November 2021

The Clean World Zone (**https://cleanworld21.imascientist.org.uk/**) ran from 1 to 26 November and was funded by **Johnson Matthey** and featured scientists working on more sustainable technologies.

Throughout November, 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	November 2021 average
Schools	17	12
Students logged in	502	486
Students active	80%	87%
Scientists	28	31
Questions asked	101	91
Questions approved	82	70
Answers given	266	264
Scientist comments	19	19
Live chats	27	27
Lines of live chat	9,494	7,596
Average lines per live chat	352	288
Votes cast	235	213

Scientists

28 scientists created a profile in the Zone.

You can see who took part at **https://cleanworld21.imascientist.org.uk/scientists**

The winning scientist with the most votes from students was **Karen Fung**, PhD student at Heriot-Watt University.

Students

502 students from 17 schools across the UK logged into the Zone.

88% of active students were from target schools: 58% from underserved schools and 41% from widening participation schools.

Live chats

27 live chats took place during the activity: 26 were school classes booked by teachers and one was an additional chat, open to all the students.

An additional 4 live chats were booked but cancelled.

There was one 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.

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School activity

Students from 17 schools across the UK participated in the Zone. In addition to live chats booked by teachers, there were 4 Thursday evening chats scheduled for the students and their families.

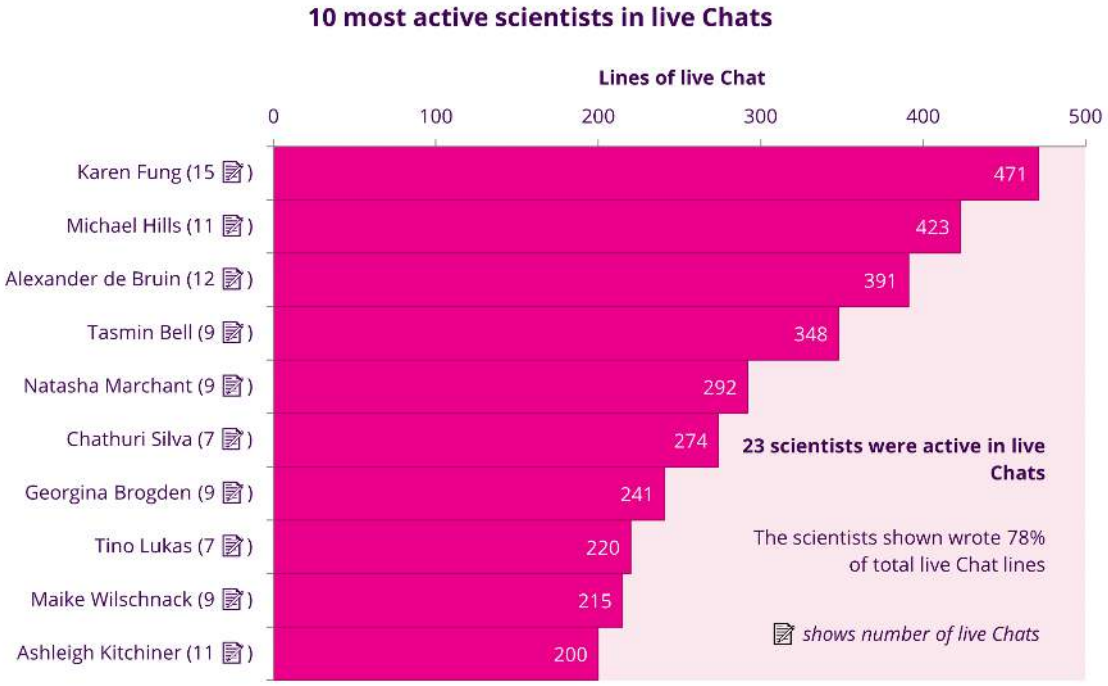
School	WP/U status	Active users	Chats attended	Chat lines (total)	Chat lines (per user)	Questions approved	Votes
St Bridget's Primary School & Nursery Class, Glasgow City	WP	58	2	1,030	18	0	25
The Norton Knatchbull School, Ashford	U	56	2	494	9	6	54
St Brendan's Catholic Primary School, Corby	U	47	3	743	16	1	29
The Manor Academy, Mansfield	WP/U	46	3	351	8	5	39
Llanyrafon Primary School, Torfaen	U	44	2	370	8	10	36
Harris Girls' Academy East Dulwich, London	WP	44	2	927	21	48	0
Sir Jonathan North Community College, Leicester	-	28	1	387	14	3	25
Kingsmead Academy, Taunton	U	25	1	381	15	4	0
Berkshire College of Agriculture, Maidenhead	-	17	2	133	8	0	13
Mallaig High School, Highland	U	14	1	117	8	0	2
Westquarter Primary School, Falkirk	WP	12	1	233	19	4	10
Sir Harry Smith Community College, Peterborough	U	8	1	91	11	0	0
Litherland High School, Liverpool	WP	7	1	61	9	1	0
Rockland St Mary Primary School, Norwich	-	7	2	153	22	0	0
Dagenham Park CofE School, Dagenham	WP	4	1	30	8	0	0
St Ignatius Catholic Primary School, Sunbury on Thame*	-	1	1	49	49	0	0

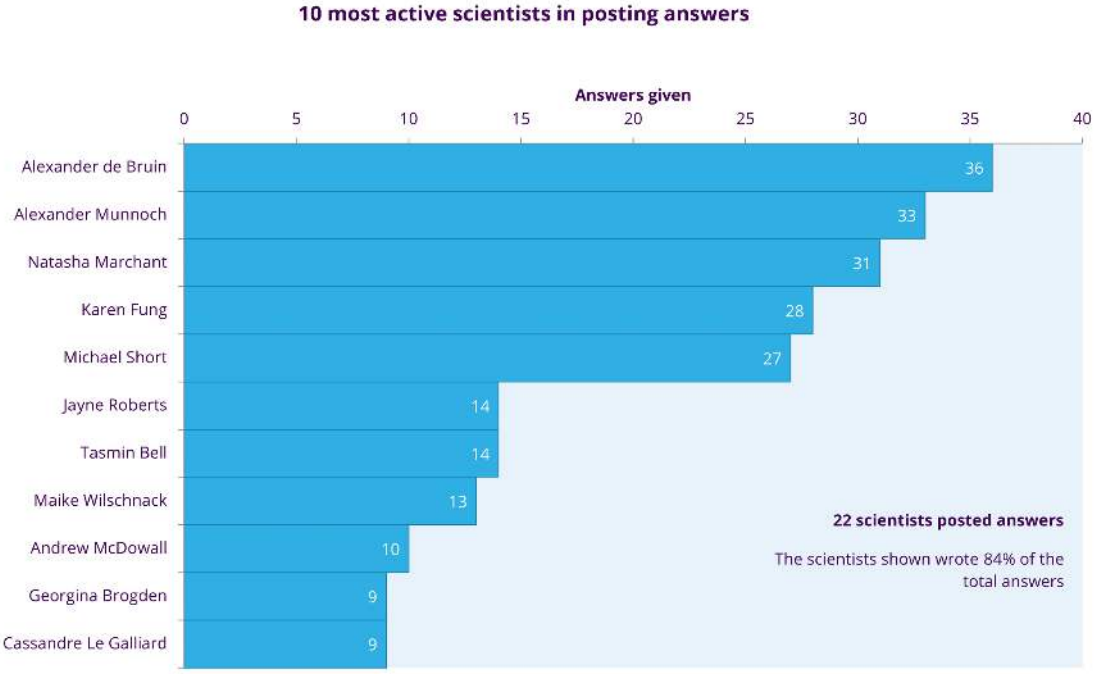
** In these chats teachers typed questions on behalf of their students, with the chat displayed on a screen.*

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 3,924 lines of live chat, and providing 266 answers to 82 posted questions. On average, 5 scientists attended each live chat.





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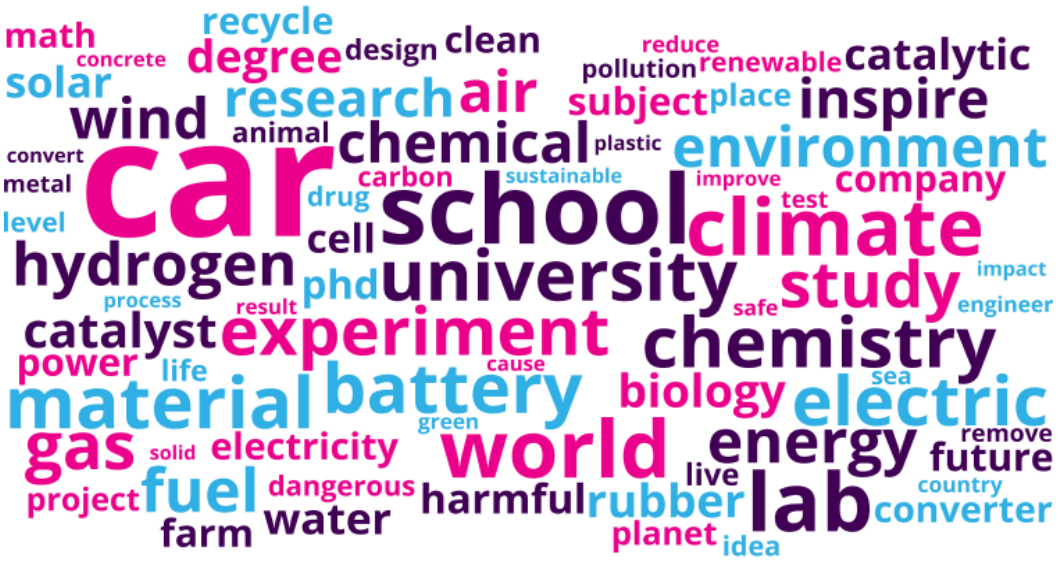
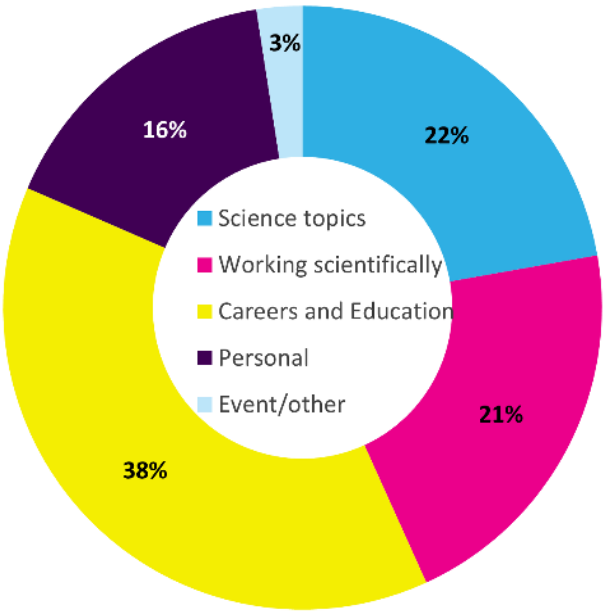
Live chats

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



Questions in Ask section

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



How much nitrogen is present in our atmosphere?

What do zeolites contain and what in them make them so important?

When working, do you attempt to make new forms of material?

Do you think we can stop climate change?

How did you manage to do 10 GCSEs?

What is it like being a senior marine mammal consultant?

Did you know what you wanted to do when you left school?

What's your favourite piece of music to play on your guitar?

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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: Where is rubber going now because we can't recycle it?

***Karen (scientist)**: They go into landfills in other countries! The largest tyre dump site is in Kuwait (approx. 4 billion tyres are dumped there and there isn't enough space, these tyre dump sites also catch on fire which releases nasty fumes which is bad for the environment*

Student 1: Oh no, that is bad.

***Karen (scientist)**: It is :(that's why scientists are looking for ways to recycle rubber so that they don't end up in landfills and so we can recycle the rubber already in landfills.*

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 advice would you give someone who would like to be a scientist?

***Tasmin (scientist)**: Work hard and love what you do. Make sure you do well in science and maths GCSE. Continue to A levels for science and maths. Then choose your favourite science to study at University. If this is not possible you could do an apprenticeship*

Student 1: When did you realise you were interested in science and wanted to become a scientist?

***Karen (scientist)**: I would say my biology teacher was my biggest inspiration to want to become a scientist but I also knew I wanted to do something that would solve our real world problems and science allows us to do that!*

Student 1: Did you enjoy physics and chemistry besides biology?

***Karen (scientist)**: I would say I enjoyed chemistry more than physics :)*

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: Do you have any pets?

Natasha (scientist)*: I have a cat called Tilly, you can see a picture of her on my profile!*

Karen (scientist)*: No :(but I would love to get a cat!*

Alex (scientist)*: I have a 21 year old cat which we have had since a kitten! :) her name is MIllie as she was born in the millennium (year 2000)*

Student 1: If you had to go to one place in the world, where would it be?

Natasha (scientist)*: I’d love to go to Australia, I have family there but I’ve never been!*

Student 1: same I want to move there once I’m a fully qualified doctor

Natasha (scientist)*: oh wow! Sounds great :D*

Karen (scientist)*: I would love to go to South Korea!*

Student 1: me too, it’s really pretty there

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

Student 1: How will the outcomes from COP26 impact your work in the next few years?

Alex (scientist)*: Great question! For us, it brings our work into the spotlight! The company I work for is dedicated to sustainable technologies and so having government backing will help us bring even more of our science into the world.*

Georgina (scientist)*: COP26 was a meeting in COpenhagen for world leaders to talk about climate change. My work might be changing quite a bit. A lot of the governments promised to stop using gasoline cars by 2035. I work on catalysts used in gasoline cars*

***Tasmin (scientist)**: We will continue to work on developing sustainable technologies in order to contribute to the global effect of reducing emissions.*

Student 1: Are you doing any experiments right now, I am intrigued

***Karen (scientist)**: Not at the moment, I am working from home and doing lots of workshops and having meetings, but I would much rather be doing an experiment right now!*

***Tino (scientist)**: No, right now not because I kept this time free to answer your questions. However I will do so later today :)*

***Delphine (scientist)**: I am office based so unfortunately don't do experiments anymore, other than with my two children as I love introducing them to Science*

Student 2: Tino, what experiment are you doing later?

***Tino (scientist)**: I will prepare really thin films (100 of these will still be thinner than your hair) and check how thin they actually are when prepared the way I want it.*

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:

Tino Lukas, PhD student at University of Oxford

Karen Fung, PhD student at Heriot-Watt University

Alexander de Bruin, Senior Formulation Scientist at Johnson Matthey

Scientist winner

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

- **Karen Fung**, PhD student at Heriot-Watt University

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

"Thank you to all the students who participated and for asking such fantastic and curious questions. The sessions wouldn't be so fun and engaging if it wasn't for the students being so enthusiastic! You were full of brilliant questions from how we are using science to make our world cleaner, science in general and life as a scientist."

You can read their full statement at **https://ias.im/441.312**

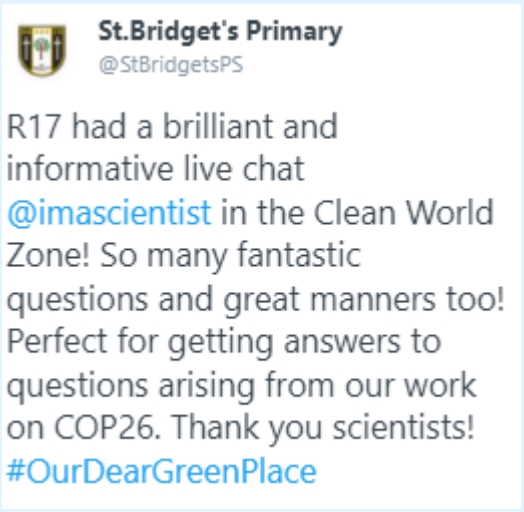
Feedback

Thank you for all your time. It was appreciated!

Student

Thank you to the scientists from @imascientist for an informative live chat today in the Clean World Zone. We got to know the scientists, all about their work and the class asked some brilliant questions.

Teacher



Thank you for letting us have the chance to talk to you!

Student

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