme (scientist): Yes. Medicine, plastics, the dyes and fabrics in your clothes, the fertiliser that grew your food, the soaps and detergents that keep you clean to give a (very small) range of examples. Without chemistry, we would literally be back to the stone age

Student 1: Why can you not take antibiotics for Covid

Radha (scientist): Covid-19 is a virus. Antibiotics do not work for viruses

Saloni (scientist): Antibiotics are a treatment for bacteria, Covid infections are caused by a virus.

Information and advice about scientists careers can be useful to show students what they need to do to get there. Knowing that scientists can struggle with subjects at school too can give students confidence.

Student 1: What advice would you give to someone who wanted to do what you do today?

Hayley (scientist): Don't be afraid to say you don't know something and ask lots of questions to help you understand things better

Student 1: Did you struggle with any science GCSES??

Radha (scientist): I struggled with biology

Saloni (scientist): Yeap, I struggled with Physics!

Finding common interests makes scientists appear like "normal people" and enables a rapport to be developed between scientists and students.

Student 1: Are there any things you find unethical in science?

Fiona (scientist): in Chemistry I would say, if it is harmful to the environment, it is unethical. Like chemistry that pollutes or throwing away chemicals in a not-good way

Student 1: yeah I really care about the environment too!

Fiona (scientist): That's good...as chemists we are responsible for the problems and fixing it. Like chemists created plastics for example

Student 1: How does your Hogwarts house impact your job?

Radha (scientist): I'm a gryffindor so I get very uptight when I see things that I don't agree with. I will speak my mind on uncomfortable topics.

Student 1: I'm hufflepuff but I definitely speak my mind too!

Radha (scientist): Hufflepuff is a great house! So many of my friends are Hufflepuff! :) Continue to speak your mind Rachel :)

Asking subject specific questions can help generate interest in the subject area.

Student 1: What is the most unpredictable chemical you have worked with?

Mark (scientist): Something like titanium tetrachloride - it smokes when you open the bottle and is very reactive

Graeme (scientist): In organic chemistry, saturated nitrogen rings - they're a nightmare. In the lab, solutions of cyanide in dimethylsulfoxide - instantly fatal on skin contact.

Student 1: What is your favourite element and why?

Charlay (scientist): carbon - it makes up all the living things on our planet!

Student 1: Are we all made up of carbon?

Charlay (scientist): Yes! Oxygen, carbon, hydrogen and nitrogen mainly

Student 1: If we are made up of so many gases, how come we are solid?

Charlay (scientist): Because when they bond together they aren't gases anymore. Water is one oxygen and two hydrogen. Both gases on their own, but together they're liquid (between 1-99°C)

Scientists of the Week

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

The Scientists of the Week were:



Graeme Barker, Chemistry Lecturer at Heriot-Watt University



Stephen Doughty, Director and Consultant at Eseldi



Jasmine Almond, Senior Material Scientist at Domino Printing Sciences

Scientist Winner

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

- **Mark Ridgill**, Medical Chemist at Evotec

They receive £500 to spend on further public engagement projects.



"Science is all about questioning things and I'd especially like to thank you all for the excellent and thought-provoking questions you asked us. I tried to share with you the motivation I get from trying to find cures for diseases and explain that unfortunately this isn't Star Trek and finding a new cure is a rare thing and can take many years."

You can read their full statement at molecule22.imascientist.org.uk/2022/04/21/a-thank-you-from-your-winner-mark

Feedback

Thank you everyone! The pupils enjoyed your answers!

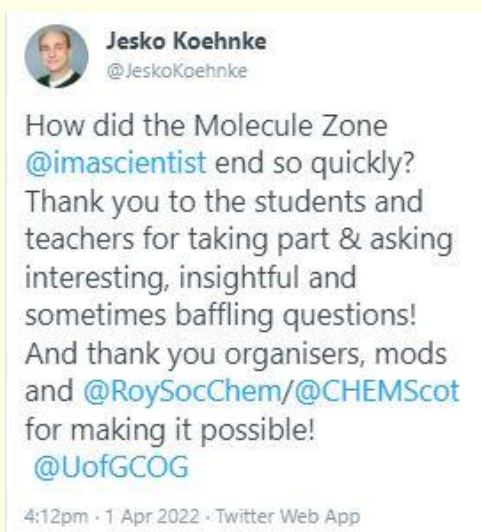
Teacher

Thank you for answering my questions, this was an amazing experience.

Student

Thank you so much for answering all our questions, it is very appreciated and was very interesting.

Student



The whole thing worked brilliantly. Some terrific answers. Thanks to the whole team!

Teacher

Thank you for giving us the opportunity to talk to real life scientists!!!

Student