



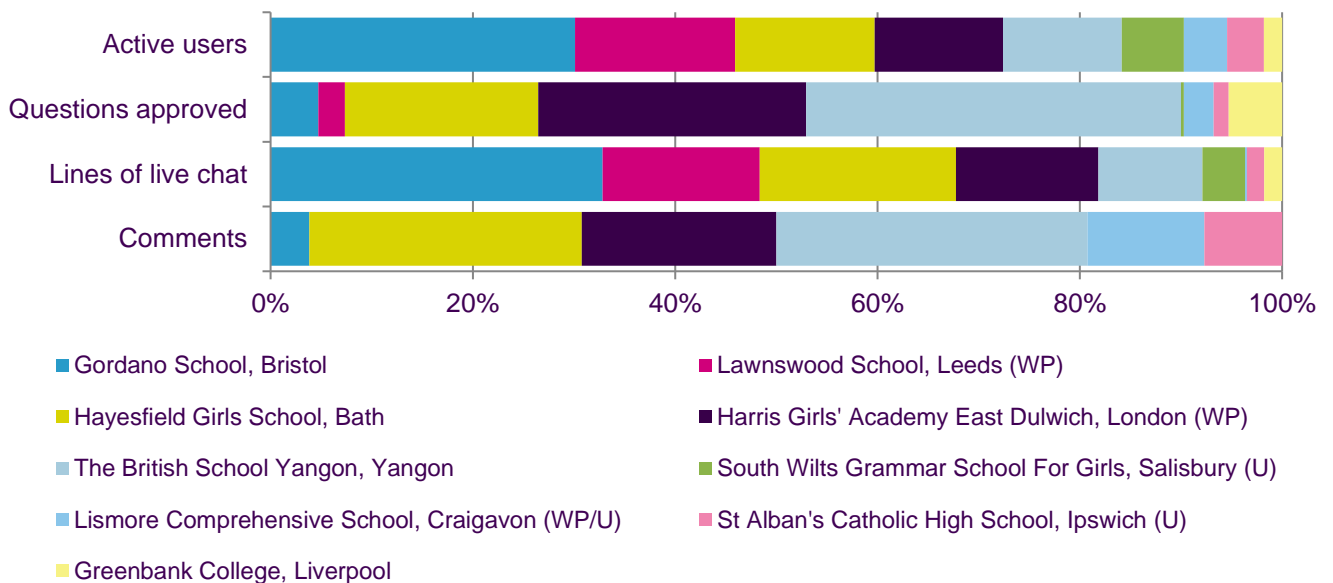
November 2018

The Fast Computing Zone was a themed zone supported by the Science & Technology Facilities Council and involved six scientists:

- Stewart Martin-Haugh is a particle physicist who writes code to ensure the right data from the Large Hadron Collider is recorded
- Miriam Hogg is a PhD student, using computers to study planets and stars as a theoretical physicist
- Marton Olbei is also a PhD student and his research uses computers to study bacteria
- Laura Kent tests electronics to ensure they work in extreme environments as a research scientist at the National Physical Laboratory
- Kathryn Coldham uses code to analyse data taken from the Large Hadron Collider to research a particle called the top quark
- David Ho, this zone’s winner, uses computer models to calculate the properties of theoretical particles that have never been seen

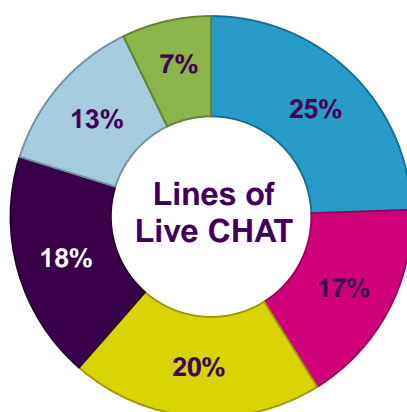
Discussions between the students and scientists in this zone mainly focussed on how technology, computing and physics could be used to help people or the wider society. The students were also keen to get to know the scientists on a personal level.

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 under-served (U) and WP schools (WP), and how you can support us in working with more of these at about.imascientist.org.uk/under-served-and-wp

Scientist activity



SCIENTIST	PROFILE VIEWS	POSITION
David Ho	614	Winner
Laura Kent	523	2nd
Miriam Hogg	578	3rd
Stewart Martin-Haguh	706	4th
Kathryn Coldham	538	5th
Marton Olbei	393	6th

Key figures from the Fast Computing Zone and the averages of the November zones

PAGE VIEWS	FAST COMPUTING ZONE	NOV '18 ZONES AVERAGE
Total zone	17,554	18,272
ASK page	1,334	1,482
CHAT page	1,371	1,443
VOTE page	836	742

Popular topics

'People' was a popular keyword used in both CHAT and ASK, often in questions referring to society in a wider context. For example, students wanted to know how the scientists' work would relate to people's lives, and their own.

Students asked questions about STFC science and technology related areas, as shown in the keywords overleaf. 'Physics' was often keyworded in ASK for questions about cosmology and theoretical physics. 'Electronics' was a common word in the live chats, with students asking Laura things such as "How do you test the electronics you work with?"

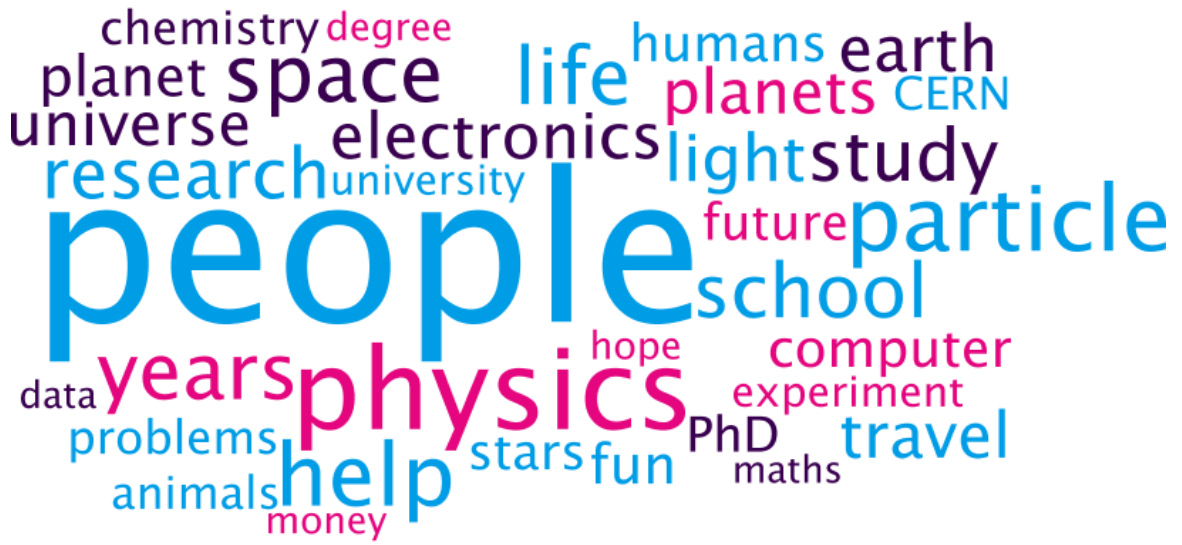
In ASK, students were interested in the scientists' education and career history, but also asked a lot about their free time and hobbies, receiving answers that contributes to the students' science capital* if they saw similarities between their own interests and the scientists'.

	FAST COMPUTING ZONE	NOV '18 ZONES AVERAGE	IAS 2012-18 AVERAGE
Fast Computing Zone Schools	9	10	10
Students logged in	481	471	391
% of students active in ASK, CHAT or VOTE	92%	87%	86%
Questions asked	506	711	690
Questions approved	340	337	302
Answers given	600	585	539
Comments	47	57	74
Votes	405	378	307
Live chats	20	21	16
Lines of live chat	9,502	8,300	5,642
Average lines per live chat	475	395	358

*Science capital is a measure of someone's engagement or relationship with science, how much they value it and whether they feel it is 'for me'. More info at imascientist.org.uk/science-capital

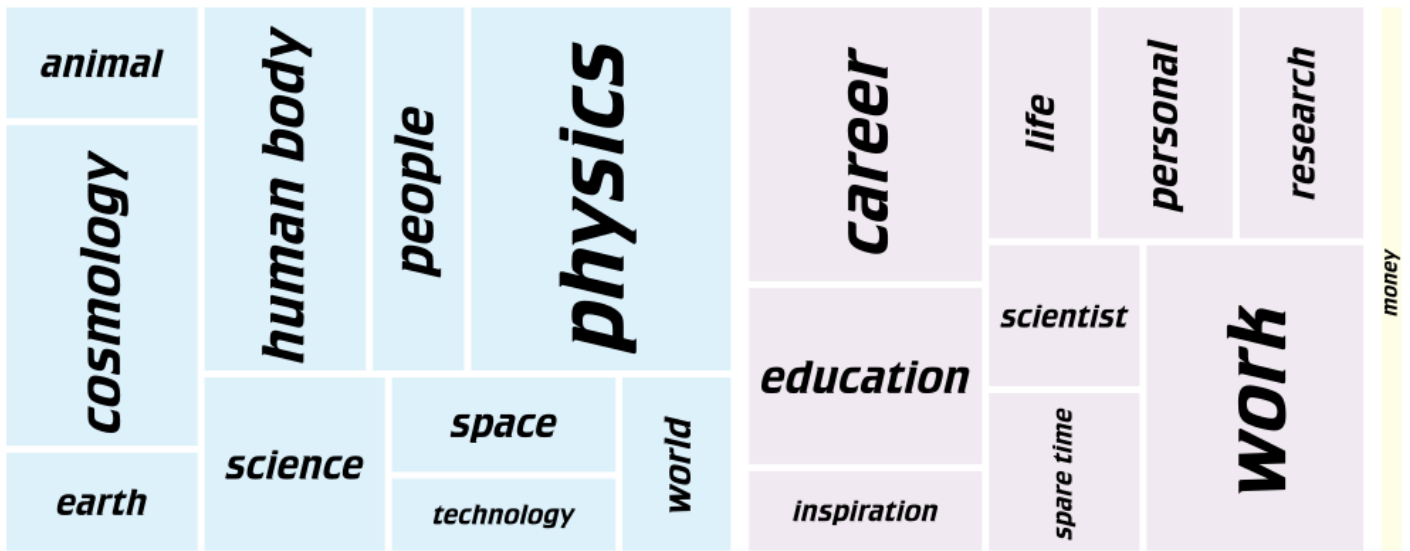
Chat

Keywords from live chats in the zone. Size of the word represents its popularity



Ask?

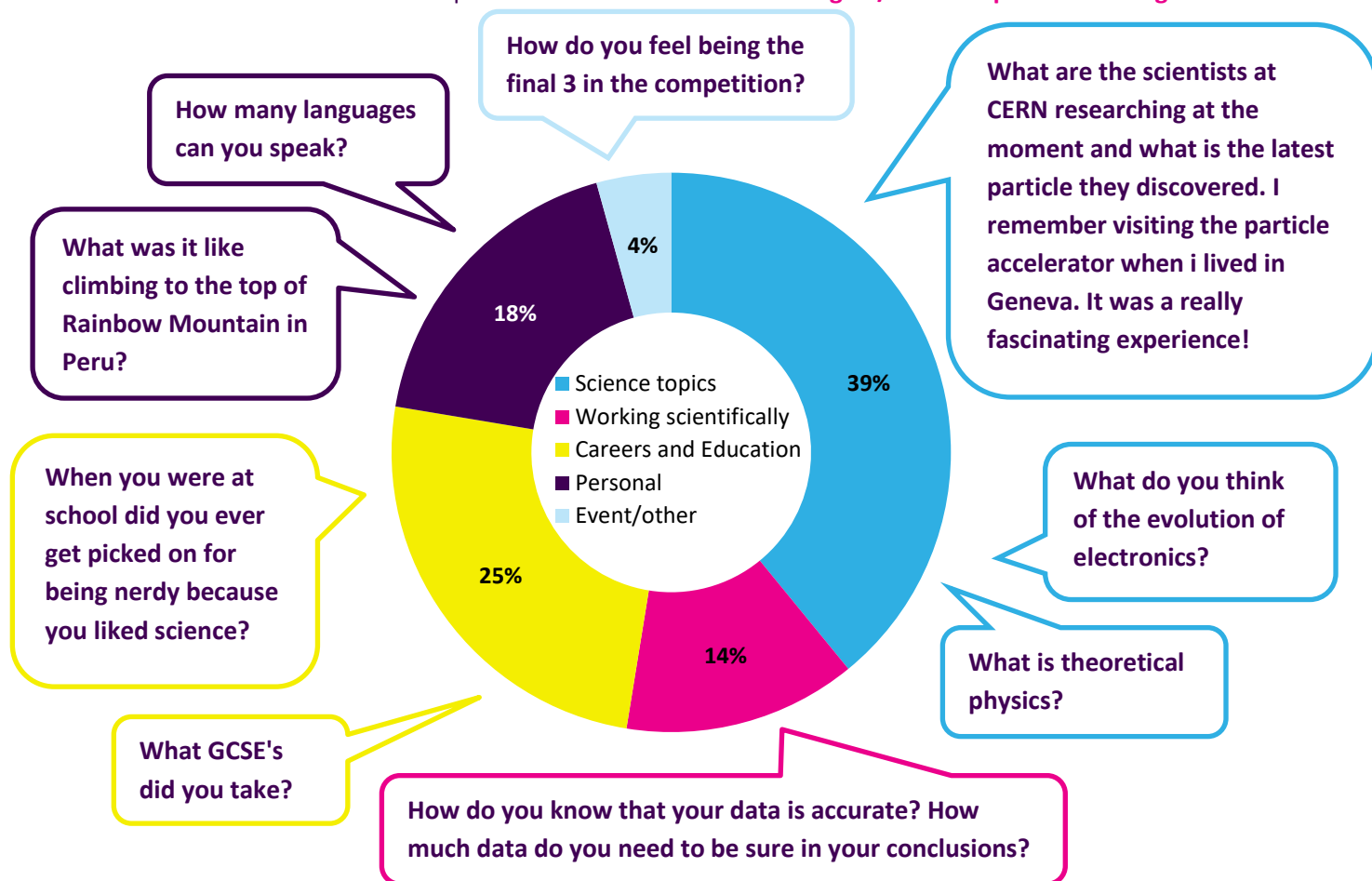
Top Keywords of questions approved in the Zone



■ Science ■ Being a scientist ■ Event/other

Question themes and example questions in the Zone

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



Examples of good engagement

Live chats in this zone were well attended, with at least three scientists in each. In one chat, several students wanted to know about Stewart's work writing code, which led to a conversation between the students, Stewart and Miriam:

"How do you identify the incorrect data?" – Student 1

"Basically write code that can identify an interesting particle collision. It's kind of similar to what YouTube does: if you upload a copy of the Transformers movie they will match the sound and images against what they have stored" – Stewart, scientist

"so it's lots of maths, a bit of physics (how do particles go through a detector) and a lot of writing and fixing code" – Stewart, scientist

"That's really cool, thank you" – Student 1

"are you using neural networks then?" – Student 2

"yes, that's right! You can play with neural networks here: playground.tensorflow.org" – Stewart, scientist

"what language do you program in??" – Student 2

"mainly C++ for the fast stuff, and then Python to put it all together. I'd recommend learning python, it's useful for lots of stuff. C++ is a bit more specialised." – Stewart, scientist

"Not my question but I use Python, and fortran (and I'm starting to learn C)" – Miriam, scientist

"@Miriam, how come fortran?" – Student 2

"@Student 2 Some codes written by other scientists that we still use now are written in Fortran, but its a very horrible language to learn and code in. Most codes are moving to C and python but fortran was the standard in astro for years" – Miriam, scientist

"@Miriam, I quite like Fortran! Although Fortran 77 with its ALL CAPITALS APPROACH IS QUITE UNPLEASANT TO READ" – Stewart, scientist

"@Stewart, haha yes! Fortran 90 is better then 77 but It was never my cup of tea!" – Miriam, scientist

"What about Fortran's negative array indexing?" – Student 2

"@Student 4, quite handy: in practice you can load stuff into C++ that works as well as Fortran. I had a student working on the Eigen matrix library this year, it's a nice project." – Stewart, scientist

In another live chat, one student asked Laura about her work, which led to follow up questions about implantable technology and prosthetics:

"What type are technologies are you currently working on?" – Student

"We work on standard circuit boards for planes and cars but currently we are trying to develop our understanding or wearable and implantable electronics which is a really interesting area" – Laura, scientist

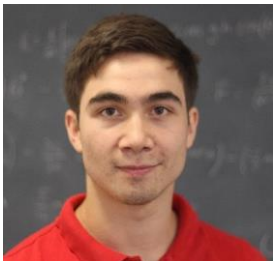
"What's your thoughts on implantable technology?" – Student

"I think it could be really interesting especially for medical devices! Some groups look at ways we can use electrical signals to mimic nerves in the body to aid treatment of neurological issues" – Laura, scientist

"To do with prosthetics too?" – Student

"definitely....prosthetics are getting smarter and better all the time. Medical engineering is a fascinating area of science" – Laura, scientist

"Indeed. Thanks" – Student



Scientist winner: David Ho

David's plans for the prize money: *"organise an event where scientists visit schools where, at the moment, not very many students go on to be scientists when they grow up. Giving talks and answering questions in these schools would hopefully help to make the world of science a fairer and more diverse place, meaning that in the future there will be even more brilliant ideas."*

Read David's [thank you message](#).

Student winner: scientific._koala

For great engagement during the activity, 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 about the Fast Computing Zone...

I've learned how many different types of science there are and how useful they are. I've also learned how relatable the scientists are and are not all like the typical stereotype. – Student

I'm seriously motivated to do more outreach and science communication in the future! – David, winner

Feedback

Here are a few of the comments made about November's *I'm a Scientist* activity...

The students were actually cheering when the first scientist answered a question. It was a fantastic moment. – **Teacher**

I have learnt about other scientists' lives and that even if they are scientists they have the same life as us. – **Student**

The whole event probably involved more students from a wider variety of backgrounds than any single real-life event. – **Scientist**

I have learnt that many scientists did not have any clue as to what they wanted to be when they left school. – **Student**

I have learned that science isn't just sitting with some test tubes pouring them into a big pot and that they are real, rather interesting jobs that I could consider going into. – **Student**

I would like to say thank you. Friday when our children went on the live chat, there was so much excitement with the children when they saw the scientist replying. The buzz they got from it was fantastic. It is a long time since I've seen children buzzing from science. – **Teacher**