November 2023

The Genetics Zone (genetics23.imascientist.org.uk) ran from 6 November to 1 December and was funded by the Wellcome Centre for Human Genetics, Wellcome Connecting Science, the Genetics Society and the STEM Ambassador Scheme.

Key activity figures

	Genetics Zone	November Average
Students logged in	549	556
Students active	87%	87%
Schools	29	25
Scientists given access	51	37
Scientists active	36	30
Chats booked	43	50
Chats took place	39	36
Lines of Chat	9,135	9,913
Average lines per Chat	234	256
Follow up questions asked	95	127
Follow up questions approved	81	107
Answers given to follow up questions	255	333
Scientist comments	63	39
Student comments	1	4
Votes	339	356

Who took part?

The Zone featured 36 scientists working as bioinformaticians, research assistants, safety officers, genetic engineers, lead of a technical laboratory team and research the effects of DNA on intelligence, learning and immunity. They connected with 549 students from across the UK. 477 students (87%) actively participated by writing Chat lines and asking follow up questions.

64% of active students were from priority schools.

A total of 339 votes were cast by students. The winning scientist with the most student votes was **Michael Schubert**, who is a science writer, editor, and consultant.

Activity

43 Chats were booked, 39 took place. All of the remaining 4 Chats booked were cancelled.

It is common for students to share login details or computers during Chats. Therefore, the number of students engaged is expected to be higher.

Students asked 95 follow up questions of which 81 were approved and sent to scientists. Duplicate questions (that scientists had already answered) were not sent again, with the student being directed to the previous answer and invited to comment and ask additional questions.

MangorollaCIC

01225 667922
shane@mangorol.la

Funded by:
Wellcome Centre for Human Genetics;
Wellcome Connecting Science;
The Genetics Society;
STEM Ambassador Scheme

School activity

School	Students logged in	Active users	Chats attended	Chat lines (total)	Chat lines (per user)	Follow up questions approved	Votes
Frithwood Primary School, Hillingdon	53	53	2	1164	22	11	52
Shimna Integrated College, Down [WP-Q3 D]	61	52	3	360	7	19	11
The Island Free School, Isle of Wight [WP-Q2 D]	39	38	3	343	9	3	31
Thornden School, Hampshire	38	35	2	330	9	2	32
The Pines School, Bracknell Forest	27	26	1	535	21	6	11
Ysgol Uwchradd Tywyn, Gwynedd [D]	27	25	1	298	12	0	18
South and City College Birmingham [WP*]	28	24	1	108	5	8	18
Tolworth Girls' School and Sixth Form, Kingston upon Thames	31	23	3	107	5	5	15
MidKent College, Medway [WP* D]	27	19	1	48	3	3	20
Middlesbrough College, Middlesbrough [WP* D]	24	19	1	81	4	2	10
Silverdale School, Sheffield	18	17	1	67	4	0	14
Glenlola Collegiate, Down [WP-Q2 D]	17	16	1	108	7	0	13
Beaulieu Convent School, Jersey	16	15	2	89	6	0	9
Craigmount High School, Edinburgh City	15	15	1	121	8	0	12
Darrick Wood School, Bromley	15	15	1	105	7	0	15
The Royal School Dungannon, Tyrone [WP-Q1 D]	23	13	1	106	8	10	6
Albright Education Centre, Sandwell [WP-Q4]	11	10	1	174	17	0	9
New College Swindon, Swindon [WP* D]	10	10	1	62	6	0	9
The Norton Knatchbull School, Kent [WP-Q1 D]	11	9	3	84	9	6	6
Dagenham Park CofE School, Barking and Dagenham [WP-Q4]	9	8	1	57	7	1	6
Holme Junior School, Kirklees	8	8	1	80	10	1	8
Bexhill College, East Sussex [WP* D]	8	7	1	34	5	1	3
West Calder High School, West Lothian	12	6	1	19	3	0	4

MangorollaCIC

01225 667922
shane@mangorol.la

Funded by:
Wellcome Centre for Human Genetics;
Wellcome Connecting Science;
The Genetics Society;
STEM Ambassador Scheme

School	Students logged in	Active users	Chats attended	Chat lines (total)	Chat lines (per user)	Follow up questions approved	Votes
Winstanley College, Wigan [WP* D]	6	6	1	46	8	1	4
Launceston College, Cornwall [WP-Q3 D]	3	3	1	48	16	2	3
Hills Road Sixth Form College, Cambridgeshire [WP*]	10	2	1	9	5	0	0
Towers School and Sixth Form Centre, Kent [WP-Q4]	2	2	1	11	6	0	0
Lamlash Primary School, North Ayrshire*[WP-Q1 D]	0	0	2	16		0	0
Willowdown Primary School, Somerset* [WP-Q4 D]	0	0	1	22		0	0

We want to increase the participation of under-represented groups. WP-Q indicates the level of economic deprivation in a school's catchment area: Q5 represents a high level. D shows schools that are more than 30 minutes from a large research HEI. Find out more, and how you can support us in working with more of these schools: **about.imascientist.org.uk/under-served-and-wp**

*These schools ran Chat sessions where students' questions were asked through the teachers' accounts.

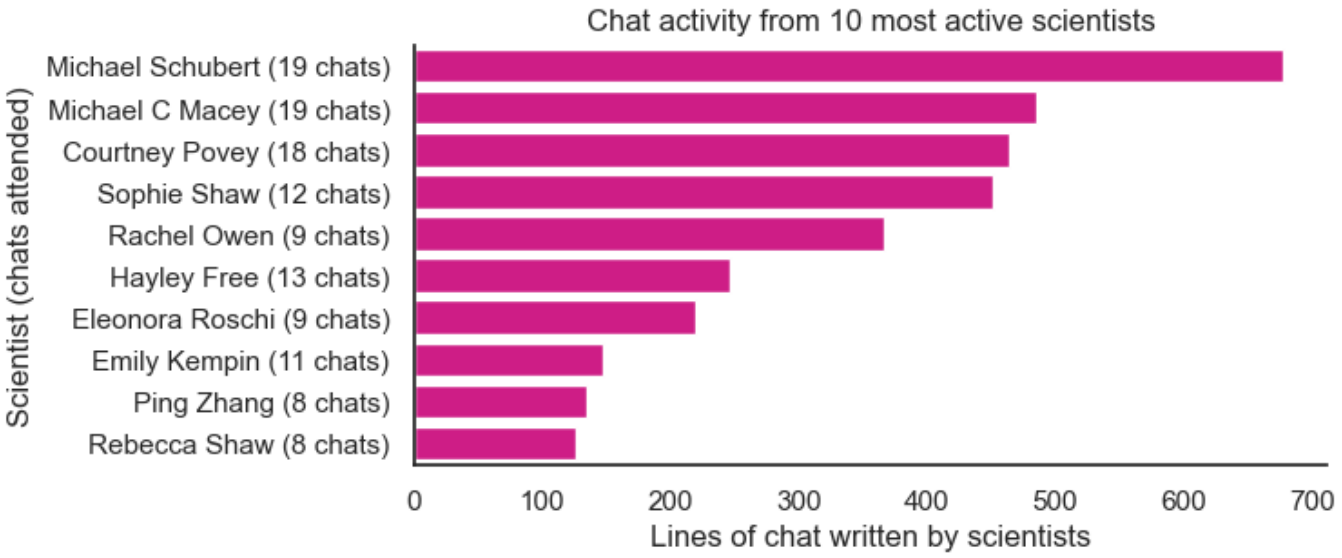
MangorollaCIC

01225 667922
shane@mangorol.la

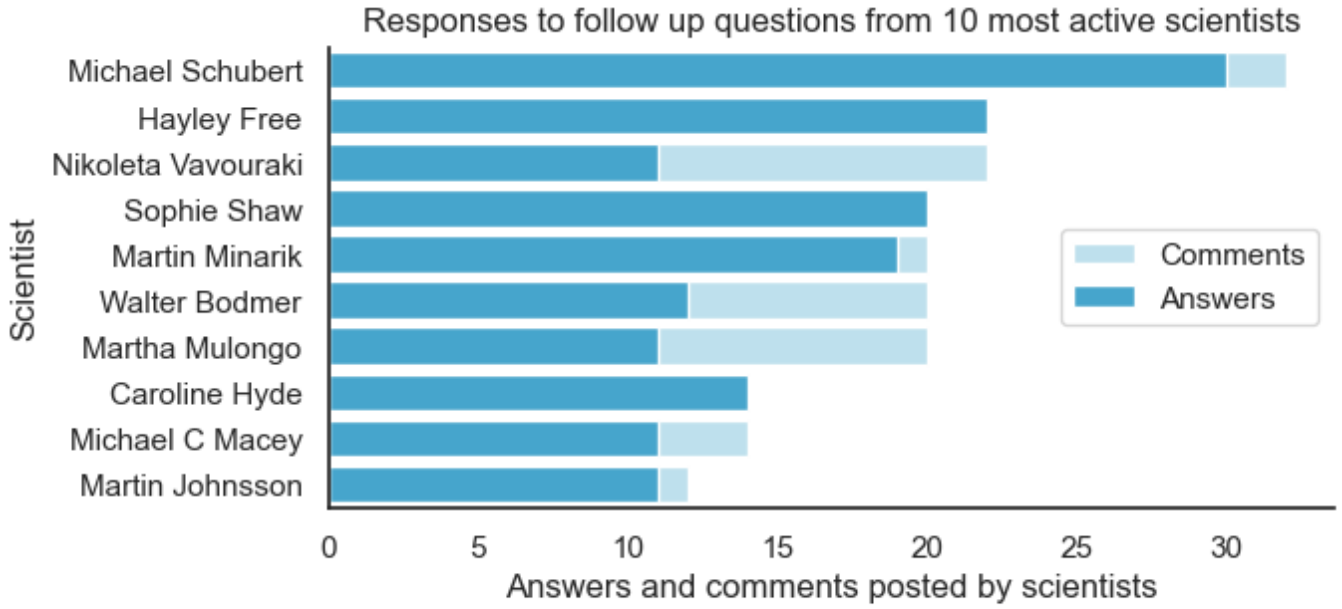
Funded by:
Wellcome Centre for Human Genetics;
Wellcome Connecting Science;
The Genetics Society;
STEM Ambassador Scheme

Scientist activity

During the Zone the scientists interacted with students by writing 4,503 lines of Chat, and providing 255 answers to 81 follow up questions. On average, 5 scientists took part in each Chat.



The scientists shown wrote 74% of the lines of chat in the zone.
The average scientist attended 5 chats, and wrote 125 lines.



The scientists shown posted 63% of the answers, and 56% of the comments in the zone.
The average scientist posted 7 answers, and 2 comments.

MangorollaCIC

01225 667922
shane@mangorol.la

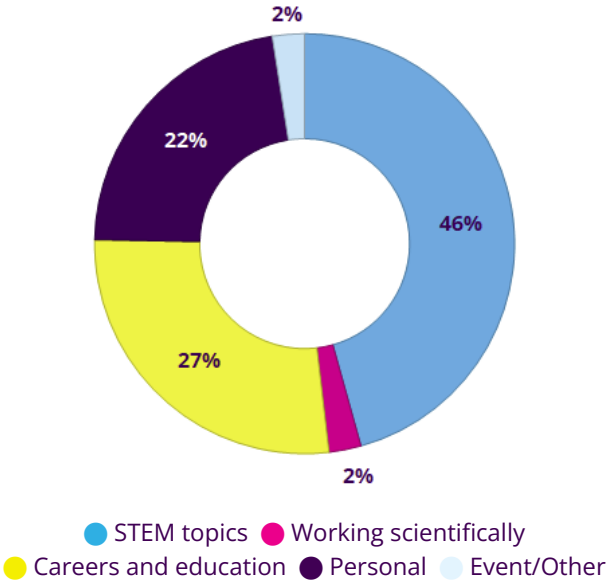
Funded by:
Wellcome Centre for Human Genetics;
Wellcome Connecting Science;
The Genetics Society;
STEM Ambassador Scheme

Chats

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

Follow up questions

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.



What is the impact of the human genome project?
What is your favourite genetic mutation?
I think that ageing is a disease. What about you?
With the advancement into genetic research growing exponentially every day, how do you think the public will catch up?
What is the key thing to consistently remember when working in the forensic field?
What's been the most exciting part of your career?
How many years did it take you to get to where you are?
If you were an animal, what animal would you be?

MangorollaCIC

01225 667922
shane@mangorol.la

Funded by:
Wellcome Centre for Human Genetics;
Wellcome Connecting Science;
The Genetics Society;
STEM Ambassador Scheme

Examples of good engagement

The Chats provided many examples of great engagement. Questions about science display an interest in Scientific Literacy.

Student 1: Can bacteria live in lava?

> **Michael (scientist)**: Not in lava as it is too hot BUT there are some microbes that can survive in water above 120 C - some of these waters are also acidic, so they are living in boiling acid effectively.

An important part of the Science Capital Teaching Approach is personalising science to the individual. Students can receive answers to specific questions about their lives, such as the colour of their eyes.

Student 2: If my mum and dad have brown eyes then why do I have green eyes?

> **Freddy (scientist)**: You may have been taught about alleles - different types of the same gene. For eye colour, brown is dominant/strong, whereas green is recessive/weak. This means you can have brown eyes but carry the gene for green eyes
>
> > **Freddy (scientist)**: When you inherit your genes from your parents you happened to inherit the green gene from both but not the brown.

Funded by:
Wellcome Centre for Human Genetics;
Wellcome Connecting Science;
The Genetics Society;
STEM Ambassador Scheme

Students gain insights into the diversity of science qualifications and how personal interests can be applied in a science area and lead to a specific career.

Mick (scientist): You might be surprised at how many jobs involve science, not just lab work. What kinds of things are you interested in?

Student 3: i like spiky cactus

Student 3: is there anything that involves spiky cactus

Mick (scientist): Well, botanists study plants, so a botanist could specialise in cacti. Did you know there's a name for the study of how cactus spikes grow? It's called acanthochronology.

Student 3: OMG that is so my dream career maybe i will work with you one day

Engaging in exchanges with scientists allows students to appreciate that scientists are normal and regular people. Personal questions, such as about video games, give students insight into the scientists' lives outside of work.

Student 4: What's your favourite scientific video game?

Rebecca (scientist):I guess Zoo Tycoon is kinda science-y. I used to play that a lot as a kid

Michael (scientist): Kerbal Space Mission

MangorollaCIC

01225 667922
shane@mangorol.la

Funded by:
Wellcome Centre for Human Genetics;
Wellcome Connecting Science;
The Genetics Society;
STEM Ambassador Scheme

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:

Michael C Macey, who researches the genetics of microbes living in extreme environments.

Michael Schubert, who is a science writer, editor, and consultant.

Hayley Free, who searches for the genetic material of viruses within frog and toad DNA.

Winning scientist

The overall winner, with the most votes at the end of the Zone was Michael Schubert, who is a science writer, editor, and consultant.

As Zone winner, he receives £500 to spend on further public engagement projects.

"Thank you all so much for being part of the Genetics Zone and for voting for me! Participating in I'm a Scientist, Get Me Out of Here has been an amazing experience and I've loved the enthusiasm and energy of everyone who joined in. We had questions that were really challenging, questions that were fun to answer, and questions that were just plain funny. It's also great to see how interested people are in what life is like as a scientist, what kinds of jobs you can do that involve science, and how science is part of your everyday life no matter where you live or what you do! [...]"

You can read his full statement here

MangorollaCIC

01225 667922
shane@mangorol.la

Funded by:
Wellcome Centre for Human Genetics;
Wellcome Connecting Science;
The Genetics Society;
STEM Ambassador Scheme

Feedback

"The enthusiasm emanating from the scientists themselves was infectious. I only have 3 students in this group so the conversation that initiated between the scientists hooked my students in nicely. The scientists then took the lead from the students and it made them feel really included. Initially they were worried about asking "stupid" questions but the scientists really responded brilliantly and made them feel like they were good questions after all!"

Gemma (teacher)

"Thank you for answering our questions, it's been very insightful and a great opportunity! Given me lots to think about..."

Student

"Thank you everybody this has been so interesting! :))"

Student

"Thanks for these questions, they have been great! Really high level!"

Sophie (scientist)

"It was something different to usual. They were excited to talk to 'scientists'. They had loads of questions that weren't science questions and they loved that"

Alex Cerny (teacher)

"I would just like to thank you all. The children have been so engaged and excited. It's been fantastic. Every class in the school will have done this soon. Many thanks."

Teacher

"My day is great because I am enjoying I'm a scientist."

Student

"I enjoyed the chats more than I was expecting!"

Rachel (scientist)

"This chat is great - because there are so many scientists, each question gets a lot of answers with a lot of different information!"

Michael (scientist)

MangorollaCIC

01225 667922
shane@mangorol.la

Funded by:
Wellcome Centre for Human Genetics;
Wellcome Connecting Science;
The Genetics Society;
STEM Ambassador Scheme