FUTURES ZONE: November-December 2020

The FUTURES Zone ran from 16 November to 11 December 2020.

The Zone was funded by *FUTURES2020*, a public engagement collaboration between the University of Bath, Bath Spa University, University of Bristol, University of Exeter and University of Plymouth. *FUTURES2020* is part of European Researchers' Night (ERN), a Europe-wide event dedicated to explaining research through fun and interactive learning. ERN is funded by the European Commission under the Marie Skłodowska-Curie actions.

The Zone was open to school students and researchers from the South West of England.

Researchers

- 13 researchers from the University of Bristol created profiles in the Zone.
- 8 researchers engaged with students through live Chats and/or Ask questions.
- Researchers from a broad range of fields and career stages took part. For example:
    - Eugenia Geddes Da Filicaia - PhD researcher in conservation between the University of Bristol and the National Gallery
    - Fernando Alvira Iraizoz - Specialist Research Technician in animal physiology at the University of Bristol
    - Eliza Hunt - Chemical Synthesis PhD student at the University of Bristol

Students

- 54 students from 3 schools from SW England logged into the Zone.
- 2 schools were target schools: 1 Widening Participation (WP) and 1 Underserved (U).

Live Chats & Questions

- 4 live Chats took place took place during the activity.
- 5 live Chats were booked but 1 was a 'school no show'.
- On average, 4 scientists attended each live Chat session.
- 1 teacher typed questions in a live Chat on behalf of their students, so the number of students engaged may be higher by up to 15.
- 12 student questions were approved. Researchers responded with 10 answers.

Key figures	
Schools	3
Students logged in	54
% of students active	74%
Scientists onboarded	13
% of scientists active	62%
Questions asked	12
Questions approved	11
Answers given	10
Scientist comments	1
Student comments	1
Votes	10
Live chats	4
Lines of live chat	652
Average lines per chat	163

Impact of the COVID-19 pandemic

The Zone was originally intended to run for 2 weeks from 21 September to 2 October 2020. Due to the pressure on teachers managing a return to school after 6 months of closures and navigating new restrictions, the Zone was pushed back to November, and extended by 2 weeks. Unfortunately, uptake remained low.

Teacher feedback indicated a need to focus on the core curriculum, due to lost time from school closures and students isolating. Student attendance dropped to 65% for some schools in November. The rapidly changing situation made it difficult for teachers to plan ahead. Many schools restricted access to shared IT equipment, leading some teachers to ask questions in live Chats on behalf of their students, projecting the Chat on a screen.

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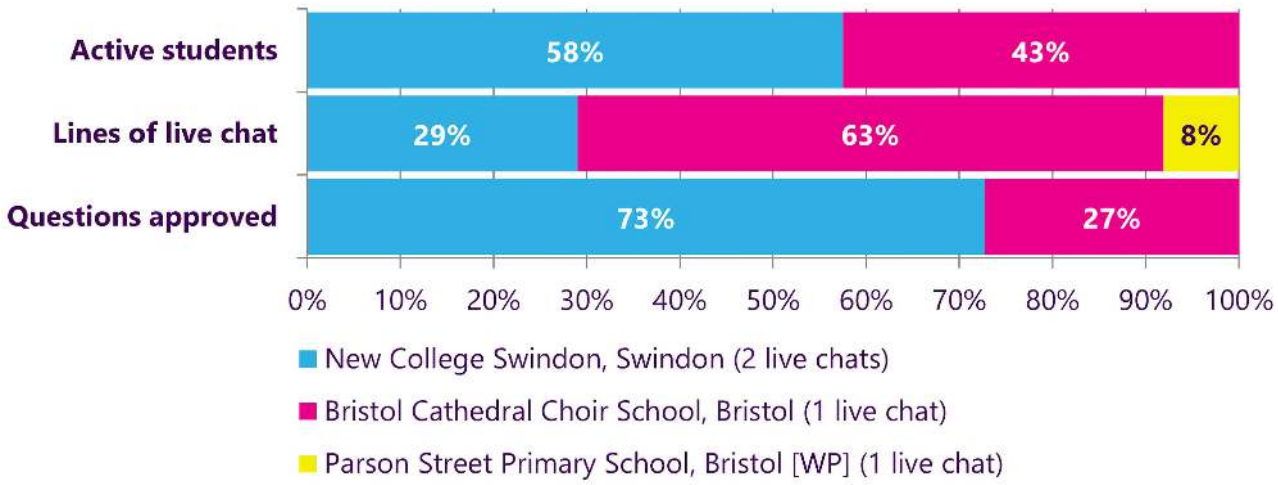
School activity

School	Active students	Chats attended/ booked	Lines of Live chat		Questions approved
			Total	Per student	
New College Swindon, Swindon [U]	23	2/2	100	4	8
Bristol Cathedral Choir School, Bristol	17	1/1	217	13	3
Parson Street Primary School, Bristol* [WP]	0	1/1	28	N/A	0
Hayesfield Girls School, Bath**	0	0/1	0	N/A	0

*This school took part in a Chat through the teacher account due to restricted access to individual IT equipment.

** This school booked a chat but was unable to attend.



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**

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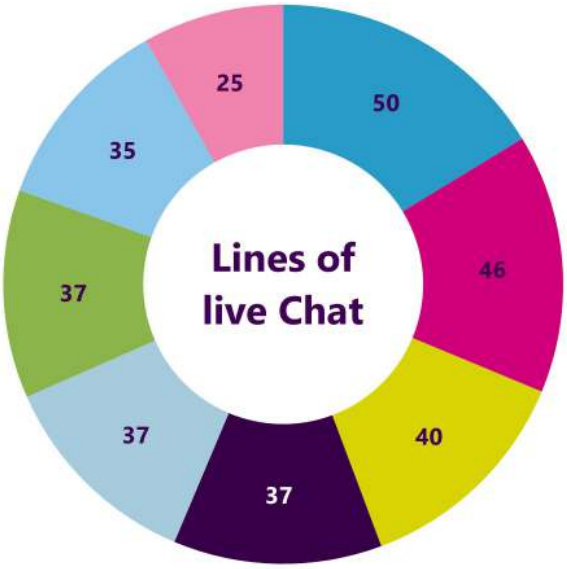
Scientist activity

8 researchers were active in the Zone, writing 307 lines of live Chat, and providing answers to 11 posted questions.



- Fernando Alvira Iraizoz (3 live chats)
- Eliza Hunt (2 live chats)
- Humberto Ferron (1 live chats)
- Eugenia Geddes Da Dilicaia (3 live chats)
- Luke Cox (2 live chats)
- Alex Mastrogiannopoulos (2 live chats)
- Makrina Agaoglou (2 live chats)
- Paul Anastasiades (1 live chats)

See all the participating researchers: https://futures2020.imascientist.org.uk/researchers

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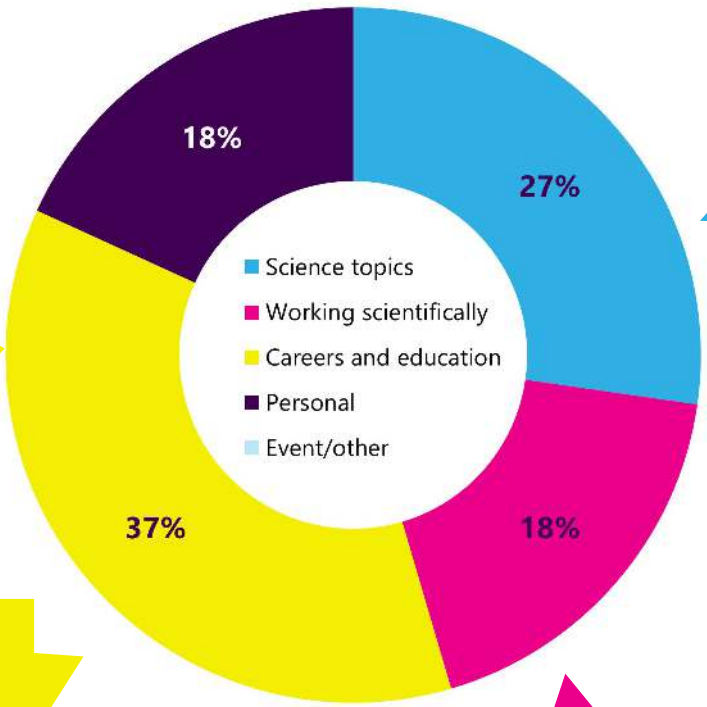
Popular topics

Frequent words used in live Chats by students and scientists

Chat

Question themes and example questions

Ask ?



Do you like Harry Potter?

How does the ultrasound levitation work?

What made you interested in nanoparticles?

What is the theoretical mathematics and scientific concepts behind invisibility cloaks?

What is the most interesting project you have worked on throughout your career and why ?

How do you image the flies?

Examples of good engagement

Students were interested in the researchers' individual work, showing they had read their profiles and wanted to find out more. Makrina's research into invisibility cloaks was of particular interest, with students asking how one would work, and if it would be similar to Harry Potter. Relating science to students' personal interests in this way can help support their Science Capital:

SharonA @makrina how does an invisibility cloak work and is it really invisible?

Makrina @SharonA: There are several ways. My research was related to metamaterials. Metamaterials are materials that you can't find in nature but you create them in the laboratory and they have the properties that you want them to have. For example negative refraction index. So far scientists have achieved invisibility in the microwave frequencies band.

SharonA @makrina would they be able to create a cloak similar to the one in Harry Potter?

Makrina @SharonA: This is their goal but so far we haven't achieved that due to many difficulties. Using metamaterials, one of the obstacles is that the particles of these materials should be made extremely small and it is a very very difficult task.

SharonA @makrina so maybe in the future we could have invisibility cloaks? That's so cool!

makrina @SharonA: Yes it can happen. It is really cool indeed. Here is another team that they are using a different technique than ours: https://globalnews.ca/news/4302166/invisibility-cloak-technology/

Parson Street Primary School took part as a class, with their teacher typing questions on behalf of the students, and the students following the live Chat on a screen. This allowed the teacher to relate the scientists' answers to what they had been learning in the classroom:

griersonc20 How long is it safe to stay on the ISS?

Fernando @all 437 days is the longest someone has been. Again, I don't know the answer but I know that with time the muscles, bones and organs like the hard suffer of atrophy and that is dangerous when you come back to Earth

griersonc20 Good answer. We watched a video about space gyms!

Fernando @griersonc20: right! They follow very strict exercising routines

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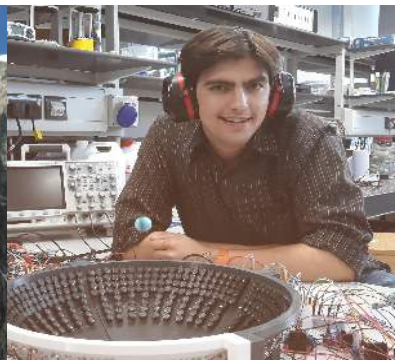
Top Scientists

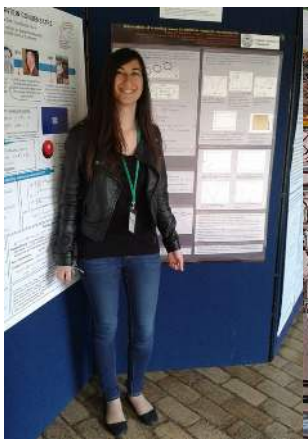
During the Zone, students voted for their favourite scientist.

Zone Winner: Eliza Hunt

Joint 2nd: Fernando Alvira Iraizoz & Luke Cox



Joint 4th: Makrina Agaoglou & Eugenia Geddes Da Dilicaia



Feedback from the FUTURES Zone

Thank you so much for all of your time you have been inspirational

Teacher

Thanks it has been really fun

Student

Thank you for your time and answers to my questions.

Student

Thank you, scientists, for all of your answers. Keep up the good work and good luck!

Teacher