

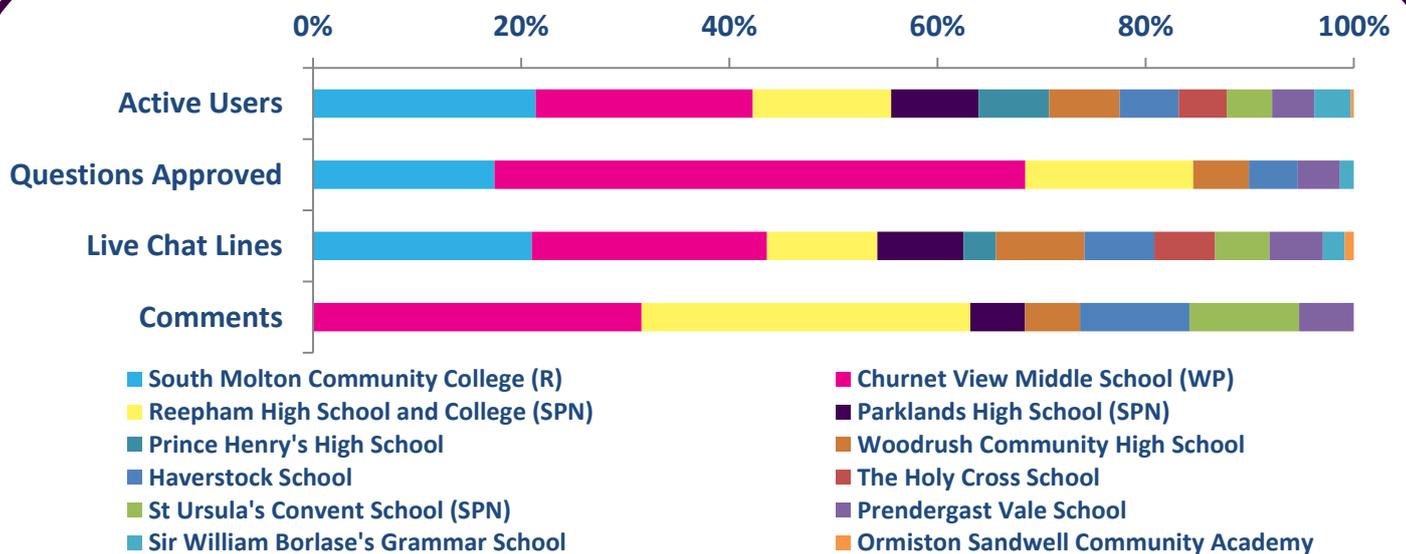


March 2017

The Medical Physics Zone was a themed zone funded by The Institute of Physics (IOP) and The Institute of Physics and Engineering in Medicine (IPEM). Sarah is a trainee medical physicist specialising in radiotherapy physics, Mohan is a clinical scientist helping put radioactive drugs inside patients for diagnosis and treatment and Jen is also a clinical scientist who focuses on processing images of patients who have taken radioactive drugs. Dan, the winner of the zone, is a postdoctoral researcher using sound waves to detect diseases like cancer and Christopher is a PhD student looking at how to design more advanced MRI scanners.

Students connected with the topic and discussed some of the issues rising from using the technology needed in medical physics. There were some personal conversations on how medical physics relates to cancer and cancer patients, including members of the students or scientists' families. Students were also curious about the career path the scientists followed, some of the decision making behind it and the nature of their current professions.

School data at a glance

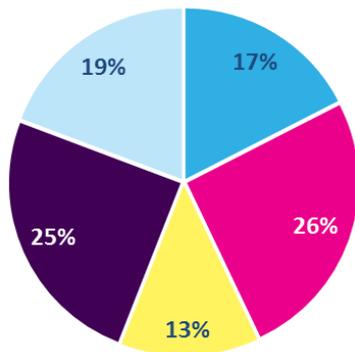


We want to increase the participation of under-represented groups going into STEM careers. Find out what we mean by our Widening Participation (WP) and Rural (R) schools, and how you can support us to work with more of these schools at about.imascientist.org.uk/widening-participation.

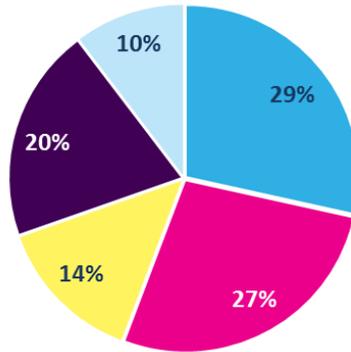
(SPN) = Stimulation Physics Network schools

Scientist activity

Answers



Lines of Live Chat



Scientist	Profile views	Position
Daniel Fovargue	722	Winner
Mohan Kyle	652	2nd
Christopher Mirfin	577	3rd
Sarah de Vos	597	4th
Jen Dennis	488	5th

Key figures from the Medical Physics Zone and the averages of the March zones

PAGE VIEWS	MEDICAL PHYSICS ZONE	MAR '17 ZONES AVERAGE
Total zone	19,452	18,600
ASK page	1,006	1,451
CHAT page	1,762	1,703
VOTE page	1,576	1,523

	MEDICAL PHYSICS ZONE	MAR '17 ZONES AVERAGE	IAS 2012-17 AVERAGE
Schools	12	13	10
Students logged in	463	455	376
% of students active in ASK, CHAT or VOTE	80%	80%	85%
Questions asked	293	594	713
Questions approved	149	276	307
Answers given	447	482	549
Comments	38	47	77
Votes	264	307	296
Live chats	18	17	15
Lines of live chat	7,436	6,543	5,265
Average lines per live chat	413	379	348

Popular topics

Conversations in the zone were largely on topic and students asked about the application of physics within medical physics, and how it can be used to diagnose and cure diseases like cancer. There was a lot of interest in different jobs within the field.

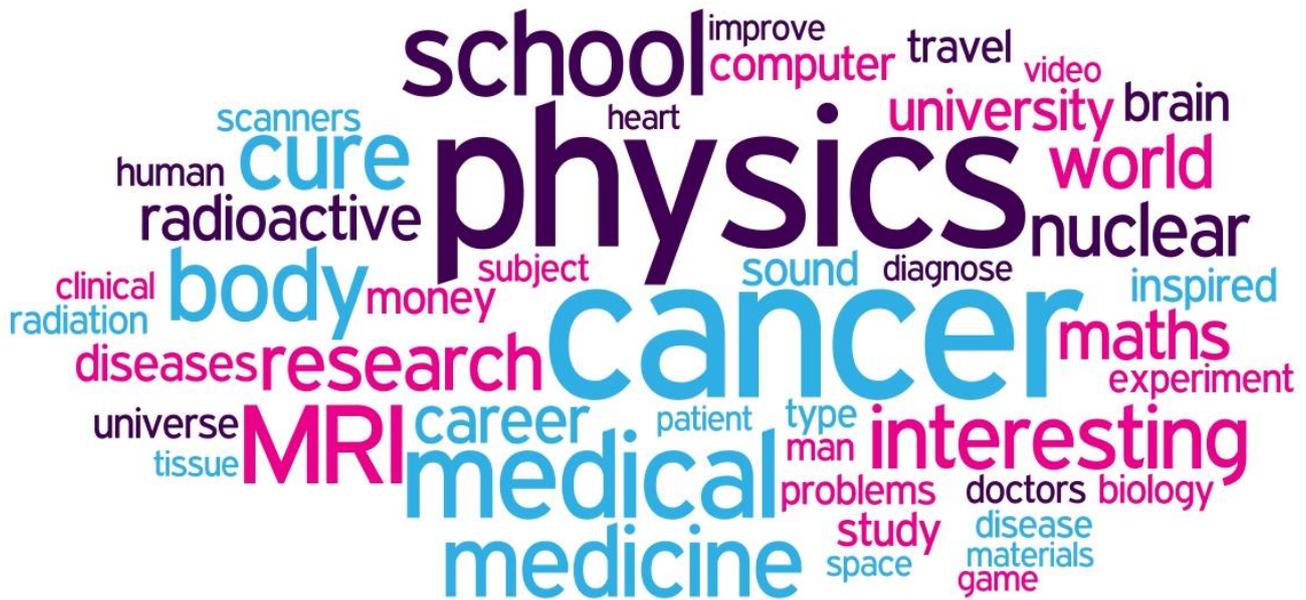
Questions could be very detailed, asking about the technology itself. This included questions for Christopher about MRI scanners, such as how he is working to improve them for future usage. There were a few questions relating to accidental overdose of nuclear dosing, challenging misconceptions about the association between nuclear medicine and the nuclear bomb.

There was a lot of interest in disease and different cures, especially cancer and the effectiveness of radiotherapy treatment. They also asked about what makes up a cure, and what steps the scientists would take if they had to cure a deadly virus.

Chats and ASK also gave students the opportunity to talk to scientists about personal interests and current affairs such as video games, music and politics.

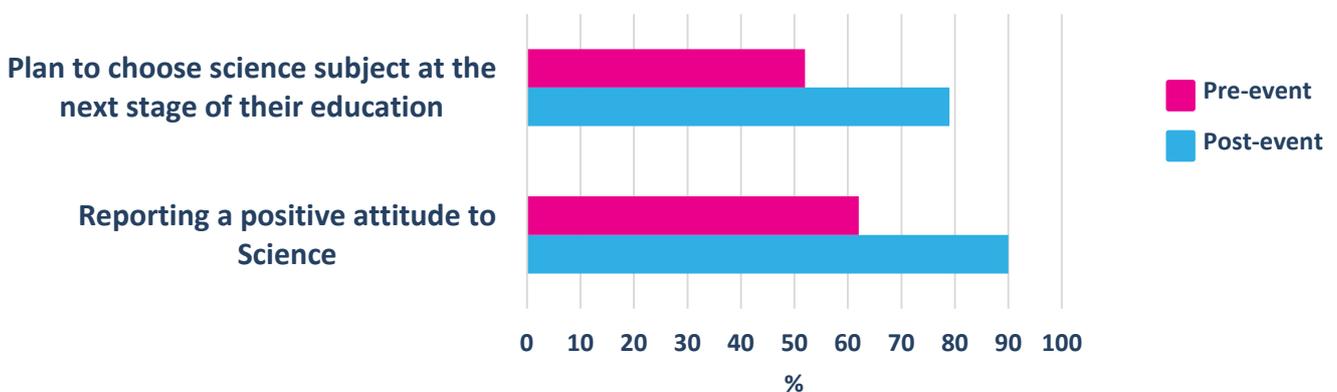


Keywords from live chats in the zone, size of the word represents its popularity



Students' attitudes to STEM

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

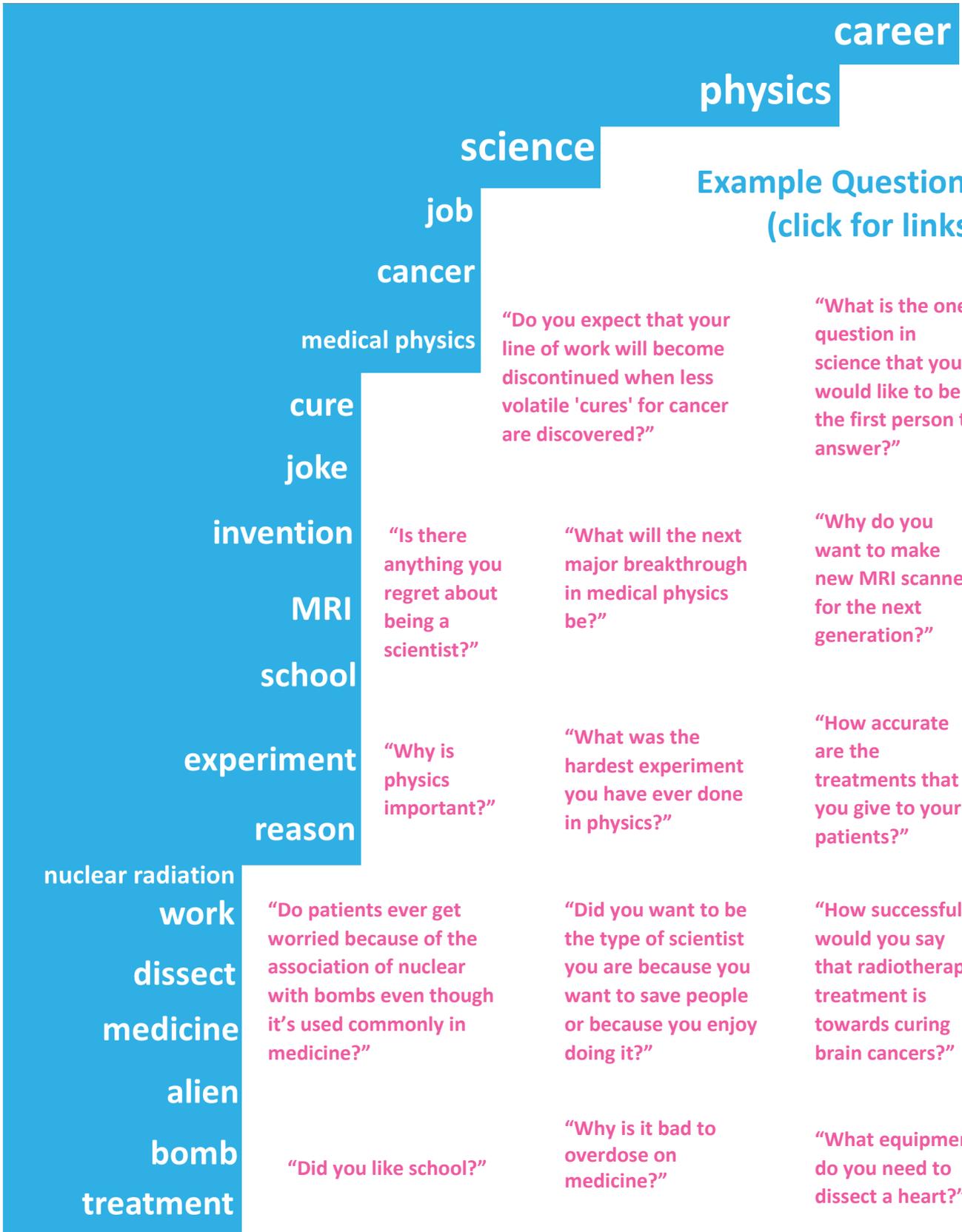


Figures are averages from I'm a Scientist Zones run between 2012 and 2015. We're still collecting feedback for March 2017, but we expect to see a similar positive change.



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

0 1 2 3 4 5 6 7 8



Example Questions (click for links)

"Do you expect that your line of work will become discontinued when less volatile 'cures' for cancer are discovered?"

"What is the one question in science that you would like to be the first person to answer?"

"Is there anything you regret about being a scientist?"

"What will the next major breakthrough in medical physics be?"

"Why do you want to make new MRI scanners for the next generation?"

"Why is physics important?"

"What was the hardest experiment you have ever done in physics?"

"How accurate are the treatments that you give to your patients?"

"Do patients ever get worried because of the association of nuclear with bombs even though it's used commonly in medicine?"

"Did you want to be the type of scientist you are because you want to save people or because you enjoy doing it?"

"How successful would you say that radiotherapy treatment is towards curing brain cancers?"

"Did you like school?"

"Why is it bad to overdose on medicine?"

"What equipment do you need to dissect a heart?"



Examples of good engagement

It was clear students had read the scientists' profiles as they asked specific questions about their work, such as **this ASK question** about MRI scans:

"How do you take the photos of the sound waves in people's bodies? Can sound waves from the outside of your body reach the inside, like when I listen to music would you be able to see it inside of me?" – **Student**

"If we are curious about someone's liver, for example, we put them in the MRI machine and then use something to vibrate near their liver...then we can see these vibrations moving through the person's liver using MRI. I think your music would have to be very loud and very bassy to see it with MRI. Generally speaking though, the sound waves that you hear when you listen to music definitely will move through your body, but probably are not strong enough to see with MRI. That's why we have to use something that vibrates and press it right up against the person." – **Dan, scientist**

Chats were often light hearted and personable, with students and scientists discussing things like food and travel:

"What's your favourite pizza topping?" – **Student**

"Hawaiian. As part of my work I get to go to Hawaii for 3 weeks in April, so I'll eat plenty of it then" – **Christopher, scientist**

"Why are you going to Hawaii?" – **Student**

"Science conference :D Paid for by my Uni." – **Christopher, scientist**

"Cool! What's your dream holiday?" – **Student**

"I love Thailand. The people, the food... but I have a feeling the Galapagos, which I hope to do in a few years, will beat them all" – **Christopher, scientist**

"I would love to go to Japan, in particular Tokyo" – **Student**

Scientist winner: Dan Fovargue

Dan's plans for the prize money: *"Make a video game phone app that teaches people about the science behind elastography."* Read Dan's **thank you message**.



Student winner: Bevin

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...

"Thank you for the chat today, the kids loved it and got some really fab answers from the scientists." – **Teacher**

"I had the chance to ask real scientist about questions I was interested in and I got really interesting answers. I had the chance to learn something from the experience of these scientists instead of learning from books." – **Student**