

## June 2023

The Cancer Zone ([cancer23.imascientist.org.uk](https://cancer23.imascientist.org.uk)) ran from 6 to 30 June and was funded by the University of Edinburgh Institute of Genetics and Cancer; Royal Society of Chemistry; University of Oxford Department of Oncology; University of Manchester Medical Services Division; and the Manchester Cancer Research Centre.

The Zone featured 28 scientists, researchers and chemists engineering scientific instruments for cancer research, studying fertility in those with childhood cancer, understanding how weight loss can prevent cancer related to obesity, how cancers are able to resist therapies and why cancer cells go rogue! They connected with 435 students from across the UK. 387 students (89%) actively participated by writing Chat lines and asking follow up questions.

### Key activity figures

	Zone	June 2023 average
Students logged in	435	493
Students active	89%	90%
Schools	16	16
Scientists given access	33	34
Scientists active	28	28
Chats booked	45	40
Chats took place	29	27
Lines of Chat	6,634	6,966
Average lines per Chat	229	233
Follow up questions asked	111	155
Questions approved	92	120
Answers given to follow up questions	195	343
Scientist comments	17	17
Student comments	0	2
Votes	273	345

### Who took part?

435 students from 16 schools across the UK connected with 28 scientists. 95% of active students were from priority schools: 74% from underserved schools and 74% from widening participation schools.

A total of 273 votes were cast by students. The winning scientist with the most student votes was **Giampiero Valenzano**, studies pancreatic cancer and how it can be best treated in the future.

### Activity

45 Chats were booked. 29 took place. Out of the remaining 16 Chats booked, 13 were cancelled and in 3 cases, the school did not attend and did not give notice. All schools were chased and invited to rebook.

There was 1 Chat where the teacher asked questions on behalf of their students. It is also common for students to share login details or computers during Chats. Therefore, the number of students engaged is expected to be higher.

Students asked 111 follow up questions of which 92 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.

## School activity

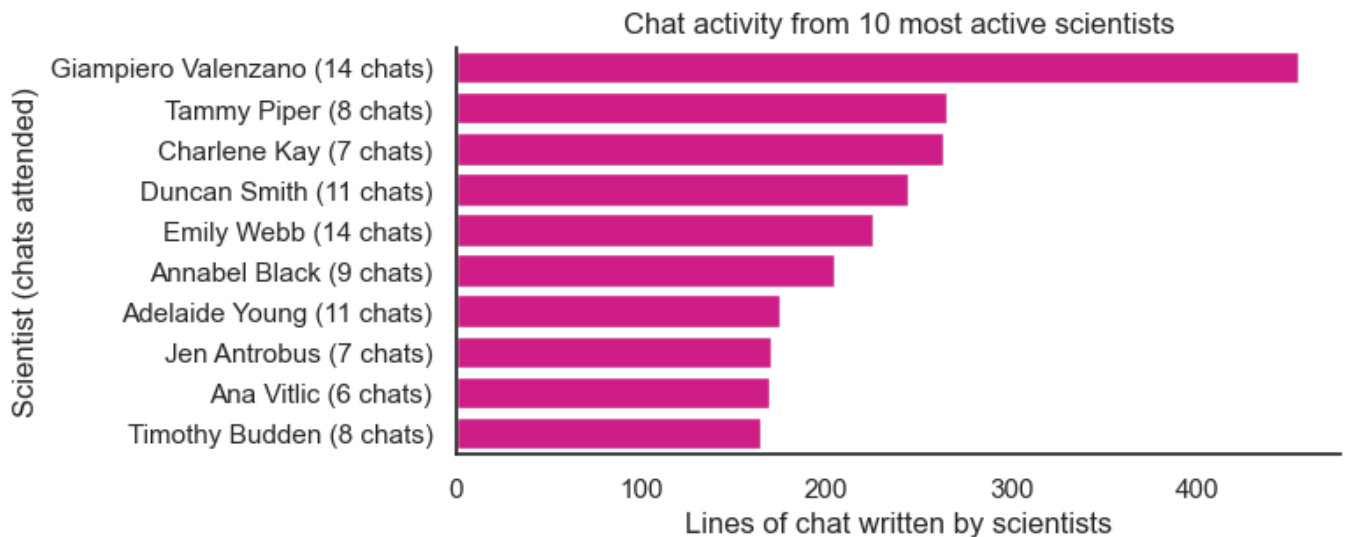
School	Active users	Chats attended	Chat lines (total)	Chat lines (per user)	Follow up questions approved	Votes
Queen Anne High School, Fife (WP/U)	72	7	475	7	10	68
The National Junior School, Lincolnshire (WP/U)	71	3	916	13	2	52
St John Wall Catholic School, West Midlands (WP)	43	3	649	15	36	19
Winstanley College, Lancashire (U)	35	3	162	5	0	13
Balwearie High School, Fife (WP/U)	32	2	175	5	2	28
St Dominic's High School, Antrim (WP)	25	3	216	9	17	17
Helena Romanes School and Sixth Form Centre, Essex (U)	24	1	273	11	22	22
The Highfield School, Hertfordshire (WP/U)	22	1	120	5	1	11
Cantonian High School, Cardiff	19	1	172	9	1	6
St Bartholomew's School, Berkshire (U)	12	1	140	12	1	9
Bexhill College, East Sussex (WP/U)	10	1	66	7	0	8
South and City College Birmingham, West Midlands (WP)	10	1	61	6	0	9
Guiseley School, West Yorkshire (U)	9	1	65	7	0	9
Acorn Park School, Norfolk	2	1	35	18	0	2
Engineering Utc Northern Lincolnshire, North Lincolnshire (WP/U)	1	1	1	1	0	0
Ysgol Garth Olwg, Pontypridd*	0	1	13	13	0	0

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

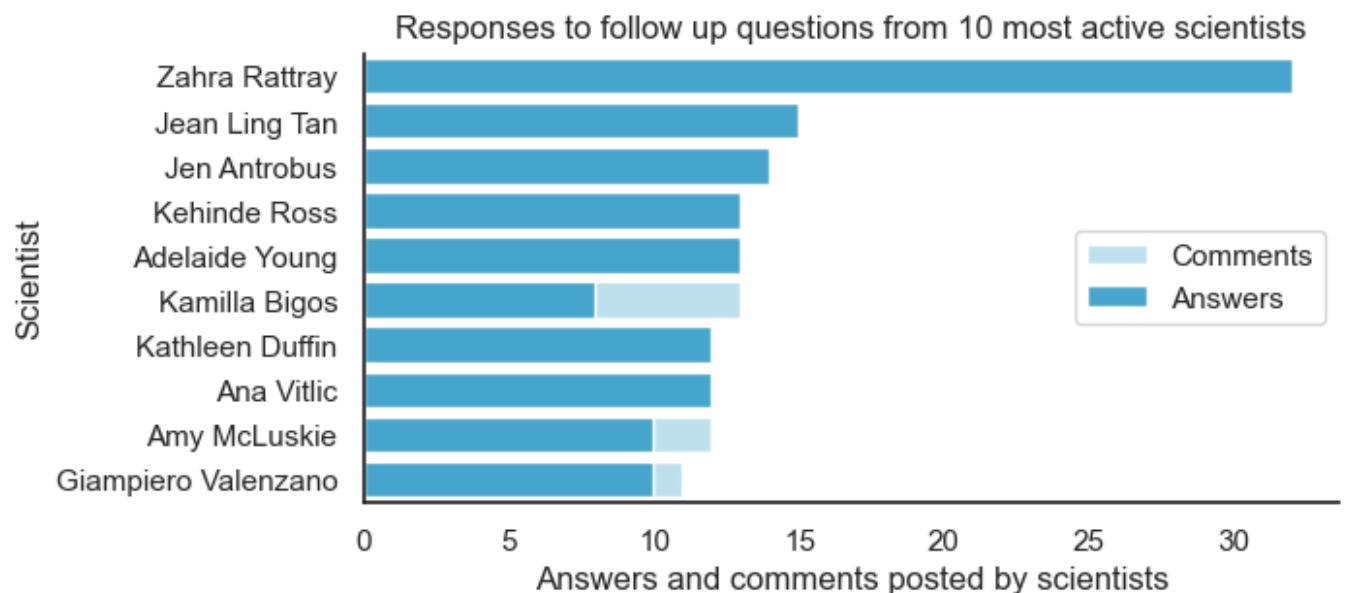
We want to increase the participation of under-represented groups. Find out what we mean by under-served (U) and widening participation (WP) schools, and how you can support us in working with more of these: [about.imascientist.org.uk/under-served-and-wp](http://about.imascientist.org.uk/under-served-and-wp)

# Scientist activity

During the Zone the scientists interacted with students by writing 3,040 lines of Chat, and providing 195 answers to 92 follow up questions. On average, 4 scientists took part in each Chat.



The scientists shown wrote 77% of the lines of chat in the zone. The average scientist attended 5 chats, and wrote 113 lines.



The scientists shown posted 71% of the answers, and 47% of the comments in the zone. The average scientist posted 7 answers, and 1 comments.

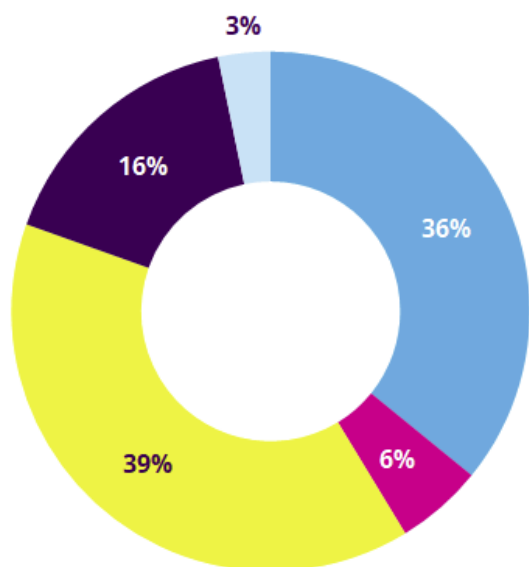
## Chats

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.



● STEM topics ● Working scientifically  
● Careers and education ● Personal ● Event/Other

- How big are nanopores?
- What does blood look like?
- Has your work made any impact on the research of cancer and if so how?
- What is your favourite thing about your job?
- How long are you getting trained?
- Was working in science a straight pathway or did you experience some set backs?
- What is your favourite type of dog?
- What would you do if you were on a stranded island and you had to bring 10 things?

## Examples of good engagement

The most memorable experiences can be those first ones! The students asked the scientists what favourite experiences they had when they first realised they were working as scientists and Caroline does not disappoint.

**Student 1:** Do you have a favourite experience when you first solved science?

**Caroline (scientist):** It's the BEST feeling when an experiment actually works! I was super excited when I first detected 50 different biomarkers related to cancer at the same time

**Student 1:** that's so nice I'm glad you like how you like your job

**Caroline (scientist):** Thank you! You think you wanna be a scientist too?

**Student 1:** umm maybe I don't know yet but your very welcome

**Caroline (scientist):** There are also great outreach activities organised by eg Imperial College. There is eg the exhibition road festival where scientists have small experiments planned and where you can talk to them in person

**Student 1:** thank you for your advice

Understanding how and why cells cause cancer in the human body helps students understand more about human biology, epidemiology and science topics. Jen provides a useful answer to the questions raised by this student.

**Student 2:** What exactly are the processes and conditions that cause a normal cell to become cancerous. I know mutations play a role but how do those mutations occur and what do they change to cause cancer.

**Jen (scientist):** Great question!! When your cells divide, the DNA has to be copied and sometimes errors occur. This is one way for the mutations to develop. The mutations cause the cells to divide uncontrollably without all the checks to make sure everything is ok and correct. This means cells with damage can carry on dividing! Mutations can also be caused by environmental factors like smoking and drinking alcohol, or getting sunburnt

Iain answers this student's question about whether there is a specific type of surgery that focuses upon cancer and its treatment. Another student then leads with a question about how much time surgeons have to do research and whether it is difficult to manage time effectively?

**Student 3:** Is there a surgery speciality that is specialised in cancer only?

**Iain (scientist):** that would be surgical oncology is a field of medicine that uses surgery to treat cancer

**Student 4:** Is there an opportunity to take part in research as a surgeon because most of the time a surgeon is on Operating room as the adrenaline you get there is next level. How do surgeons manage their time with research/operating at the same time?

**Iain (scientist):** The surgeons I work with have a balance. It's not all the time in the theatre, - my colleague does "lists" two days a week and during the surgery it takes about 30 min longer to do the research. It's not high adrenaline - the surgery is done through a key hole and the surgeon is controlling a robot. It is a pretty busy day.

Knowing how to manage expectations in research is an important step for many scientists. Iain, Adelaide and Federica were able to provide some insights for this student in how they keep their expectations realistic day-to-day.

**Student 5:** How do you deal with failure in your research?

**Iain (scientist):** It's abit like a onion. You peel a layer, then you cry and then there is another layer.

**Adelaide (scientist):** I think everyone deals with it differently, sometimes its to take time and space away from the lab, sometimes its to go get ice cream or you might want to delve straight back in and start talking to people about troubleshooting.

**Federica (scientist):** Trying to understand what led to the failure always helps me (for example if an experiment did not work I go through all the steps carefully and I try to identify when I could have made a mistake). It is important to have always a positive attitude and try to learn from them rather than seeing just the negative side



## Scientists of the week

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

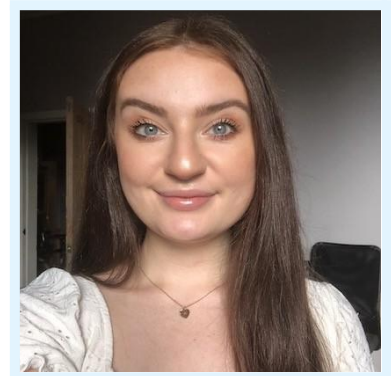
The scientists of the week were:



**Charlene Kay**, studies breast cancer and why some patients stop responding to treatment



**Giampiero Valenzano**, studies pancreatic cancer and how it can be treated in the future



**Annabel Black**, conducting research into a type of brain cancer called glioblastoma

## Winning scientist

The overall winner, with the most votes at the end of the Zone was **Giampiero Valenzano**, studies pancreatic cancer and how it can be best treated in the future

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



"I have no words to describe how I feel. I guess I will start with a massive THANK YOU to all the students that have taken part in this amazing initiative and have voted me their favourite.

The academic world can be hard at times and with lots of hurdles, but the rewards are unparalleled! And for those of you who didn't feel any spark instead... That's fine! I hope you find whatever it is that excites you and inspires you. We need scientists for a better future, but more importantly, we need people who are passionate about their job, people who care, and people who would go the extra mile to make this world a better place."

You can read their full statement at [here](#)

## Feedback

"This was a great experience! It was my first time and I would definitely do it again and again!"

**Giampiero (scientist)**

"Thank you all so much! You are sooo inspiring and have such amazing replies"

**Student**

"Thanks everyone, I've learnt quite a lot today!"

**Student**

"I really enjoyed it and I think it's a great idea. Easy to do and students are asking some really interesting questions"

**Ana (scientist)**

"Pupils are focused on career pathways at this stage and it was great to be able to interact with scientists working in different areas, all with a common theme."

**Linsey Rose, Teacher**

"Fantastic experiences, have done three and will write more into our Scheme of work"

**Sarah S, Teacher**