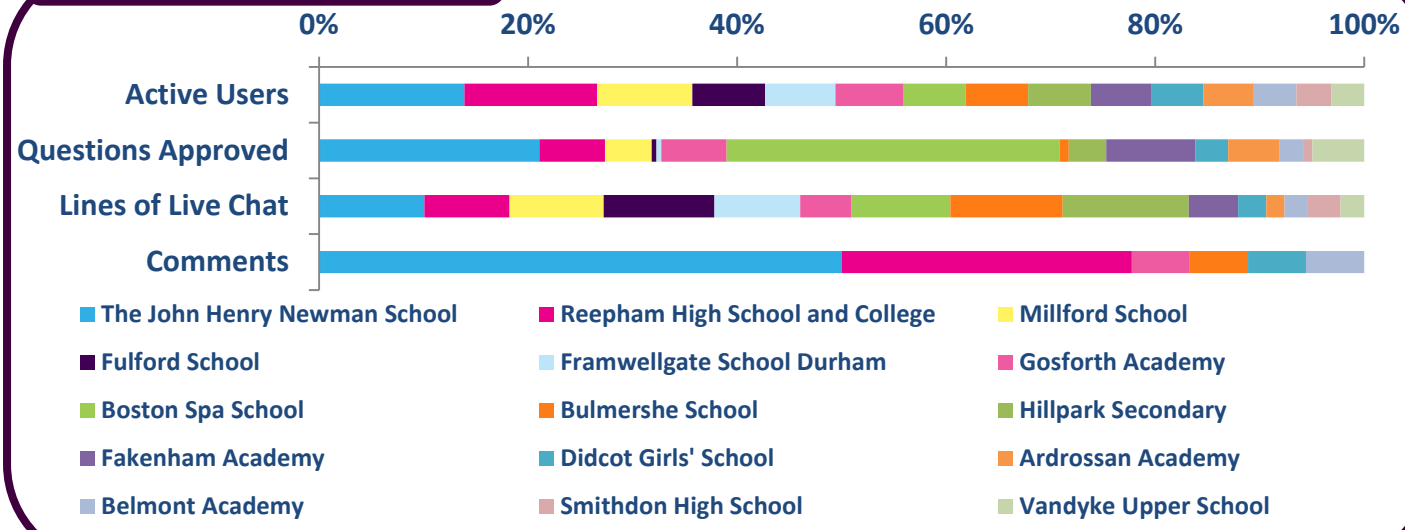
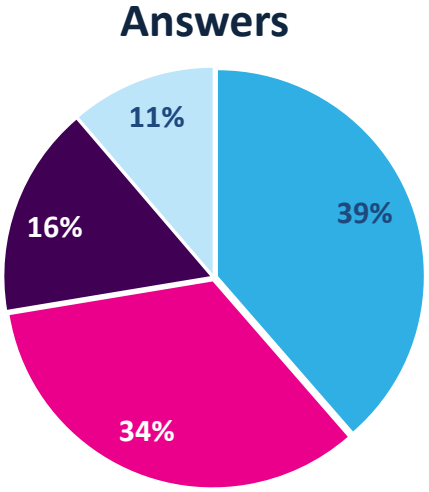
November 2015

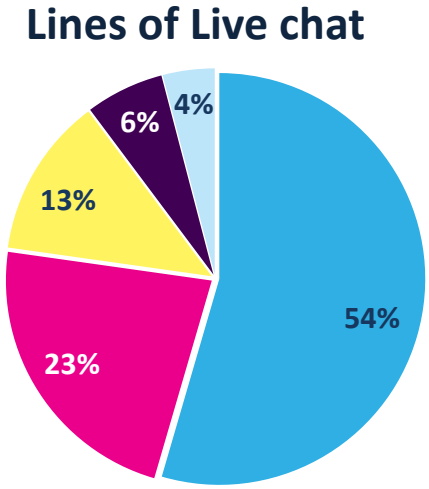
The Osmium Zone was funded by the Institute of Physics. It was a general science zone where some of the scientists taking part had all previously studied physics but were now in roles outside of traditional academia and research that still required the science skills they had learnt. For example, Aaron, who has an undergraduate degree in physics, is a communications officer for the Royal Academy of Engineering, Keith now works for the National Nuclear Laboratory as a diplomat at the British Embassy in Tokyo, and Abbey is a mechanical engineer at Renishaw PLC. Popular themes with students were the varied careers of the scientists, and different areas of physics, both related to these careers and on broader topics. The live chats were often busy and Natalie did particularly well in them, contributing 1,178 lines in total, the most of any scientist in November's zones. Both Natalie and Aaron put special efforts in to answering ASK questions, often leaving detailed replies with links to further resources.

School data at a glance



Scientist activity





Scientist	Profile views	Position
Natalie Garrett	1,230	Winner
Aaron Boardley	1,225	2nd
Abbey McGarrigle	880	3rd
Keith Franklin	725	4th
Peter Burgess	661	5th

Key figures from the Rhenium Zone and the averages of the November zones

PAGE VIEWS	OSMIUM ZONE	NOV '15 ZONES AVERAGE
Total zone	26,600	25,973
ASK page	1,537	1,881
CHAT page	4,829	3,193
VOTE page	1,898	1,761

	OSMIUM ZONE	NOV '15 ZONES AVERAGE	IAS 2012-15 AVERAGE
Schools	15	16	9
Students logged in	457	481	353
% of students active in ASK, CHAT or VOTE	93%	90%	85%
Questions asked	814	956	717
Questions approved	223	352	307
Answers given	373	463	552
Comments	37	59	78
Votes	407	377	281
Live chats	17	20	14
Lines of live chat	6,934	6,083	4,827
Average lines of live chat	408	313	322

Popular topics

The students were interested in the different careers of the scientists and especially the motivations and inspirations they had for making their decisions about which paths to follow. For example, 'Why if your favourite subject was maths did you pursue a job in physics and not maths?'.

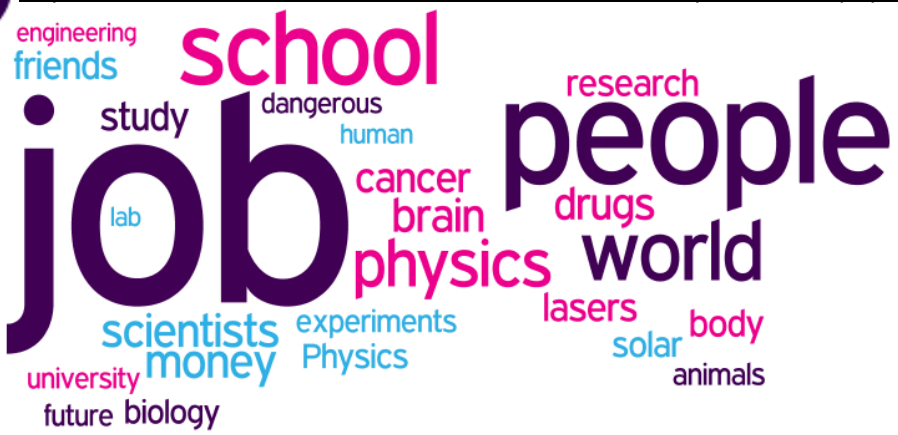
The students often got the scientists to reflect on their work, for example by asking how their roles compared to each others, what personal achievements they had, whether they expected to be doing their jobs when they were younger, and how they judged the importance of their work. For instance, Aaron was initially asked to explain how communicating science and engineering to the wider public was important.

Science questions related to each scientists' backgrounds were popular, for example Keith was asked about nuclear radiation and Pete received questions on solar energy and other renewables. Physics-related questions in general, with topics like black holes and dark matter, were also common. Aside from asking for explanations, many questions also focused on the implications for humanity or future directions of the scientist's work. For example, Pete was asked about the realistic potential for solar energy in the UK and Natalie had to respond to worries about the misuse of lasers on several occasions.

There were also many general science questions covering a wide range of subjects such as cloning, cancer, the brain, life on other planets, animals, drugs and time travel.

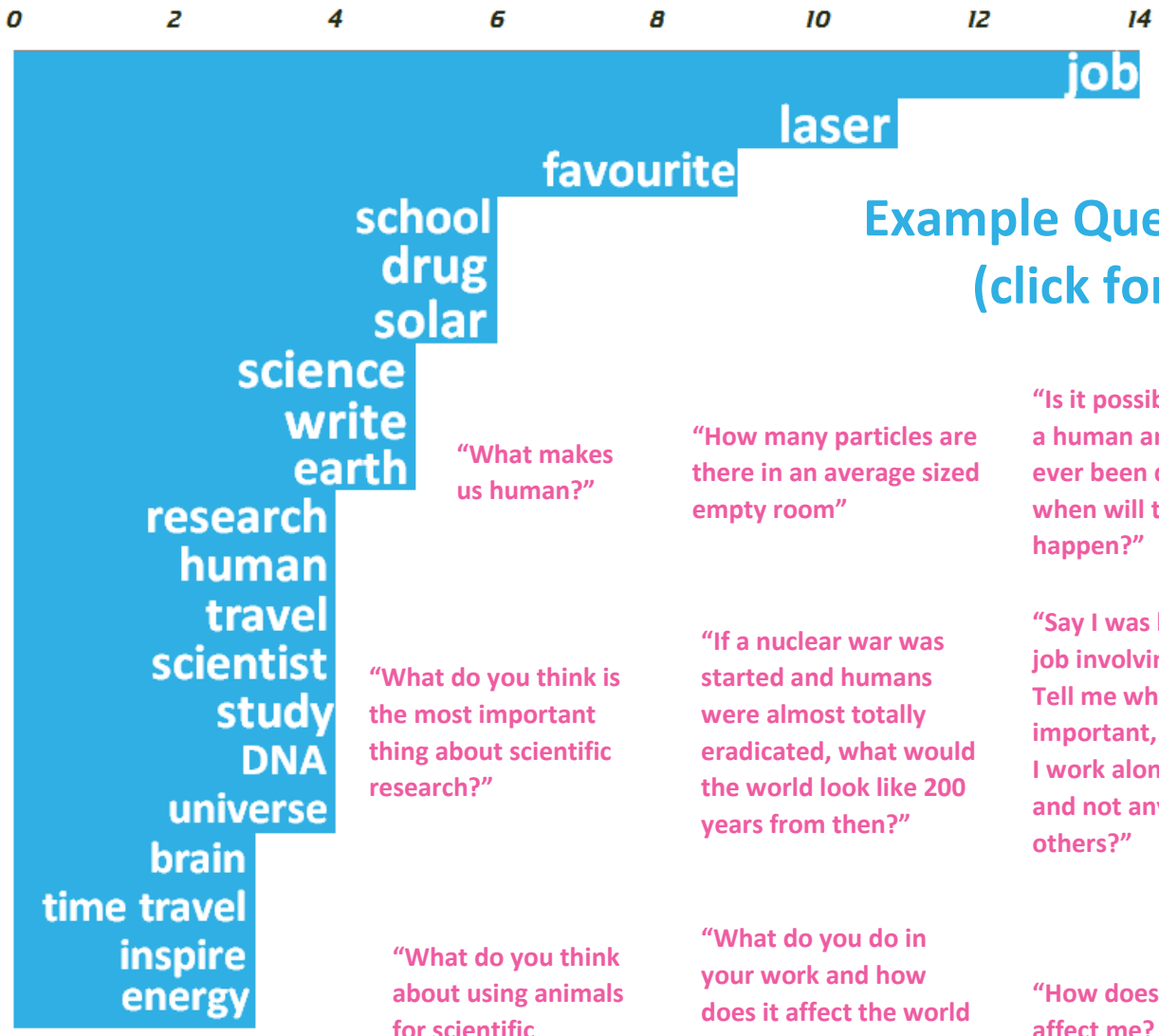
Chat

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



Ask ?

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



Example Questions (click for links)

"What makes us human?"

"How many particles are there in an average sized empty room"

"Is it possible to clone a human and has it ever been done? If not when will this happen?"

"What do you think is the most important thing about scientific research?"

"If a nuclear war was started and humans were almost totally eradicated, what would the world look like 200 years from then?"

"Say I was looking for a job involving science. Tell me why your job is important, why should I work alongside you and not any of the others?"

"What do you think about using animals for scientific reasons to help humans"

"What do you do in your work and how does it affect the world socially, environmentally and economically?"

"How does your work affect me? (The average schoolboy)?"

"Does dark matter really matter?"

"What would you say to someone who is interested in science but doesn't know what they want to do?"

"Do you believe there's life after death and how can you prove it?"

"What do you think would happen if brain transplants became available? Would they still be the same person?"

"What is the smartest land mammal you know of?"

"How does the lasers work to help you see the paths the drugs take?"

"Why solar? It may be more eco-friendly, but it cannot supply 61 million people."

"Which scientist is your favourite to speak to when you're looking for new information?"

"Is it possible for the damage of Fukushima to disappear completely?"

Examples of good engagement

When the students asked questions about careers and their jobs the scientists often came up with well thought out, accessible answers to communicate their personal experiences and advice:

> *"What advice would you give a 14yr old"* – **Student**
>
> *"Good question! In fact, that would be my advice, keep asking questions! Make the most of your teachers and their expertise, as well as parents and friends, keep up the passion for finding out more (whether about science or others things). I would also say - try new things! Some of my favourite times at school and uni were doing drama or the uni radio station, and I know other people have said the same thing about sports - they all help with getting a job and making friends, too."*– **Aaron, communications officer**
>
> *"Thanks Aaron, quality advice"* – **Student**
>
> *"If you could speak to the whole world about your job what would you say"* – **Student**
>
> *"I like the question. I would say "Think about where you get the energy you use every day". 500 years ago everyone just burned wood, and you understood where it came from. You didn't use too much because you had to go and cut it down yourself. Now you just turn on a switch. I think it is important to understand where all your electricity comes from, solar, or coal or gas or nuclear. Then you can understand how valuable it is (and you might not use so much of it!"* – **Keith, diplomat**

Scientist winner: Natalie Garrett

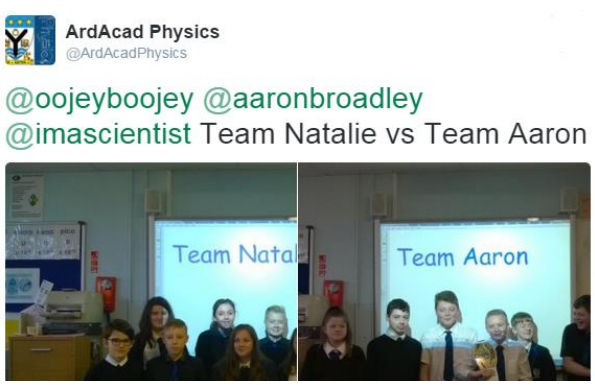
Natalie's plans for the prize money: "*I want to expand my bag of tricks for outreach talks to include more exciting experiments to bring to schools. I want to make 3D printed smartphone adapters that make the smartphone camera into a microscope, to give to schoolkids"* Read Natalie's thank you message.

Student winner: JazZ2002

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…



"It's been great fun. Very rewarding when the students are so thankful at the end of a chat. It's all about quick thinking as well as quick typing." – Abbey, engineer