

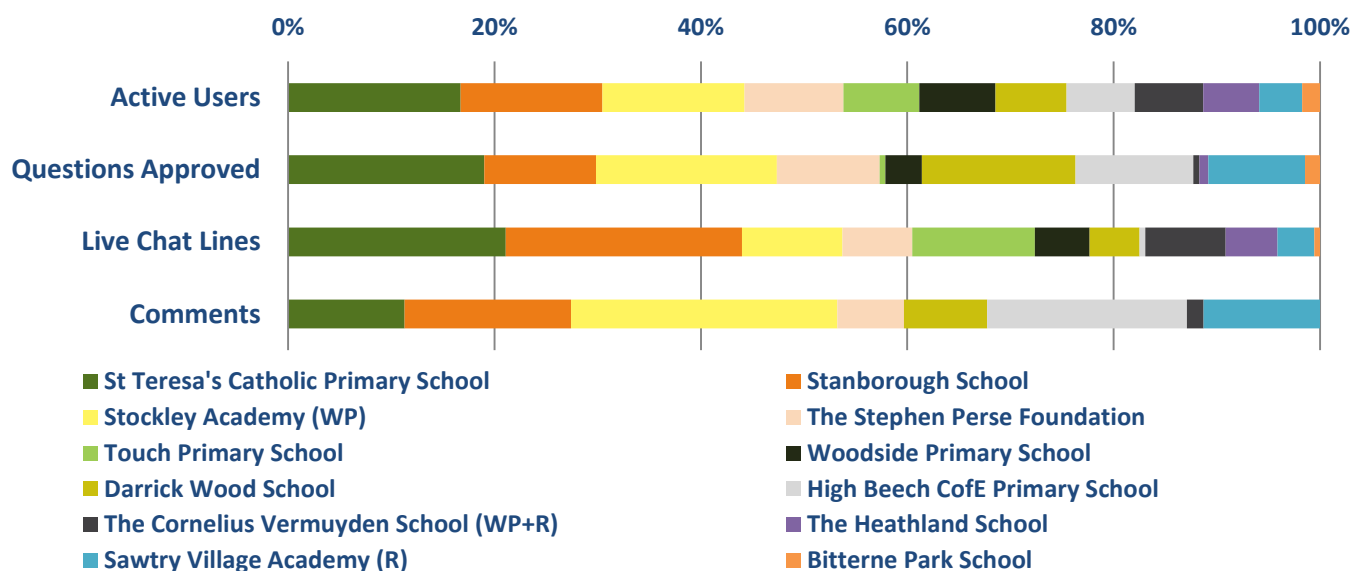
March 2017

The Robotics Zone was a themed zone funded by the Royal Academy of Engineering. Siobhan is a PhD student looking at how to design collaborative robots that help search for people after an earthquake, Ollie, the winner, maintains and operates robots that work underwater to find out things about the sea floor and Mateusz programmes control systems for gas plants and refineries. Katie is a Sales Engineer helping car companies build their cars with robots, Iulia is a PhD student working with humanoid robots and using them for things like healthcare and education and Dmitry is a PhD student studying how people could use and interact with domestic robots.

The zone was very popular, with the highest number of questions in the ASK section out of the three zones in March's event. Questions were varied, engaged and imaginative and ranged from the broad to the informed. Students were excited by the topic and seemed to easily understand the subject and the different work involved.

All of the engineers showed a breadth of knowledge and a clear enthusiasm for their field of work and gave thorough and considered answers, and a lot of good advice for questions about choosing an engineering career.

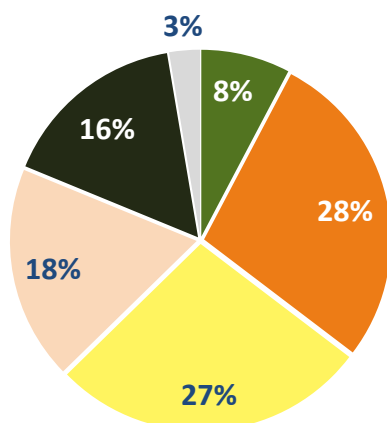
School data at a glance



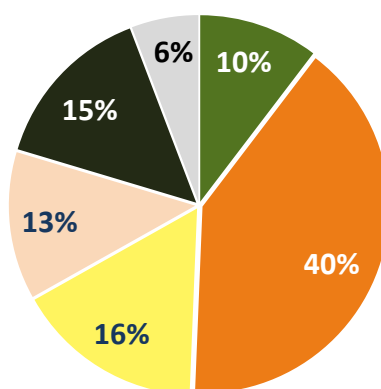
We want to increase the participation of under-represented groups going into STEM careers. Find out what we mean by our Widening Participation (WP) and Rural (R) schools, and how you can support us in working with more widening participation schools at about.imascientist.org.uk/widening-participation.

Engineer activity

Answers



Lines of Live Chat



Engineer	Profile views	Position
Ollie Morris	913	Winner
Dmitry Dereshev	568	2nd
Iulia Motoc	700	3rd
Katie Pavey	603	4th
Siobhan Duncan	879	5th
Mateusz Jozko	640	6th

Key figures from the Robotics Zone and the averages of the March zones

PAGE VIEWS	ROBOTICS ZONE	MAR '17 ZONES AVERAGE
Total zone	23,796	23,927
ASK page	2,659	2,096
CHAT page	1,746	2,229
VOTE page	1,626	1,825

	ROBOTICS ZONE	MAR '17 ZONES AVERAGE	IAE AVERAGE
Schools	12	14	10
Students logged in	490	539	396
% of students active in ASK, CHAT or VOTE	83%	85%	85%
Questions asked	1,090	830	605
Questions approved	342	296	223
Answers given	713	657	449
Comments	78	72	44
Votes	293	342	298
Live chats	16	20	17
Lines of live chat	6,585	7,895	5,342
Average lines per live chat	412	401	307

Popular topics

Students were really interested in the zone theme and asked a lot of questions about robots; how they are made, what tools, computer programmes and materials are used, the costs involved and how hard or easy they are to build.

There were a lot of questions clearly influenced by science fiction, asking about the possibility of self-awareness and emotions in robots, and the chance that robots might rebel against humans and even take over the world.

On a more pragmatic level, similar questions were asked about the future of automation and the place of robotics in everyday life - the way they will be able to help people (i.e. lifesaving situations) and whether they will threaten jobs. Dmitry was asked about his thoughts on domestic robots and what features he would want if he could build his dream robot for his house.

Students were interested in Katie's work with cars and wanted to know about the different types of cars she works on, how long it takes to fix a car using robots as well as whether driverless cars or flying cars are a possibility.

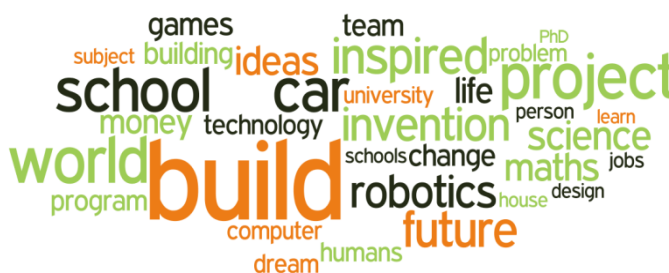
A lot of students were interested in the engineers' careers, asking questions about how rewarding they find the work and what their inspiration is. They wanted to know whether their jobs were how they expected them to be and what the easiest and hardest things they have to do are. Many students showed a genuine interest in engineering as a career, asking for advice on what qualifications and work experience they would need as well as the qualities needed to be a good engineer. They also asked about the different companies the engineers work for and whether they run apprenticeships.



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



Keywords with 'robots'

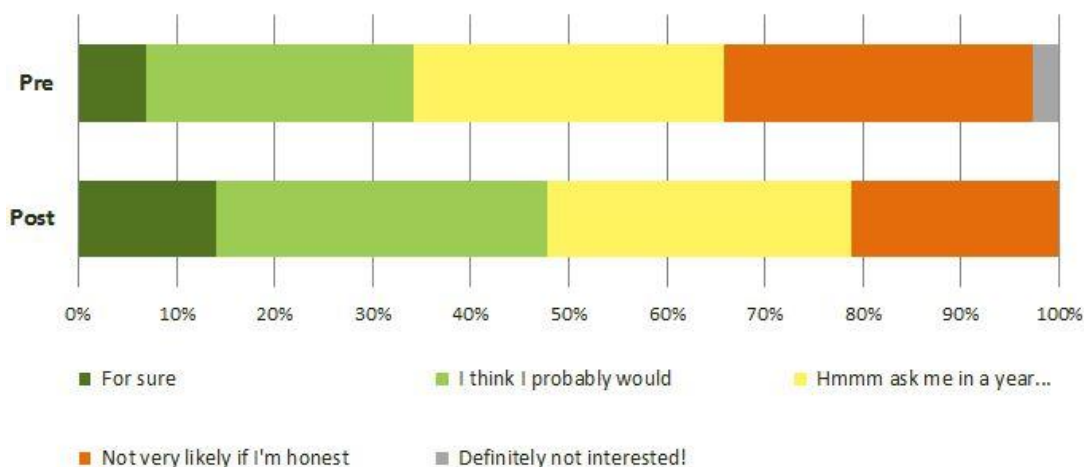


Keywords with 'robots' removed

Students' attitudes to STEM

We ask students directly about how they feel about STEM, before and after taking part in the event. It's clear that participating in I'm an Engineer has an overall positive effect on students' attitudes to STEM:

Would you like to work as an engineer in the future?



Figures are averages from I'm an Engineer Zones run between November 2014 and June 2015. We're still collecting feedback for this event, but expect to see a similar positive change.



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

0 5 10 15 20 25 30 35 40 45 50

robot

career

Example Questions
(click for links)

car

build

"How difficult is it to program some of the things they do at the Jaguar car plant in Castle Bromwich?"

"Have you ever regretted becoming an engineer?"

"What would you do if you could make any robot in the world?"

job

inspiration

impact

"What is the most complicated part of building a robot?"

"Can robots have emotions?"

"What is the most important job that robots do that humans find challenging?"

future

food

work

"What event has given you the most inspiration?"

"Where will the future of robotics lead us?"

"Have you ever thought about making a robot that can cook/make food?"

invention

creation

technology

repair

"Is there a robot that solves depression?"

"How will your technology aid and improve things in society such as human-robotic relationships?"

"What do you get out of engineering that you couldn't get from any other kind of work?"

workplace

AUV

design

"If you had infinite parts and tools, what would you create?"

"What is the hardest thing you have ever fixed?"

"Will AUV robots in the future replace lifeguards?"

music

program

idea

"Could you program a robot to play an instrument?"

"Do you think we will ever make cars fly?"

"How would you get your robots to communicate with each other?"

Examples of good engagement

Students often asked specific questions to the engineers showing that they had read their profiles. There were some good conversations about particular things both the engineers and students had done, such as with this exchange with Katie:

"Katie, I read your profile and it says that you work with Jaguar, I've been to one of their plants in Castle Bromwich. How much coding goes into one of those robots?" – **Student**

"I was at Castle Bromwich last week! It's great isn't it? Normally we spend about 100 hours programming each robot. Did you see any robots while you were at Jaguar?" – **Katie, engineer**

"Yes I did. They were really cool and it was really interesting" – **Student**

There were also a lot of interesting conversations about the future of robotics and potential jobs they could replace:

"Do you think robots will replace doctors?" – **Student**

"No, the robots will be able to perform surgeries more stably, but they still need to be supervised by a doctor" – **Iulia, engineer**

"I think they could help humans diagnose illnesses, but it would need to be together with a human. Would you go and visit a robot doctor?" – **Katie, engineer**

"Yes I would and see how they work." – **Student**

"I don't think they will replace doctors, but I think they will replace a lot of what doctors have to do, and let doctors do more of the work they are good at rather than boring work." – **Siobhan, engineer**

Engineer winner: Ollie Morris

Ollie's plans for the prize money: *"If I win, I would like to use the money to buy some raspberry pi's or something similar. I would use these in a class/workshop to teach people in schools how to program. We would make simple programs for these circuit boards and make them play tunes, control motors and robots and other exciting things."* Ollie's **thank you message**.



Student winner: ZforZoe

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 engineers but here are a few of the comments made during the event...

"Thanks for answering all the questions it's really interesting too" – **Student**

"It was extremely fun and exciting, and it definitely helped me understand how children see engineering, especially robotics." – **Iulia, engineer**