

2017 CHRISTMAS LECTURES Zone: The Language of Life

December 2017 – January 2018

The CHRISTMAS LECTURES Zone of *I'm a Scientist* was commissioned by The Royal Institution with support from Lloyd's Register Foundation. The online event allowed school students, the viewing public and Lecture attendees to continue the conversation about the Royal Institution's CHRISTMAS LECTURES, 'The Language of Life' and its theme of communication. The Royal Institution wanted to create a focus for the online discussion and during the planning stages, the topic of Privacy was identified as a pertinent topic within the wider theme of communication. A Privacy Debate Kit was also developed and sent to teachers participating in the zone to use as part of this activity. The Kit structures a class debate around the question "Should mobile phones be always listening?"

The 18 experts online included the 2017 Christmas Lecturer, Professor Sophie Scott, along with others from the CHRISTMAS LECTURES team and other communication and privacy experts. Sophie's presence on the site was great, answering 42 questions in ASK across the four weeks. Attendees at the filming of the Lectures could submit written questions to the site using question cards and have answers from experts emailed to them. A total of 18 audience members submitted questions using these cards. Overall the Zone was focused around the themes of privacy and communication, the Lectures themselves and the work of each expert. A number of classes had taken part in a privacy debate before their live chat which was evident from the privacy-related questions posed to the experts. The school students taking part were on topic in live chats with experts and in the ASK section.

Participating schools and audience figures

School uptake for this event was much higher than the previous year with 898 registered school users from 36 schools in 2018. 11 of those schools were under-served (distant), 7 were widening participation and 3 were outside the UK.

School	Active users	School	Active users
Haileybury Almaty, Kazakhstan	53	South Wilts Grammar School †	17
The Deanery CE High School	37	Rugby Free Secondary School	15
Queen Mary's High School	32	Blackfen School For Girls †	14
Allerton High	29	Chelsea Academy *	14
The Mount	29	Sevilla Intl College, Spain	13
Reepham High School and College †	28	St Mary's CBS, Ireland	12
John F Kennedy Catholic School †	28	King Edward VI, Handsworth	12
Ridgeway School †	28	Parkside Academy *	11
St Bartholomew's School †	27	Bankview School *	10
Audenshaw School	27	Beechen Cliff School	7
Walker Technology College *	26	Sandymoor School *†	7
Sir Graham Balfour High School	24	St Winefrides RC Primary *†	6
Jamiatul Ummah School	24	Berkshire College of Agriculture	5
Aith Junior High †	23	Kempston Challenger Academy *	4
Saddleworth School	22	Colchester County High School	2
Smithdon High School †	20	St. Marks C.E.Primary	1
Glenlola Collegiate school	18	Bearsden Academy	1
Netherfield primary †	17	CHRISTMAS LECTURES Audience	18
St Wilfrid's RC College	17	Social Media Users	11



Above: Map of participating schools in UK and Ireland

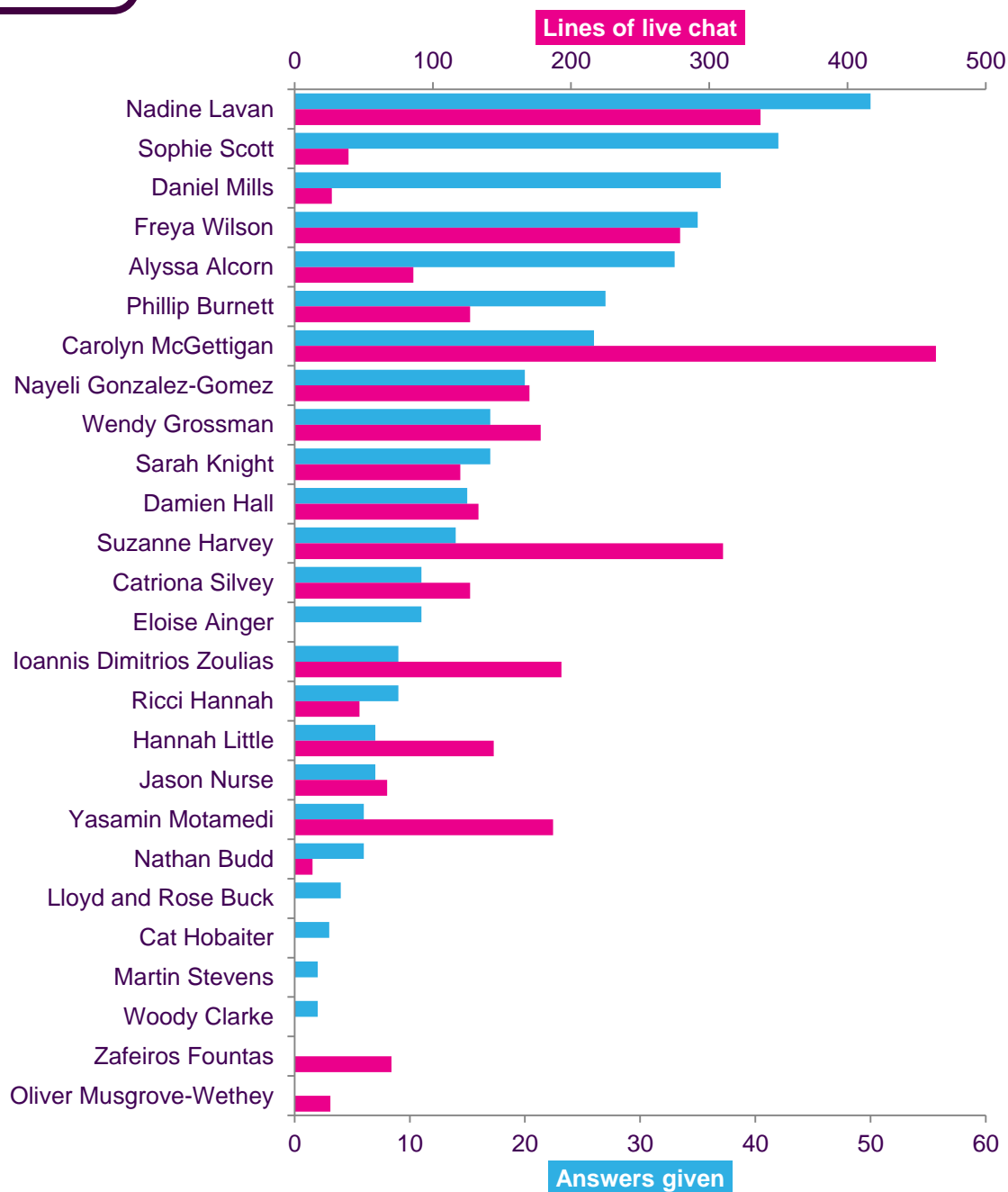
International schools
non-school users

Under-served† (distant) schools

Widening Participation* schools

For more information, see about.imascientist.org.uk/under-served-and-wp/

Expert activity



Key figures from the Zone and comparison to past years

PAGE VIEWS	2017 CHRISTMAS LECTURES ZONE	2013–16 RI ZONES AVERAGE
Total Zone	29,832	22,927
ASK page	2,329	1,582
CHAT page	3,041	3,637

Popular topics

The questions and live chat discussions revolved around the themes of privacy and communication.

Many students had questions about communication in animals and babies.

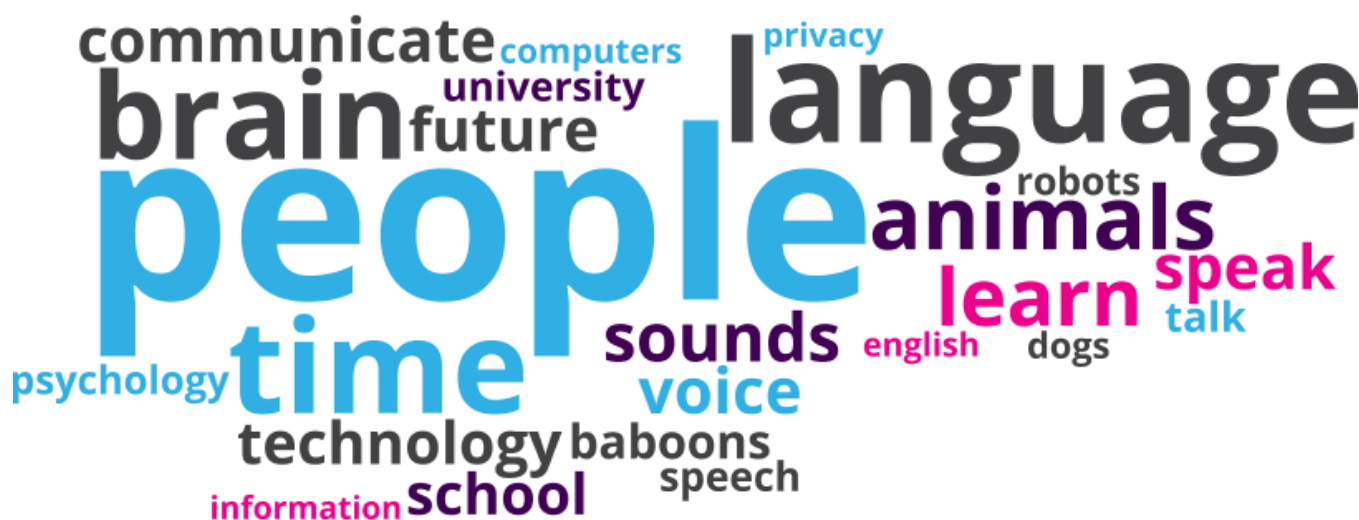
A number of questions linked directly to the Lectures series, for example: “What if 10 mosquitoes fly at the same time? Will there be a pattern” and “would the tms (the machine used in the lectures) work on animals?” Audience members who submitted questions at the end of the filming all asked relating to topics covered in the Lectures.

There were also questions on the initial motivation and career of the experts. For example, one student asked the experts when they found their love for science. Another wanted to know how the experts’ personal lives affected their careers choices or what they chose to research. Students also asked questions relating to their own career choices: “What qualities and skills do you have to have to get a job like yours?” “will learning another language help me in the future?”

	2017 CHRISTMAS LECTURES ZONE	2013–16 RI ZONES AVERAGE
Registered users	898	490
% of registered users active in ASK, CHAT, or comments	77%	83%
Questions asked total	808	382
Questions approved	263	202
Answers from experts	410	254
Comments	53	42
Schools	36	21
School live chats	41	25
Lines of live chat	10,429	6,655
Average lines per live chat	254	272



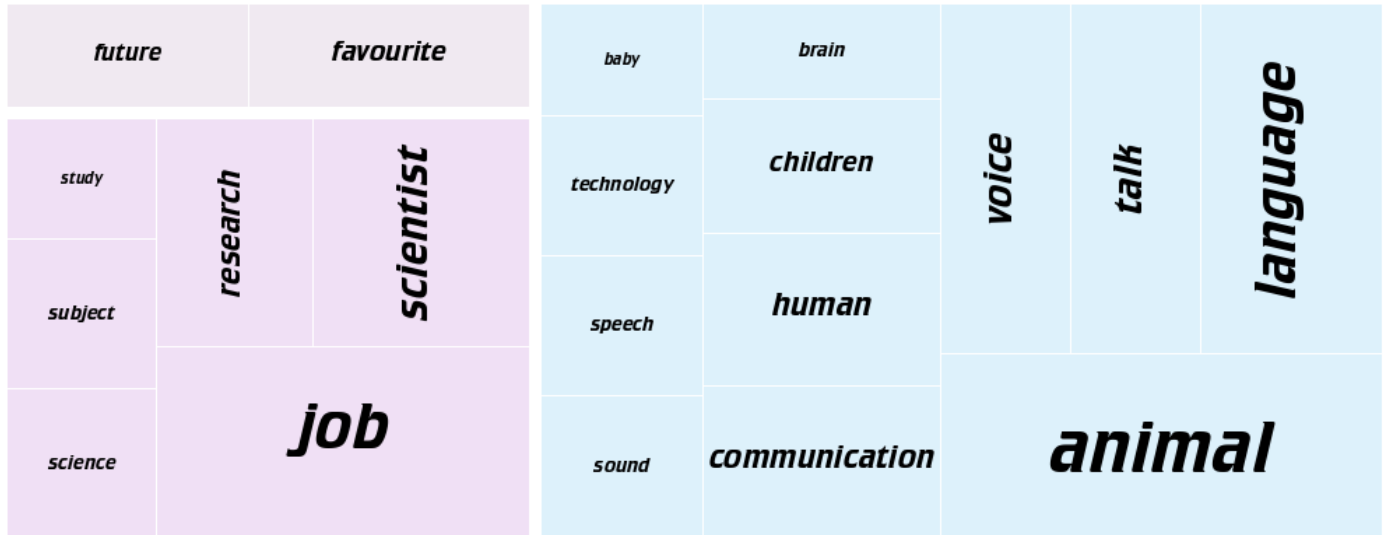
Keywords from live chats in the event, size of the word represents its popularity





Top Keywords of questions approved in the event

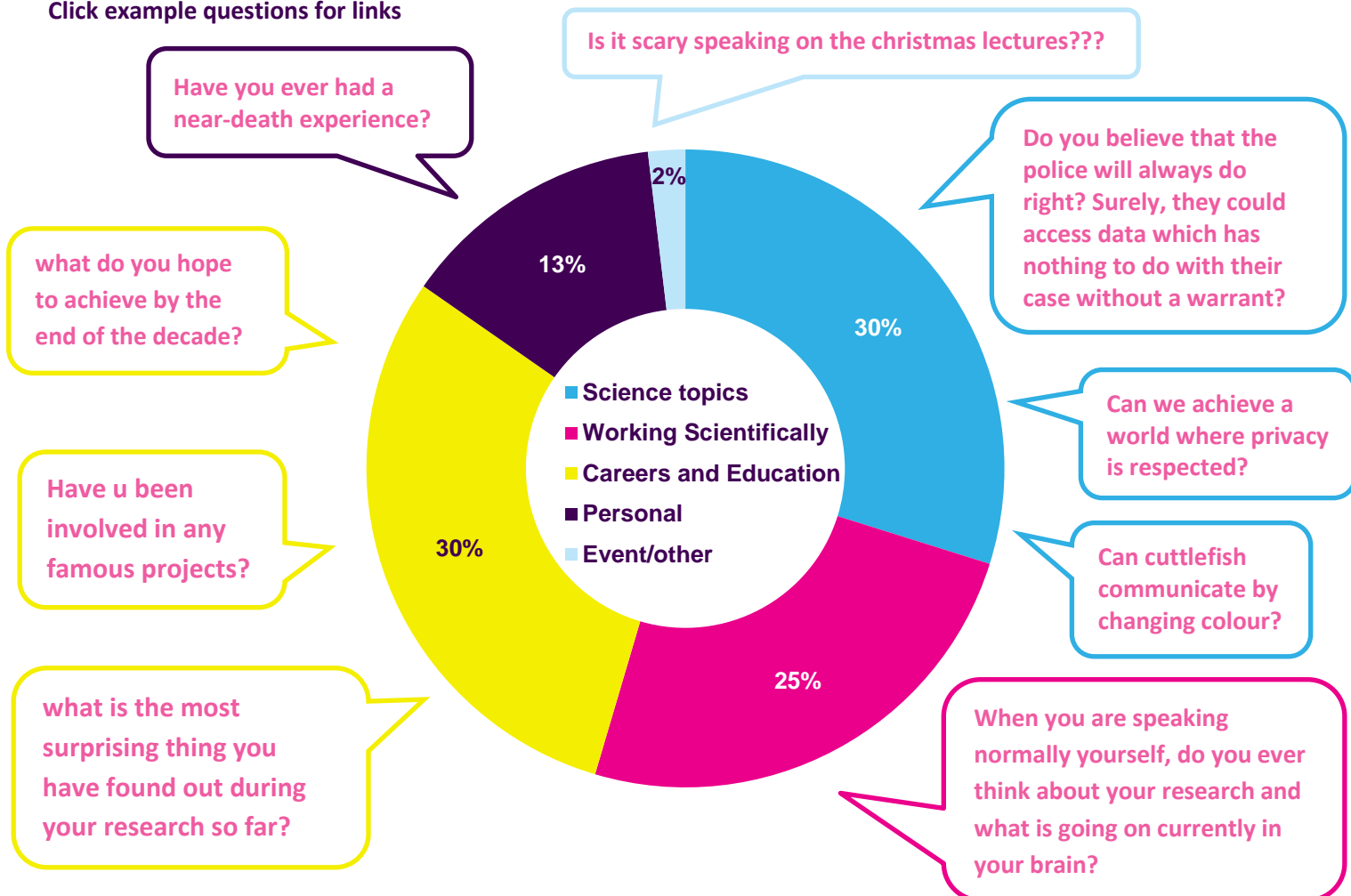
Area represents frequency of use



Being a Scientist Science Other

Question themes and example questions in the Zone

Click example questions for links



Examples of good engagement

The experts answered questions about a wide range of ideas linked to communication and privacy. These included discussions about online privacy settings, animal communication and differences between languages:

daisy21 - Do people's brains work differently when they are speaking in sign language as opposed to speaking to someone?

Carolyn - Great question! There's some evidence to show we use several brain regions similarly for language, whether we're speaking or signing. But there's also evidence that some parts of the brain are important for signing that might not be as important for speech. Comparing different types of languages is a really good way to try to understand which are the core bits of the brain that do language, and which might be doing additional tasks that are useful during communication. So for example, there are parts of the parietal lobe of the brain that are often found to be active for sign language, and that might be because of the importance of spatial information during signing. When we speak, we don't really use our mouths to convey spatial information the way we can point to different parts of space with our hands.

daisy21 - So what sort of regions of the brain are used when you are talking to someone?

Carolyn - Lots of regions! So, there's the parts that seem to be involved in selecting what you are going to say: these are in the left side of the brain, in the frontal lobe. "Broca's area" is here, and if this is damaged, patients find it difficult to put speech together. Then there's the motor cortex, which needs to control the movements you need to speak. Moving your tongue, lips, jaw, controlling your voice box...And the parts of your brain that listen are also involved, because they are hearing what you produce! And possibly monitoring for accuracy. Also bits of the brain that register touch (so, when your tongue touches the roof of your mouth when you say "t")

daisy21 - I never thought that so many parts of the brain were used for a single thing!

Carolyn - Absolutely! I often tell my students that speaking is a "whole brain experience". But in any case, we are using all of our brain all the time - don't believe the 10% myth, if you've heard it!



Feedback during the event

We're still collecting feedback from participants but here are a few of the comments made during the event...

"We should do this more often!" –
Student

"My class and I really enjoyed the Privacy Debate and students learnt a lot from it. The online chat was also excellent. Thank you for this initiative." – **Teacher**

"Thank you so much for putting on this service, my students all absolutely loved it and it was a really simple way to enrich their curriculum. They're still buzzing. Really chuffed to have found out about you guys." – **Teacher**

Learning and improvement

Audience cards

Attendees at the filming of the Lectures could submit written questions to the site using question cards and have answers from experts emailed to them. 18 audience members submitted questions using these cards across the filming of the 3 Lectures. These questions were on topic and relevant to the Lectures but the number of questions was lower than the previous year when 195 questions were submitted. In the future, this could be improved by drawing attention to the audience cards during the filming of the Lectures.

Public engagement

From the broadcast of the Lectures to the 2nd February, 23 public users registered on the site. Of those, 3 asked a total of 4 questions. Again, this is lower than the 52 public questions that were asked the previous year. This could be improved by more promotion through the site and social channels during and following the broadcast of the Lectures.

Privacy topic

In order to design and produce the Debate Kit to support this activity, the theme of the online CHRISTMAS LECTURES Zone had to be decided well ahead of the Lectures filming. It was decided the theme should be more specific this year, focusing on one aspect of the Lectures theme of Communication, and the Privacy theme was agreed between the Royal Institution and *I'm a Scientist* team. Unfortunately, only lecture 3 linked to the Privacy theme once the Lectures had been written and filmed. The online Zone featured some experts linked directly to Privacy and a wider range of experts linked to the broader theme of communication and the Lectures. Many classes taking part in the online Zone prepared for their chat using the Privacy Debate Kit about mobile phone microphones. Experts were aware of this preparation and told to expect some questions about Privacy in the chats but in the feedback, a number of experts said they didn't feel they were in a position to answer these questions posed by students and they felt the chats in particular were too focused on the topic of Privacy rather than the broader Lectures theme of Communication. Further discussions are required between *I'm a Scientist* and The Royal Institution to resolve this for future years.