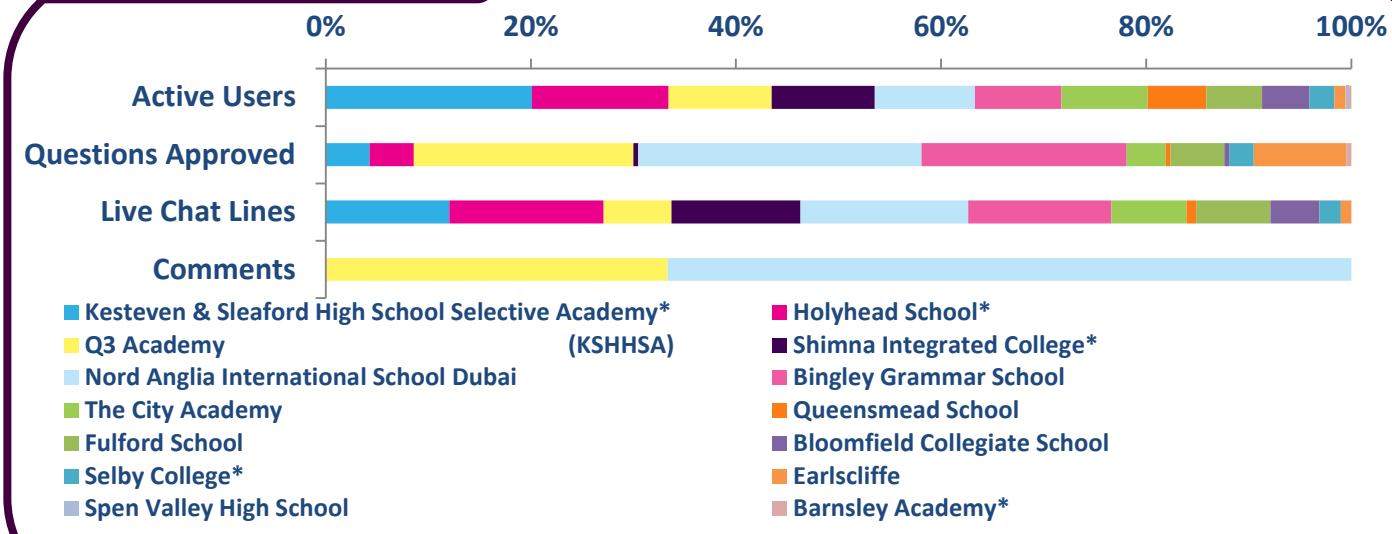
June 2016

The Antibiotics Zone was funded by the Royal Society of Chemistry, of which Lindsay and Jonny are members, with additional funding from the Biochemical Society Diversity Grant. Danna is a Research Associate who studies how bacteria evolve, Lindsay is a chemist working to improve compounds to better target diseases and Juan researches how our bodies fight off threatening microbes. Jonny is a PhD student working to make medicines in more environmentally friendly ways and Daniela is a PhD student who modifies the DNA of viruses. All five scientists took an active role in the event, answering a similar number of questions and attending many live chats even after being evicted. Some students from Jonny's old college – Selby College – took part in the zone and were excited to have the opportunity to talk to him in a live chat.

School data at a glance



* Widening Participation schools, as defined at http://about.imascientist.org.uk/2016/widening-participation-2016

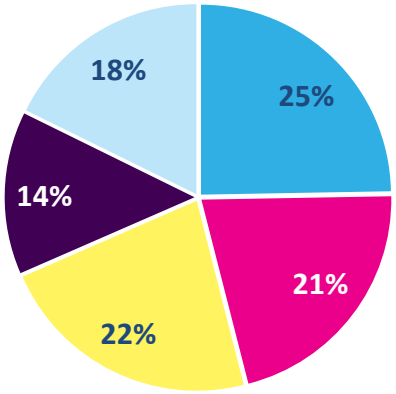
Widening Participation (WP) schools data and the averages of the Antibiotics Zone

Over 40% of students taking part in the Antibiotics Zone were from WP schools. The top two active schools in this zone were both WP.

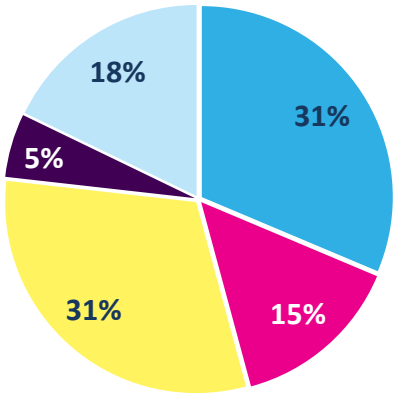
	ZONE AVERAGE	KSHSSA	HOLYHEAD SCHOOL	SHIMNA INTEGRATED COLLEGE	SELBY COLLEGE	BARNSLEY ACADEMY
Active Users	26	74	49	37	9	1
Questions Approved	15	9	9	1	5	1
Live Chat Lines	239	405	505	422	70	0

Scientist activity

Answers



Lines of Live Chat



Scientist	Profile views	Position
Jonathan Hunter	677	Winner
Daniela Lobo	654	2nd
Danna Gifford	573	3rd
Juan Ortiz	480	4th
Lindsay Robinson	503	5th

Key figures from the Antibiotics Zone and the averages of the June zones

PAGE VIEWS	ANTIBIOTICS ZONE	JUNE '16 ZONES AVERAGE
Total zone	21,332	21,638
ASK page	1,252	1,582
CHAT page	2,595	2,737
VOTE page	1,403	1,369

	ANTIBIOTICS ZONE	JUNE '16 ZONES AVERAGE	IAS 2012-16 AVERAGE
Schools	14	13	10
Students logged in	412	429	364
% of students active in ASK, CHAT or VOTE	90%	89%	85%
Questions asked	410	563	704
Questions approved	210	253	303
Answers given	615	550	554
Comments	7	47	79
Votes	318	327	288
Live chats	19	21	15
Lines of live chat	5,078	6,422	5,049
Average lines per live chat	267	304	329

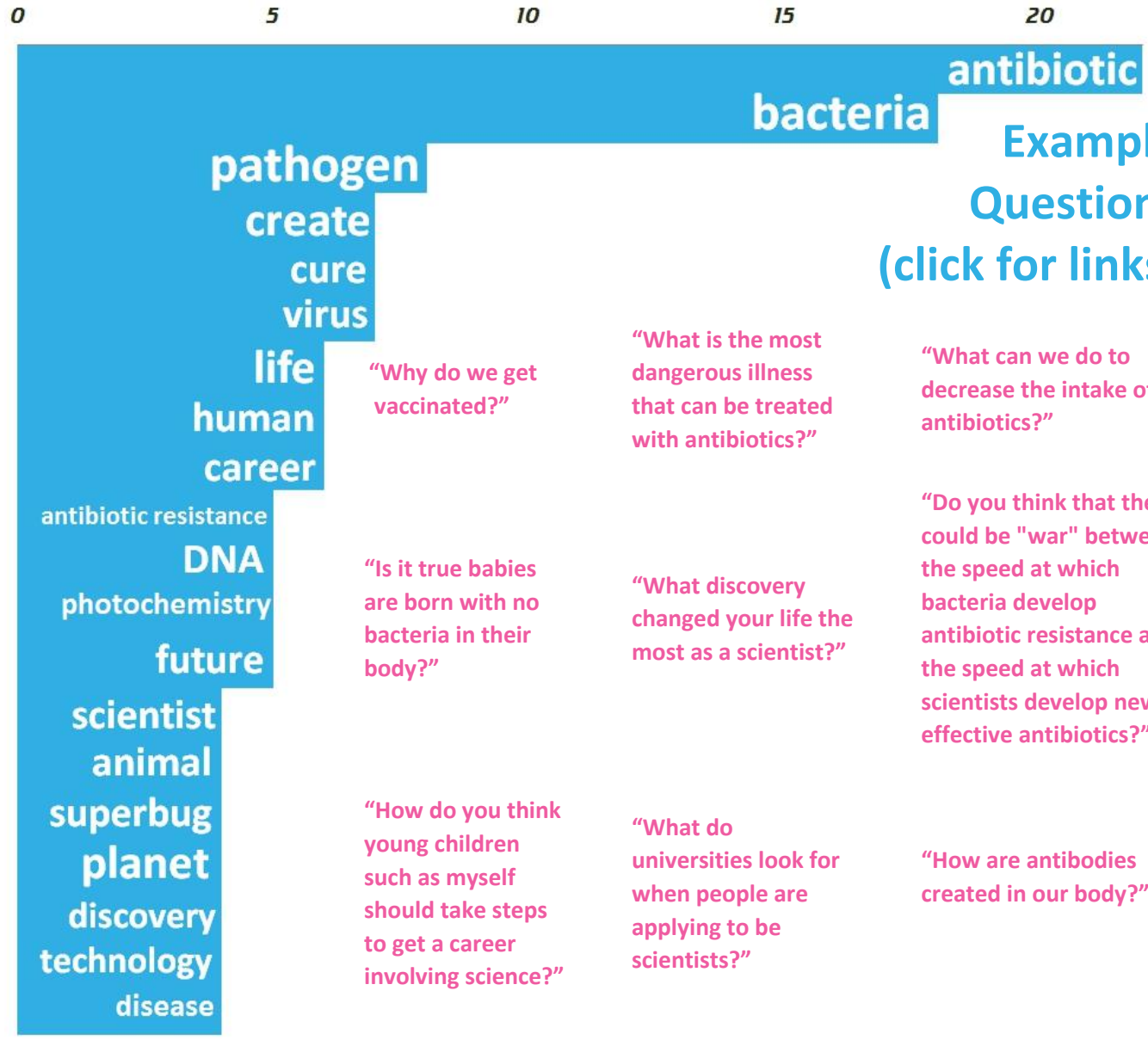
Popular topics

This zone was largely on topic, and there were many questions about antibiotics, antibiotic resistance and super bugs. There were also general questions about bacteria and pathogens, as well as about vaccines and how to develop cures for different diseases.

Students were particularly interested in Jonny's research in photochemistry, and asked him about the sustainability of its development in the future. There was interest in superbugs and the impact these could have on antibiotics in the future, with many students wanting to know about the different ways scientists are working to find new antibiotics.

There were a lot of intelligent and informed questions within the zone, showing the students' genuine interest in the topic and keenness to find out more about antibiotics.

Keywords of questions approved in the zone, length of bar represents frequency of use



Example Questions (click for links)

"What is the most dangerous illness that can be treated with antibiotics?"

"What can we do to decrease the intake of antibiotics?"

"Why do we get vaccinated?"

"Do you think that there could be "war" between the speed at which bacteria develop antibiotic resistance and the speed at which scientists develop new effective antibiotics?"

"Is it true babies are born with no bacteria in their body?"

"What discovery changed your life the most as a scientist?"

"How do you think young children such as myself should take steps to get a career involving science?"

"What do universities look for when people are applying to be scientists?"

"How are antibodies created in our body?"

"What specifically are suicide genes and how do they work in bacteria?"

"Can you fight pathogens with photo-chemistry?"

"Is it possible to create a super bug in a lab that could result in the extinction of human beings?"

"Is it possible to change someone's DNA, like you do with bacteria?"

"What do you think about parents not getting their children vaccinated because they think side effects are worse than death?"

"What was it like studying at Oxford?"

"How can bacteria reproduce or multiply so fast?"

"How do you cut bacteria?"

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

Examples of good engagement

Scientists and students were good at connecting in the live chats, through interesting topics that included multiple students and scientists in the conversation.

"What do you think will be a larger threat to humans: a missile or a microbe??" **– Student**

"A missile filled with microbes" **– Student**

"Yikes a missile filled of microbes, that is too scary to think about." **– Danna, scientist**

"Biological weapons are a real concern!" **– Jonny, scientist**

"Bioterrorism is a real threat. I think [a missile filled with microbes] is the best answer." **– Daniela, scientist**

"Is that actually possible? To fill a bomb with harmful bacteria?" **– Student**

"Hmm…not sure actually. I think it would kill a lot of the microbes when it blew up." **– Danna, scientist**

"This has got a tad too serious :/" **– Student**

"It doesn't even take that much. The ventilation systems at the airports would be a way of spreading dangerous airborne pathogens." **– Daniela, scientist**

There were some informed questions where students asked for the scientists' opinions on complex topics.

> *"Jim O'Neill stated the costs to produce new antibiotics would spiral to £63tn, £60tn more than the annual GDP of the UK, meaning it would take 35 years to get the money needed. How quickly and effectively can you actually prevent these 'super bugs'??"* **– Student**

> *"I think the answer is not very quickly. Research is an expensive business because it's all about trial and error. We need to conserve what we have and hope to find alternative therapies."* – **Lindsay, scientist**

A few students were honest with the scientists about how they struggled with science in school, and the scientists were good at providing practical advice.

> *"I am under performing in some areas of science, how shall I improve my focus?"* – **Student**

> *"Which field in science are you underperforming?"* – **Daniela, scientist**

> *"Probably all of it"* – **Student**

> *"I had problems with maths and biology when I was younger, it took me a lot of work at home to figure a way to go around it. I almost failed biochemistry at university later on. You need to try to understand were exactly are you failing, and work on those areas. I like Khans Academy website, they have videos about science concepts, very diverse ones."* – **Daniela, scientist**

Scientist winner: Jonny Hunter

Jonny's plans for the prize money: *"I want to collaborate with the outreach teams at Nottingham University and come up with an exhibition or show that will teach people about how chemistry is having an effect on climate change and how we are working to reduce global warming. It's something I'm really interested in and think other people would like it too. It would be nice to show the public that we care about the environment and what we are trying to do to look after it!"* Read Jonny's **thank you message.**

Student winner: VF Linden

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 students really enjoyed taking part in the event, it was a really enriching experience for the students and one we will definitely participate in again next time." – **Teacher**

"Participating in this program, was without any doubt a useful way to enhance my knowledge in my areas of interest…The scientists have all helped me to answer questions that I have been asking other people for a very long time. However, the major difference was that on this platform I received answers that clearly and fully answered all of my questions. Overall, this has been exceptionally useful to me and I look forward to more activities like this..." – **Student**