

## November 2019

The Big Data Zone was a themed zone, supported by the Institute of Physics. There were five scientists who took part in the zone:

- Sreejita Ghosh is a PhD student developing a machine learning program which can identify rare diseases of the adrenal gland
- Sam Lawrence is a space scientist looking at patterns of galaxies to try and understand the physical laws that govern the universe
- Kate Winfield is an environmental data scientist archiving and preserving data from weather reports
- Anastasia Aliferi is a PhD student in forensic genetics, working on methods to find out how old someone is by looking at drops of their blood
- Adam Wootton is teaching AI systems to search through data and find damage, in order to repair roads and bridges

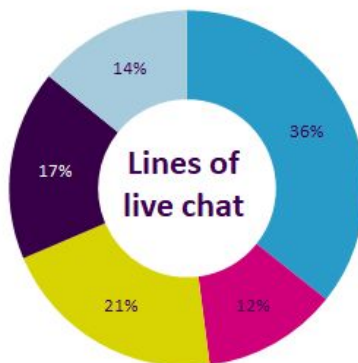
## Key figures

The live chats in this zone were busier than the average across all zones in November 2019.

A sixth scientist was signed up to take part in the zone, and filled in a profile which is available to view on the site. However, they did not take part in live chats or ASK.

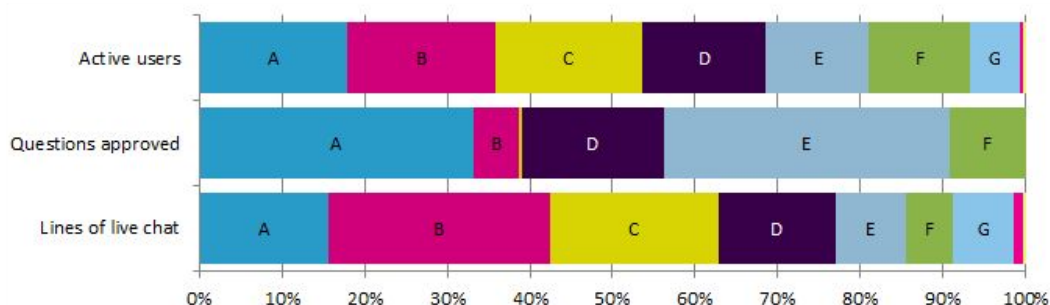
	BIG DATA ZONE	NOV '19 ZONES AVERAGE	2012-19 ZONES AVERAGE
Schools	9	10	10
Students logged in	334	368	389
% of students active in ASK, CHAT, VOTE, or comments	93%	91%	87%
Questions asked	719	571	659
Questions approved	292	262	291
Answers given	574	457	525
Comments	39	45	69
Votes	307	294	307
Live chats	18	18	17
Lines of live chat	7465	6334	5771
Average lines per chat	415	352	356

## Scientist activity



SCIENTIST	PLACE
Anastasia Aliferi	1st
Sam Lawrence	2nd
Adam Wootton	3rd
Sreejita Ghosh	4th
Kate Winfield	5th

## School activity



	YEAR GROUP(S)	CLASSES
<b>A</b> Teesdale School, Barnard Castle (U)	10	2
<b>B</b> Prestatyn High School, Denbighshire (U)	8	3
<b>C</b> Hammersmith Academy, London (WP)	8, 9, 12	3
<b>D</b> Lewis Girls' Comprehensive School, Ystrad Mynach (U)	9	2
<b>E</b> St Mark's Cofe Primary School, Manchester	6	1
<b>F</b> Kirkby Stephen Grammar School, Kirkby Stephen (U)	9	3
<b>G</b> Saint John Houghton Catholic Voluntary Academy, Ilkeston	9	1
<b>H</b> Egglecliffe School, Stockton-On-Tees (U)	8, 10	2
<b>I</b> The Peele Community College, Spalding (U)	7	2

We have found that schools that are more than 30 minutes travel time from their closest Higher Education Institution are less likely to receive visits and benefit from engagement activities. We give priority to underserved (U) and widening participation (WP) schools when allocating places. Find out more about our research at <https://about.imascientist.org.uk/2017/school-engagement-in-stem-enrichment-effect-of-school-location/>

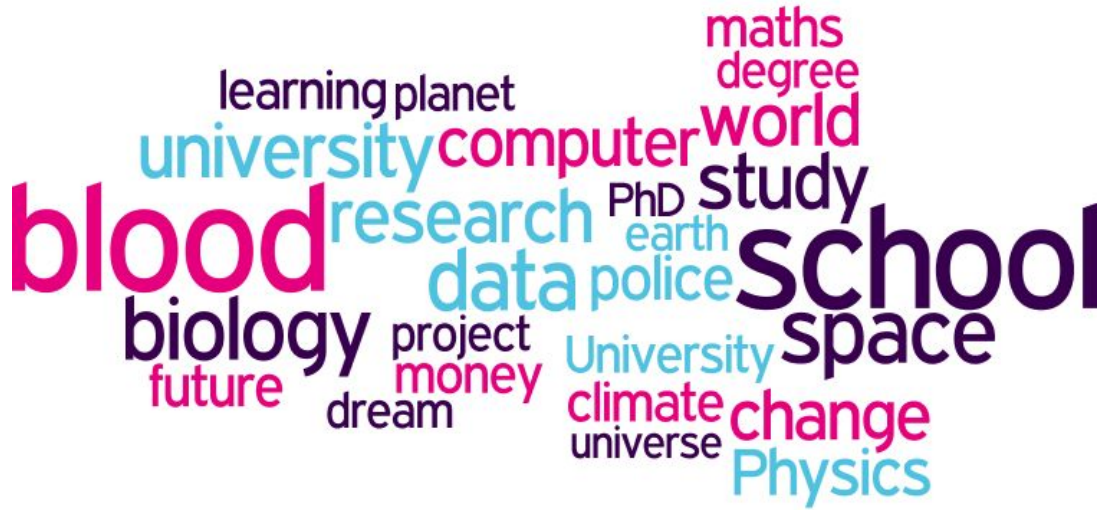
## Popular topics

Many students asked about the data used by scientists and the applications of their research. Blood was a popular topic in chats, linking to Anastasia's research looking at forensics and her work with machine learning, with students asking how she identifies patterns in blood, whether she works with the police, and about other potential applications of her work.

Sam's work meant many students asked about space, with general questions about space travel, aliens and planets, as well as more specific questions about the research Sam does in cosmology. Kate was asked about the technologies she uses to predict the weather and about the supercomputer she uses, with students interested in why it is called JASMIN.

Off topic, students and scientists got to know each other on a personal level with conversations about hobbies scientists had written about on their profiles, for example Adam's love of Stoke City football team and Sreejita's interest in deep sea diving.

## Frequent words used in live chats by students and scientists



## Question analysis



Are you religious because its stereotype is scientists believe in science totally instead of god?

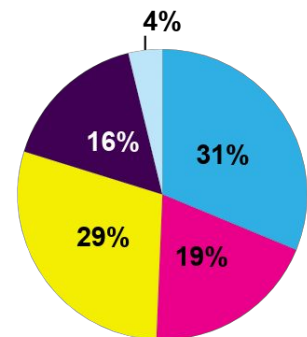
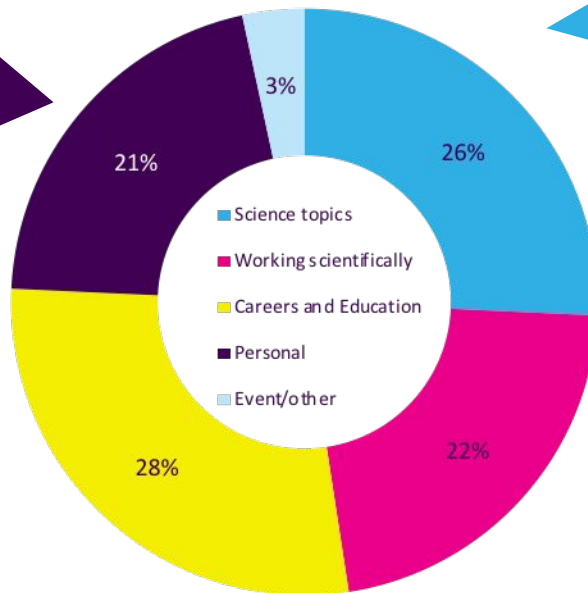
Why do you love stoke city so much?

How does blood help to know how old you are?

Do you think there are any black dwarfs in the universe? if so what uses could it have in developing our understanding of the universe?

Does politics affect your work?

I want to take Maths, English, Triple Science, Art and Geography for my GCSEs. I have one option left but can't choose between Spanish and History! Could you give me some advice?



Historic Per-Zone Average (Themed Zone)

## Examples of good engagement

Students often asked for careers and education advice within ASK. In this example, Sreejita gives a detailed answer with lots ideas of what student could go into based on their interests. This was clearly valued by student, as their reply shows.

*"In school at the moment I like Geography, PE and all of the sciences what job in STEM includes all of these?" – Student*

*"That would open a lot of options for you if you continue your hard work enthusiastically. You can become a medical doctor, or an engineer for the first step and then decide whether you want to continue to research. You can also study Geology (Geology, rocks, geddit? :P) and travel far and wide for your work (since you also like Geography). As an engineer /scientist who especially likes Biology, Physics, Maths, combines with PE, you can design a kickass exoskeleton or robotic limbs and artificial organs for those who have lost their limbs in accident or have a failing organ. Sure there are already cool things such as coffee cup size kidneys but you can create a different type of kidney maybe, or maybe work on developing a different artificial organ...*

*Or you could be an astronaut, or a forensic scientist, or a pharmacologist. There's endless possibilities wrt careers in STEM. Also, you don't need to have all the subjects you like in a career. Some of them you can keep as your passion. 😊 I wish you the very best.. Let me know if you have any other career related question. 😊" – Sreejita, Scientist*

*"That sound brilliant! Especially the part about the artificial organ. This would be of great interest to me as i have type 1 diabetes. (I'm sure u know what it is if not it's an autoimmune condition where my body doesn't produce any insulin.) Up to now I believe it has been impossible to get a pancreatic implant as the pancreas is too close to the vital organs. However, there are projects to have the pancreas outside of the body too. Thank you so much for your response I will definitely take all of this into account in the future. This really has helped me, thank you. And inspired me too 😊" – Student*

*"I wish you all the best young aspiring scientist. I hope you find a cure for type 1 diabetes. How awesome would it be if you yourself found the cure for a disease you have! You've inspired me with your response mate! 😊*

*I discussed this with my doctor friend/collaborator who suggested that you look into closed loop-insulin delivery system, if and when you are interested, and in case you haven't heard of it already. 😊*

*<https://medicalxpress.com/news/2018-10-closed-loop-artificial-pancreas-insulin-delivery.html>" – Sreejita, Scientist*



## Scientist winner: **Anastasia Aliferi**

Anastasia's plans for the prize money: "I want to make a life-size board game that will be something between 'Guess Who?' and 'Cluedo' and the goal will be to use the information we can get from a single blood drop found at a crime scene to identify the person who committed the crime!"

Read Anastasia's [thank you message](#)

## Student winner: **race360ham**

As the student winner, race360ham will receive a certificate and a gift voucher.

## Feedback

We're still collecting feedback from teachers, students and scientists but here are a few of the comments made about November's *I'm a Scientist*...

*Both classes absolutely loved taking part and my class actually clap at the end of the live chat...This project encourages a greater understanding and interest in science. Pupils see scientists as real people with interests like their own. It breaks down the stereotypes around the career. Taking part also encourages the pupils to think about the world of work and future careers.*

— Teacher

*I particularly enjoyed the live chats with classes because the engagement was totally led by them and it was a lot of fun to chat about such a variety of things, from being a researcher, to their questions about dementia, to our favourite snacks, to Netflix - I'll miss doing them a lot! And, in chats, there were some questions that came up frequently, which has given me a better idea of some of the concerns/questions of younger people.*

— Scientist

*We had our first live chat today and the students loved it!! It was so lovely to see them so engaged with the live chat and some of their questions were fab!*

— Teacher

*I'm a Scientist has changed my perspective on science*

— Student

*This is the first time I tried communicating with school students and I was honestly scared of the interaction. Text-based interaction made me more confident. the students were very enthusiastic, so I felt more inspired to discuss my work.*

— Sreejita, Scientist