
Thom


Sanjib


Donna


Avril


Abid

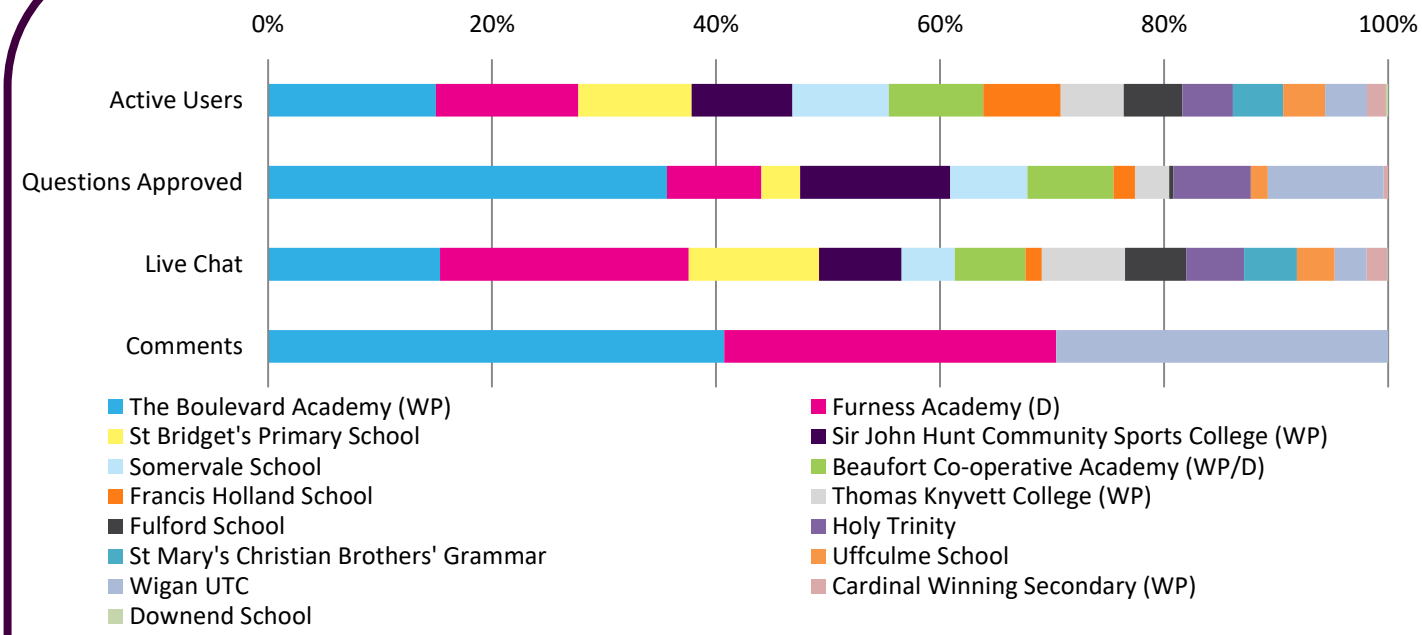
June 2017

The Drug Resistance Zone was a themed zone funded by Wellcome. Thom is a PhD student researching how bacteria produce drugs and how we can discover new ones, Sanjib is a course director in infectious diseases and also researches tuberculosis and Donna is a lecturer looking at how bacteria become resistant to antibiotics. Avril is an antimicrobial pharmacist and Abid is a microbiologist doctor who treats patients with antibiotics.

This zone had the highest number of students logged in out of all the zones in June's *I'm a Scientist* (539), 91% of whom were active in ASK, CHAT or VOTE. Scientists in this zone were extremely positive and encouraging towards students which made for some sociable and engaging chats. One chat in particular inspired Avril to change her twitter handle to a name the students had made up for her - 'Avrilbiotic'.

Students in this zone engaged well with the theme, although often asked questions about illegal drugs, addiction and side effects. The scientists were still happy to answer these questions outside of their research areas as best they could, which was appreciated by the students.

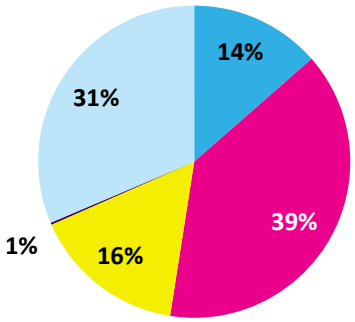
School data at a glance



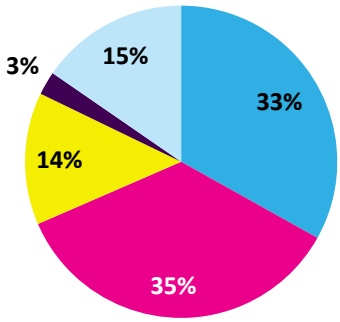
We want to increase the participation of under-represented groups going into STEM careers. Find out what we mean by our Widening Participation (WP) and distant from a major research HEI (D) schools, and how you can support us in working with more of these at about.imascientist.org.uk/widening-participation.

Scientist activity

Answers



Live Chat



Scientist	Profile views	Position
Sanjib Bhakta	1,370	Winner
Donna Johnson	1,174	2nd
Thom Booth	1,353	3rd
Abid Hussain	827	4th
Avril Tucker	847	5th

Key figures from the Drug Resistance Zone and the averages of the June zones

PAGE VIEWS	DRUG RESISTANCE ZONE	JUNE '17 ZONES AVERAGE
Total zone	26,550	20,354
ASK page	2,220	1,630
CHAT page	3,228	1,969
VOTE page	2,294	1,741

	DRUG RESISTANCE ZONE	JUNE '17 ZONES AVERAGE	IAS 2012-17 AVERAGE
Schools	15	14	10
Students logged in	592	498	381
% of students active in ASK, CHAT or VOTE	91%	89%	85%
Questions asked	827	622	709
Questions approved	261	271	306
Answers given	465	400	543
Comments	36	45	76
Votes	485	382	299
Live chats	22	21	16
Lines of live chat	6,267	6,525	5,315
Average lines per live chat	365	311	344

Popular topics

Lots of questions in this zone were on topic, with students asking about how bacteria can become resistant to drugs, what scientists are currently doing to combat drug resistance and why they can't just find another drug that works. There was a lot of interest in how antibiotics work and their side effects, which antibiotics are used most commonly and how they can be used to treat different species like livestock.

They were interested in the future of drug resistance; whether research will involve going to space or if global warming could make the issue worse. Students showed a curiosity into alternative methods of combatting drug resistance and offering their own ideas, for example by working on improving the immune system, or ways to make sure antibiotics are not being overused.

Some students confused the topic with illegal drugs, which led to conversations about drug addiction and effects.

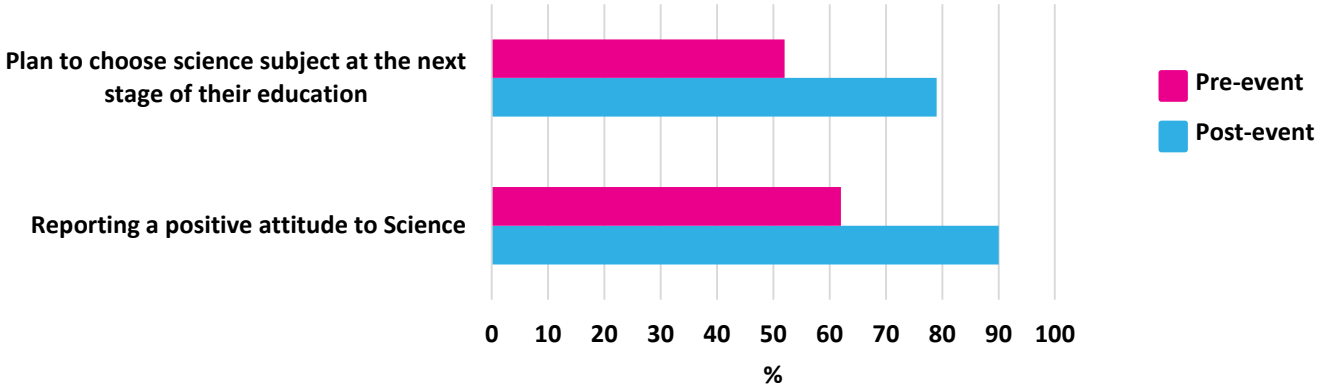
Students showed an interest in becoming scientists and asked whether the scientists would recommend their jobs, as well as for advice on resources they could use to find out more about careers in STEM. They wanted to know about the subjects the scientists had taken and what grades they got. There were more general questions about working as a scientist, with students interested in salary, work life balance and whether they would ever want to be something different.

Chat

Keywords from live chats in the zone, size of the word represents its popularity

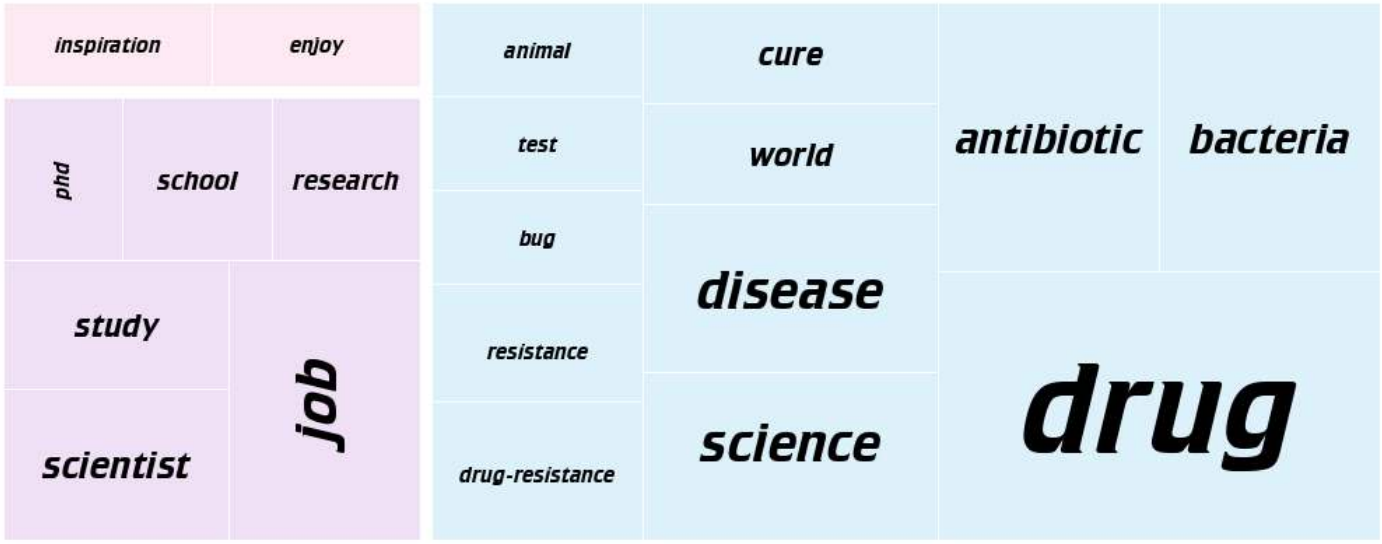
Students' attitudes to STEM

We ask students directly about how they feel about science, before and after taking part in the event. It's clear that participating in I'm a Scientist has an overall positive effect on students' attitudes to science:

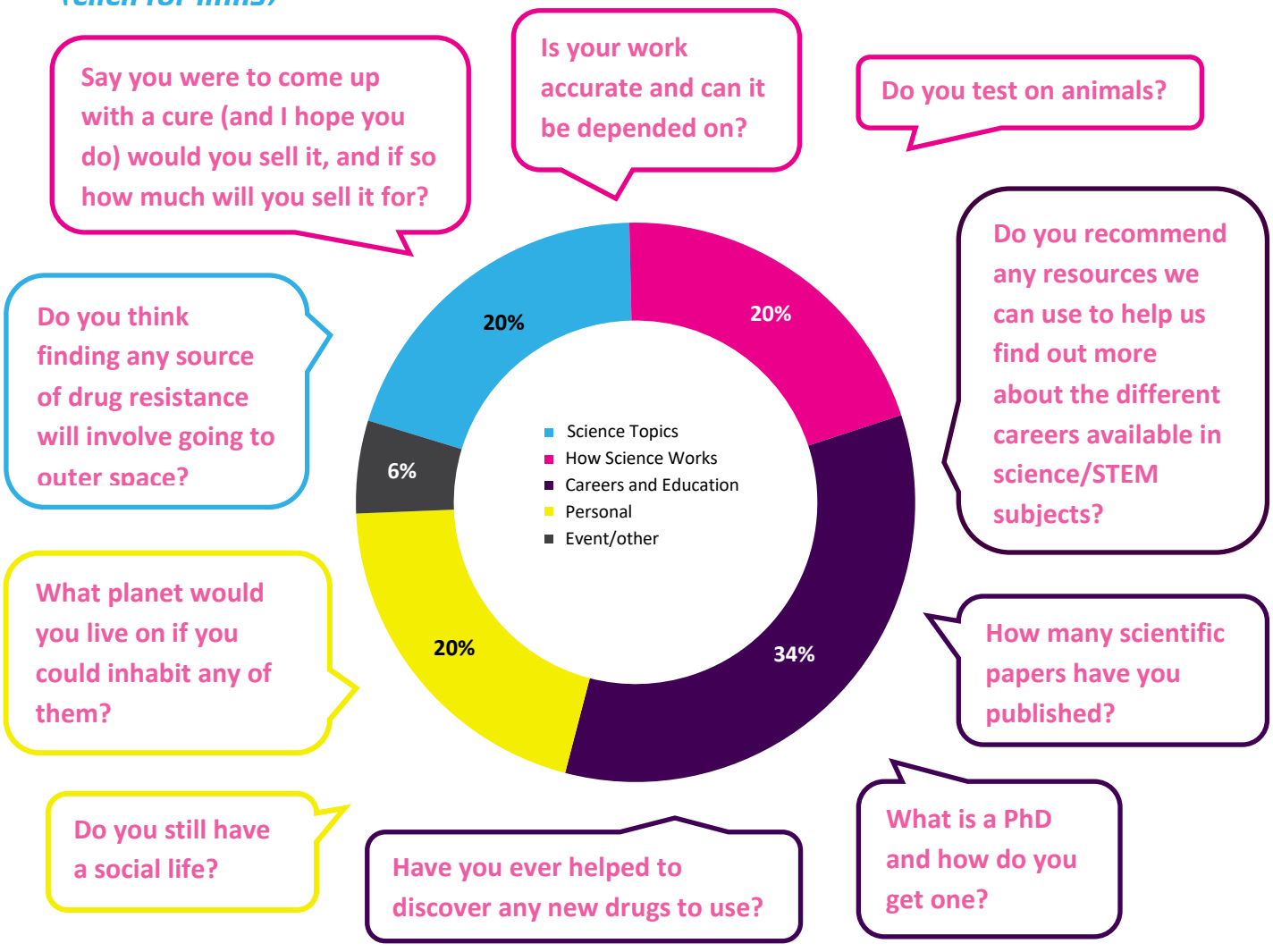


Figures are averages from *I'm a Scientist* Zones run between 2012 and 2015. We're still collecting feedback for June 2017, but we expect to see a similar positive change.

Top Keywords of questions approved in the Zone
Area represents frequency of use



Question themes and example questions in the Zone (click for links)



Find out about how we've coded the questions at about.imascientist.org.uk/2017/student-question-coding

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Examples of good engagement

There were instances within the chats where multiple students and scientists would join in with a discussion, showing students were paying attention to the whole conversation, and not just answers aimed at them:

> *"How do you treat people infected with multi antibiotic resistant bacteria?"* – ***Caterina, student***
>
> *"Good question. We have a few antibiotics which we keep for the worst case scenario but if the infection is resistant to those too the outcome for the patient is not good."* – ***Avril, scientist***
>
> *"Is the use of last resort antibiotics dangerous (if the bacteria become resistant, for example, and the disease spreads to someone else)?"* – ***Caterina, student***
>
> *"With different antibiotics, we have last line ones which tend to only be used when others have failed"* – ***Donna, scientist***
>
> *"In reference to Caterina's question, could the antibiotics saved for worst case scenario work against these resistant cells?"* – ***Cara, student***
>
> *"That is the idea. We must use them wisely and save the most narrow spectrum antibiotics for tackling worst case scenario"* – ***Sanjib, scientist***
>
> *"How can you use people who have natural resistance to this issue to help solve the problem for others?"* – ***Lily, student***
>
> *"Natural resistance can also be reversed by using modern antibiotics having resistance reversal properties. Keep an eye on this field of research."* – ***Sanjib, scientist***

Scientist winner: Sanjib Bhakta

Sanjib's plans for the prize money: "*I would like to donate the prize money to a local school, work with them on organising a workshop to share our research finding and commemorate World TB Day. A brief public lecture followed by practical demonstration of a simple but gold-standard laboratory experimental technique that we have discovered in our laboratory to test drug resistance in superbugs!*" Read Sanjib's **thank you message.**

Student winner: AlexanderEinstein

For great engagement during the event, this student will receive a gift voucher and a certificate.

Feedback

We're still collecting feedback from teachers, students and scientists but here are a few of the comments made during the event…

"The other [engagement activities] I have done were led by me. This felt like it was led by the students! That was exciting for me and hopefully valuable for the participants." – **Scientist**

"The children love taking part in the live chat and there has been a noticeable increase of interest among pupils in pursuing science as a career. Thank you for allowing my school to take part in this fantastic event!" – **Teacher**