

March 2021

The Molecule Zone (molecule21.imascientist.org.uk) ran from 1 to 26 March 2021 and was funded by **ScotCHEM** and **the Royal Society of Chemistry (RSC)**.

The Zone featured 33 scientists from a broad range of chemistry-related fields. 17 scientists were based at a ScotCHEM member university and 15 reported as being members of the RSC.

Key activity figures

	Molecule Zone	March 2021 IAS average
Schools	26	22
Students logged in	927	896
Students active	77%	83%
Scientists	33	28
Questions asked	532	458
Questions approved	212	218
Answers given	630	609
Scientist comments	30	68
Student comments	13	12
Live chats	57	56
Lines of live chat	11,947	13,868
Average lines per live chat	210	246
Votes cast	424	429

Scientists

33 scientists created profiles. They included:

- **Zuzanna Konieczna**, PhD student at the University of Edinburgh
- **Jesko Koehnke**, Reader at the University of Glasgow
- **Alexandra Males**, Postdoctoral Research Associate in Carbohydrate Enzymology at the University of York

Students

927 students from 26 schools across the UK logged into the Zone.

62% of active students were from target schools: 36% from widening participation schools and 34% from underserved schools.

Live chats

57 live chats took place: 51 were school classes booked by teachers and 6 were additional chats, open to all the students.

There were 6 live chats where teachers asked questions on behalf of their students. On 1 of these occasions, 6 classes were observing the chat. Therefore, the number of students reached will be higher by about 300.

On average, 5 scientists attended each chat.

School activity

Students from 26 schools across the UK participated in the Zone. In addition to live chats booked by teachers, there were Thursday evening chats for the students and their families.

School	Active users	Chats attended	Chat lines (total)	Lines (per user)	Questions approved
Heybrook Primary School, Rochdale (WP)	143	9	1964	14	10
Uffculme School, Cullompton (U) *	82	2	198	2	40
Thames Park Secondary School, Grays	81	0	0	0	102
Farringtons School, Chislehurst	72	5	319	4	33
Hayocks Primary School, North Ayrshire (WP/U)	49	5	629	13	3
Stranraer Academy, Dumfries & Galloway (U)	46	3	323	7	0
Sir Jonathan North Community College, Leicester	40	2	293	7	5
Longbenton High School, Newcastle-upon-Tyne (WP)	26	2	95	4	0
Teanassie Primary School, Beaulieu (U)	24	2	357	15	2
Dwight School London, London	22	2	241	11	5
Colchester County High School for Girls, Colchester	21	2	135	6	0
Guiseley School, Leeds (U)	20	1	64	3	0
St Dominic's High School, Belfast (WP)	18	1	88	5	1
Bexley Grammar School, Welling	16	1	67	4	0
The Irish Society's Primary School, Coleraine (U)	15	1	106	7	3
Fitzharrys School, Abingdon	13	1	146	11	0
Skinner's Kent Academy, Tunbridge Wells (WP/U)	6	1	68	11	0
Clevedon Secondary School, Glasgow City (WP)	5	1	22	4	1
Cardinal Winning Secondary School, Glasgow (WP)	4	1	114	29	0
St Oscar Romero Catholic School, Worthing	3	0	0	0	1
Ark Elvin Academy, London	2	0	0	0	4
Marton Primary Academy and Nursery, Blackpool (WP) *	2	1	35	18	0
The Basildon Upper Academy, Basildon (WP/U)	2	1	37	19	1
Calderside Academy, South Lanarkshire	1	0	0	0	1
Causeway Green Junior School, Oldbury *	1	8	225	225	0
Kenmont Primary School, London (WP) †	1	1	6	6	0

* In these chats teachers typed questions on behalf of their students.

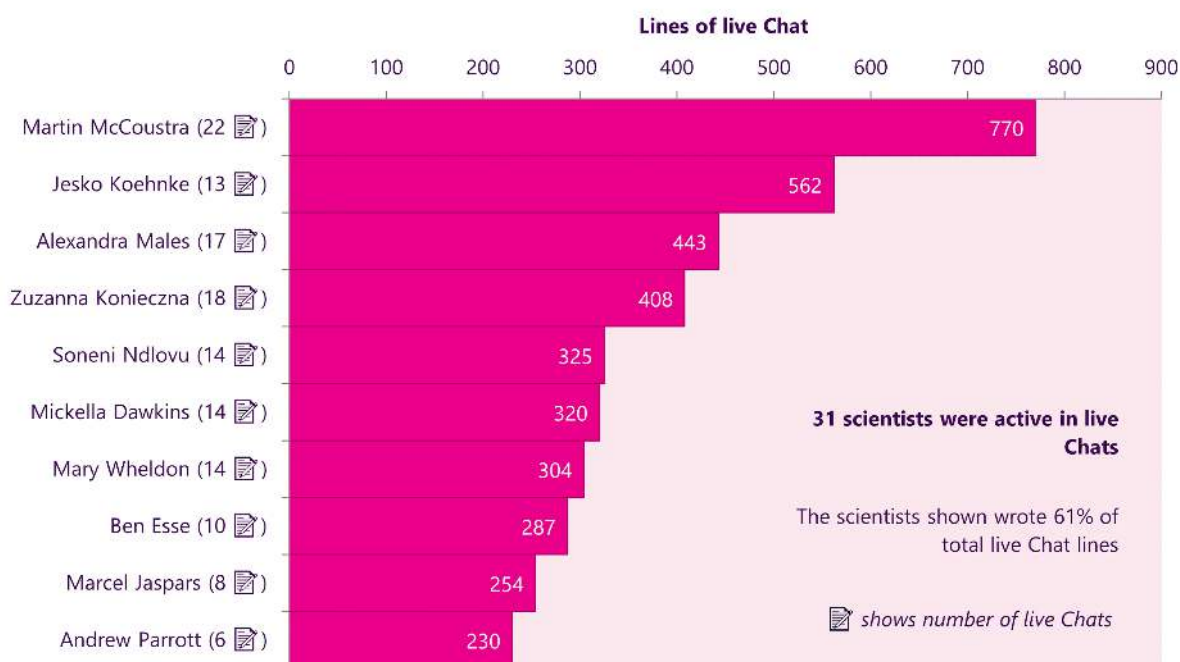
† Students from these schools attended open chats only.

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

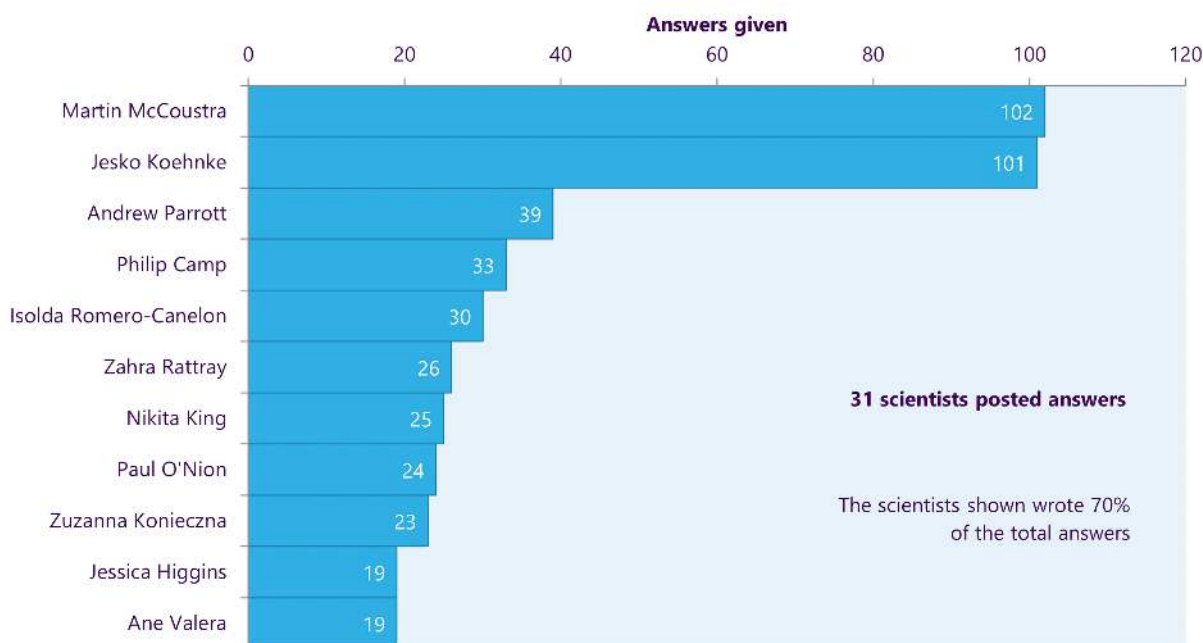
Scientist activity

33 scientists interacted with students, writing 6,415 lines of live chat, and providing 630 answers to 212 posted questions. See all the scientists at: molecule21.imascientist.org.uk/scientists

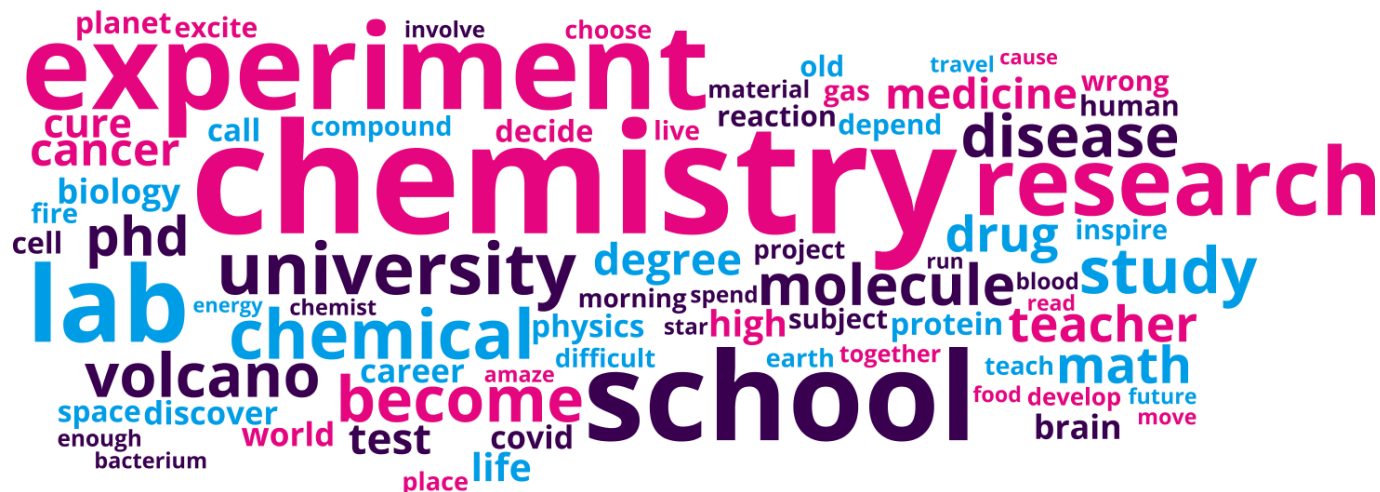
10 most active scientists in live Chats



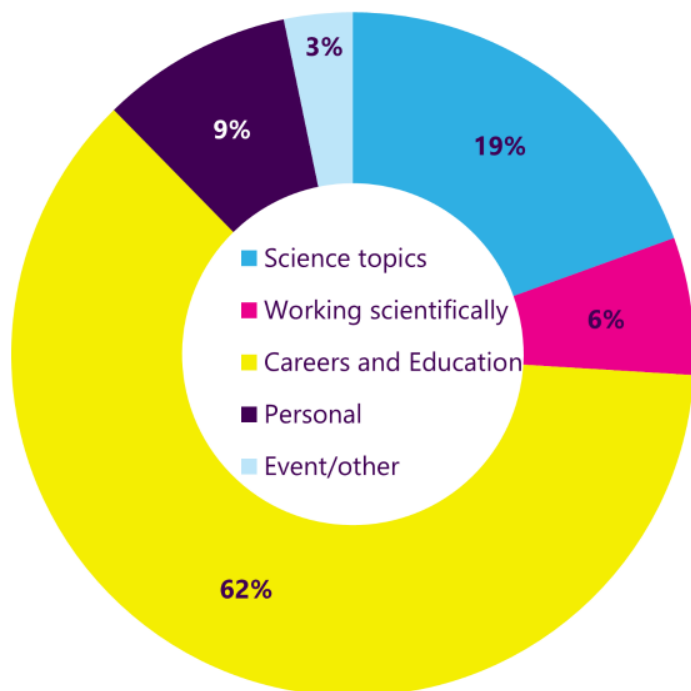
10 most active scientists in posting answers



The word cloud below demonstrates what students and scientists talked about in live chats. The bigger the word, the more frequently it was used.



The chart below shows a breakdown of questions students sent to the scientists. Examples are coloured by category.



favourite song by queen

Good engagement

Students were keen to learn about the real world ethical issues surrounding drug trials.

Student: what ethical issues do you face when working on a new type of medication?

Kate (scientist): So this becomes important when the medicine is going to be tested in humans - scientists need to make sure the data is correct, that we know as much as possible about the medicine so that we reduce any side effects

Student: I can understand why strict guidelines are needed to be put in place during testing. Has there been a specific trial that you liked the most?

Kate: Absolutely! It takes 10-12 years on average to develop a drug! I work in the discovery part so am less involved in later stages such as trials. The COVID vaccine trials are incredible work though! Many scientists did amazingly to develop vaccines so quickly.

One student wanted to know if the scientists had ever faced discrimination for wanting to pursue a STEM career.

Student: Have people ever made fun of you guys for wanting to do science?

Marcel (scientist): honestly, yes. I ignored them and now I get to think of my own experiments and discover cool molecules that might one day be used to treat human diseases

Nikita (scientist): no they didn't, when we were at school and saw some experiments everyone thought it was cool! I had friends that liked science too - so we stuck together :)

Mary (scientist): I don't think so, but that probably wouldn't have stopped me! Everyone needs scientists, from making medicines, to developing new fuels, to working out how things work!

This student wanted to know how to remove barriers to STEM careers:

Student: do you think that certain individuals are at a disadvantage within scientific careers? and if so what changes could prevent this

Martin (scientist): The biggest barriers to getting into a scientific career is that many people don't think that they are capable of doing it. The biggest barrier are those we impose on ourselves.

Student: I totally agree with you Sometimes we have to move outside our comfort zone

Isolda (scientist): I agree with Martin.... if you want to be a scientist you have to be prepared to try and try again

Student: practice makes perfect!!

Isolda: very much so..... and everytime that you fail you learn something...so next time that you fail, at least you will fail better!

Michael (scientist): Yes I do think some people are at a disadvantage. But i think programmes like this are good to help people get advice and prepare for the next steps

Student: definitely! so far this program has helped me have an insight into what possible career path I might want to take so there is hope there

Mickella (scientist): There are intrinsic biases that exist within the science community but I'm happy to say that there is much work being done to get rid of these biases. For example the Royal Society of Chemistry has funding for Equality, Diversity and Inclusion...

Student: it's nice to know that there are organisations out there that are trying to prevent these bias, that are initially firstly rooted into our society

Students also learnt that scientists are human beings, who also have to cope with stress.

Student: have you ever had a melt down in the middle of something very important

Zahra (scientist): Not yet. I meditate a lot and take a step back when things don't go right. Sometimes it is better to calm down and come back to something.

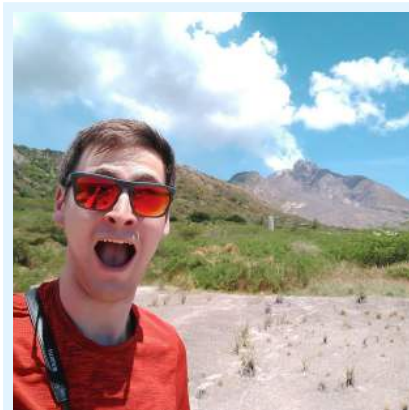
Marcel (scientist): Yes, I use my science to try and save the ocean and was allowed to speak at the UN in New York. I gabbled what I had to say and had to start again

Scientist winners

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

The Scientists of the Week were:

- **Holly Yu**, Research Technician at the University of Glasgow
- **Kate Gilbert**, PhD scientist at GlaxoSmithKline and the University of Strathclyde
- **Ben Esse**, research assistant at the University of Manchester



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

- **Martin McCoustra**, Professor of Chemical Physics at Heriot-Watt University

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



"I'm surprised and very happy to be a winner in *I'm a Scientist* for a second time!

I feel that talking to students and teachers about what I do and what it is like to be a scientist is an important step in getting the next generation to realise that we are not really special and that science is for all of those who wish to engage in it."

You can read their full statement at

molecule21.imascientist.org.uk/2021/03/30/a-thank-you-from-your-winner

Feedback

We feel really bad choosing a favorite because genuinely everyone has been brill!

Teacher

thank you very much for this excellent experience ill take this information on board and use this into me being a scientist

Student

This chat is inspiring all of us

Teacher

so far this program has helped me have an insight into what possible career path I might want to take so there is hope there

Student

I like this activity because it's easy to interact with a lot of people without too much planning.

Andrew (scientist)

I'm the same and not quite as daunting as Zoom/Teams

Amy (scientist)



Jesko Koehnke
@JeskoKoehnke

Today concluded the [#moleculezone](#) [@imascientist](#) for 2021. Thank you students for 100s of questions. Favourite recurring has got to be "Did you ever blow up a garage?". We really try not, but things happen 😊
[@UofGCOG](#)

The children asked fantastic questions and we really enjoyed finding out about how [the scientists] worked and what inspired them to start their career.

Teacher