



Russell



Kathryn



Jose



Gabriel



Affelia



Adelle

March, 2019

The Rutherfordium Zone was a general science zone for primary schools, supported by the Science & Technology Facilities Council. In the zone were six scientists:

- Russell Arnott, the zone winner, who researches how the shape of plankton helps them survive in different environments.
- Kathryn Boast, a Quantum Materials Outreach Officer who finds easy and fun ways to present research on different quantum materials to the public, much of which is done at Diamond Light Source and the ISIS Neutron and Muon source.
- Jose Martinez-Gonzalez, scientist at the ISIS Neutron and Muon source who studies how water ‘dances’ on different surfaces.
- Gabriel Gallardo, who works with the Large Hadron Collider to figure out what the universe is made of.
- Affelia Wibisono, an STFC-funded PhD student investigating Jupiter’s x-ray northern and southern lights.
- Adelle Gorce, an STFC-funded PhD student who uses massive telescopes to look for the birth of the universe and the very first stars.

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

PAGE VIEWS	RUTHERFORDIUM ZONE	MAR '19 ZONES AVERAGE
Total zone	13,839	15,399
ASK page	471	1,114
CHAT page	993	1,291
VOTE page	932	1,327

	RUTHERFORDIUM ZONE	MAR '19 ZONES AVERAGE	IAS 2012-19 AVERAGE
Rutherfordium Zone Schools	7	8	10
Students logged in	335	388	391
% of students active in ASK, CHAT or VOTE	94%	92%	86%
Questions asked	172	443	675
Questions approved	108	216	297
Answers given	207	437	532
Comments	17	29	71
Votes	252	312	308
Live chats	15	19	16
Lines of live chat	6,591	6,732	5,711
Average lines per live chat	439	352	358

Popular topics

Students engaged well with the scientists’ work, asking about their career paths but also the science of each of their research areas.

Jose’s work on how water ‘dances’ was a popular topic among students, as was Russell’s information about plankton. The students were very interested in Gabriel’s work, too, asking lots of questions about space, stars and the universe.

Students also discussed the scientists’ daily working lives and why they chose to do their jobs.

All the scientists in the Rutherfordium Zone actively participated in ASK and CHAT.



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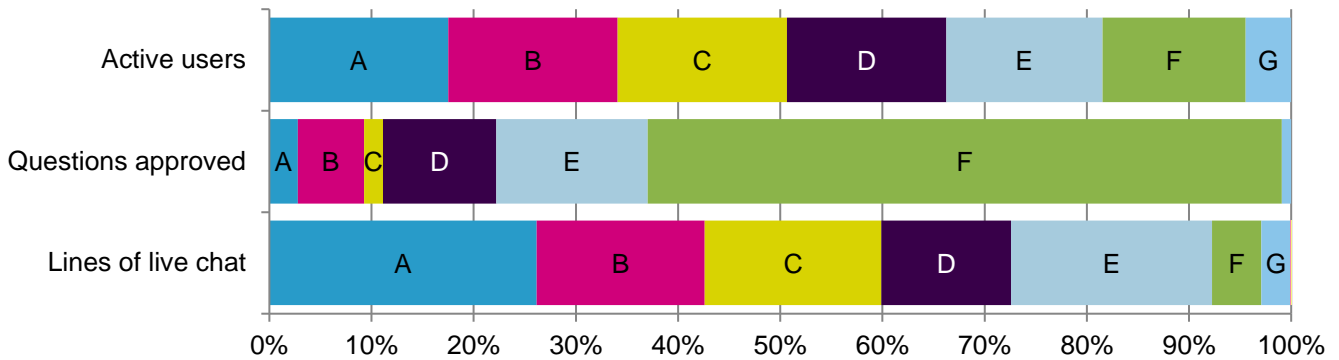


Affelia



Adelle

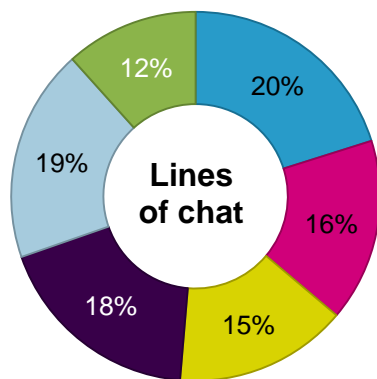
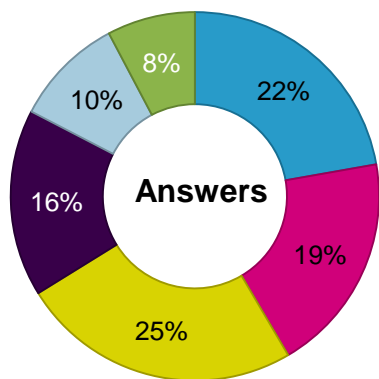
School data at a glance



School	Year/s	Classes	
A	Uxendon Manor Primary School, Harrow	Y4 - Y6	4
B	Allerton CofE Primary School, Leeds, WP	Y5	2
C	Irchester Community Primary School, Wellingborough	Y5	2
D	Friskney All Saints Church of England Primary School, Boston, WP/U	Y5	2
E	Mandeville Primary School, St Albans, WP	Y5, Y6	4
F	Furzedown Primary School, London	Y6	2
G	Lark Rise Academy, Dunstable, U	Y4 - Y6	5

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

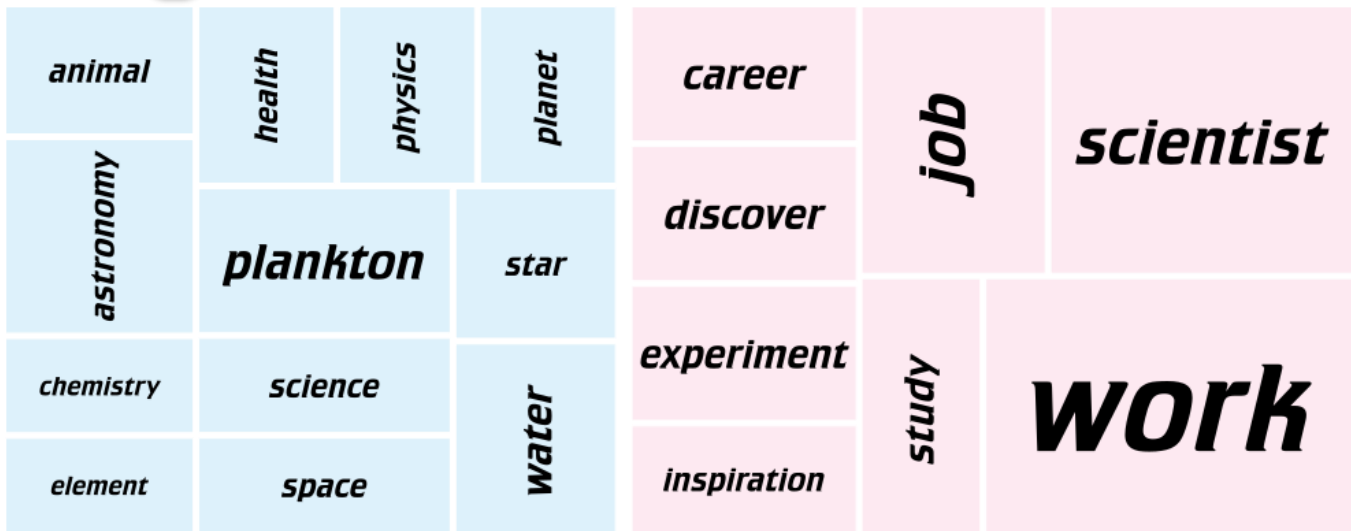


SCIENTIST	PROFILE VIEWS	POSITION
Russell Arnott	588	Winner
Gabriel Gallardo	317	2nd
Kathryn Boast	494	3rd
Jose Martinez Gonzalez	389	4th
Adelle Gorce	270	5th
Affelia Wibisono	258	6th

Ask ?

Top Keywords of questions approved in the Zone

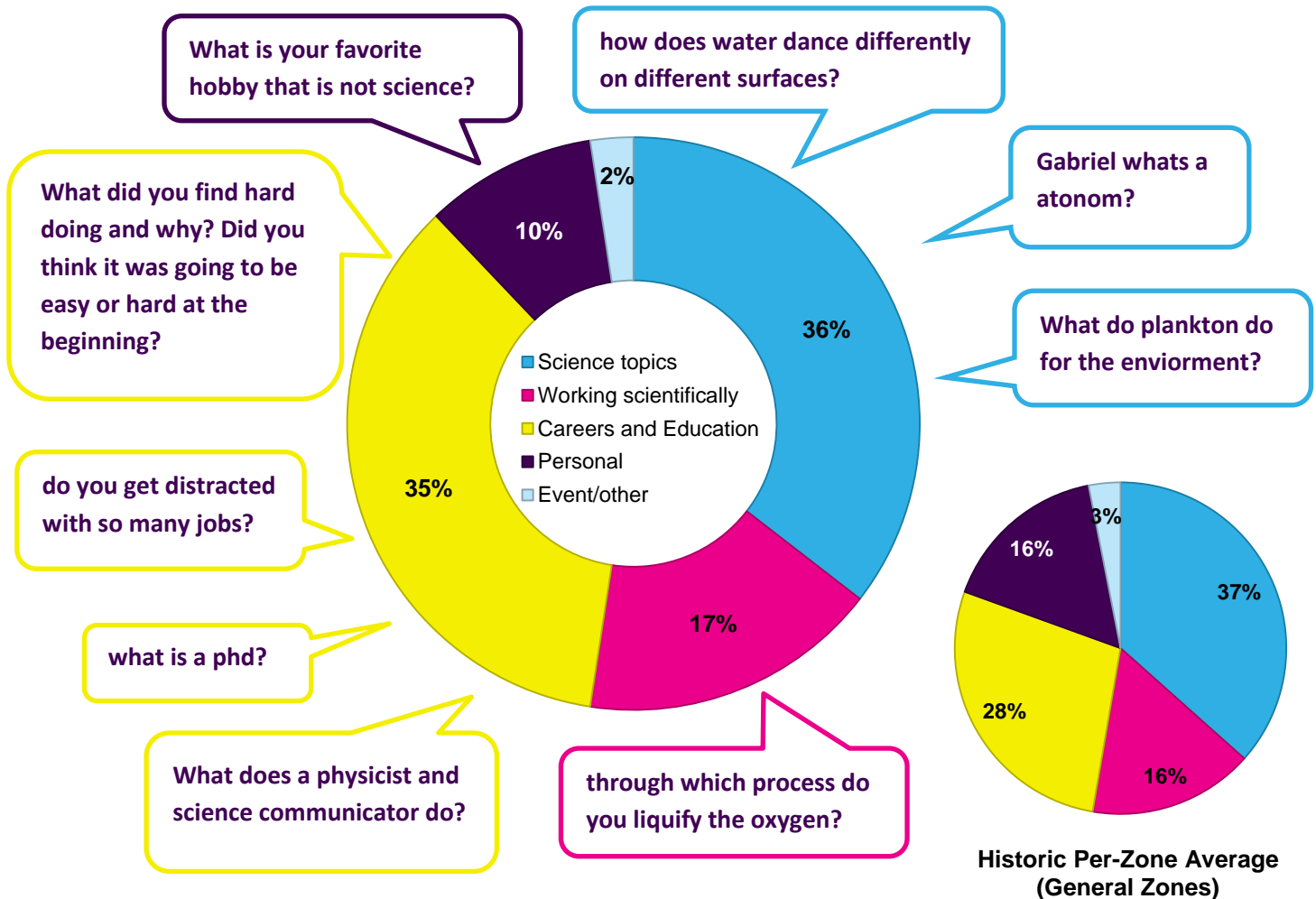
Area represents frequency of use



■ Science ■ Being a Scientist

Question themes and example questions in the Zone

Find out about how we've coded the questions at about.imascientist.org.uk/what-do-students-ask-about/



Chat

Frequent words used in live chats by students and scientists. Size of the word represents its popularity



Examples of good engagement

Students were very interested in Jose’s work with ‘dancing water’. In ASK, he was able to use visual aids and videos to help explain a tricky concept:

? Question: how does water dance differently on different surfaces?
 Keywords: water
 0

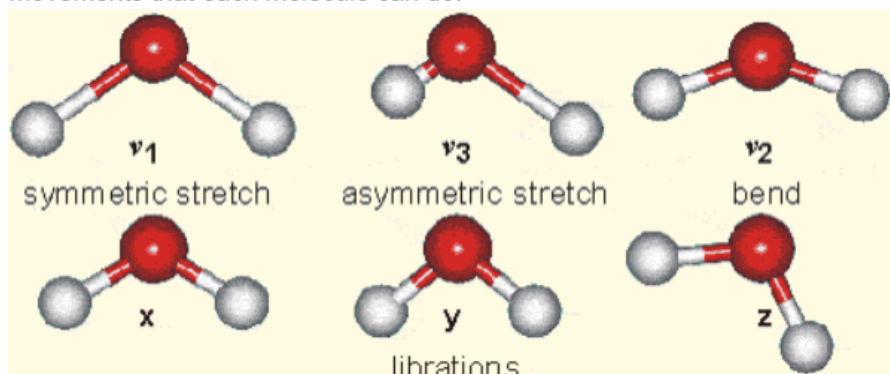
Asked by blue23 to Jose on 7 Mar 2019.



Jose Martinez-Gonzalez answered on 7 Mar 2019:

Water has several ways of “dancing”. On the one hand, this is how a molecule moves, which would be the general dance steps. In this image, you can see what are the movements that each molecule can do:

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Adelle

And on the other hand, it is like water dancing together.

Liquid water does not dance in the form of ice or in a gaseous state. In a snowflake the movements are like in a Tattoo, all ordered, rhythmic, following a pattern.

Something like this:

In other surfaces, it is more similar to this :



Some are grouped like “clusters”, others are dancing alone, all depends of the space and the music that was playing.

Part of my job is to see how these differences are to know where and how water likes to dance to the water. We know what are the basic steps (atomic movements) and we have different devices (spectrometers, spectrophotometers) that help us say, depending on the physical state or the environment as this dance is produced.

One student read on Kathryn’s profile that she works with crystals, and so started a conversation in their live chat about their favourite crystal. By sharing a common interest with Kathryn, the student begins to see scientists as ‘people like me’, contributing to their science capital*:

“Where was the first crystal found?” - Student

“Ooh not sure, cos really crystals are all around us so everyone has always found them!” -

Kathryn, scientist

“@Kathryn what is your favourite crystal you found over you long years of working as a scientist.

Mine is an emerald” - Student

“I really love copper sulphate. It's really cheap and you can grow it yourself, but the colour is such a beautiful rich blue. Also it will stick to a magnet, which is pretty cool!” – Kathryn, scientist

“Does a copper sulphate look like a sapphire?” - Student

“Yes it does!” – Kathryn, scientist

In this kind of conversation about a common interest, a rapport can start to develop between students and scientists. This rapport can help a student come to see the scientist as someone relatable or ‘like me’, someone they know, which, in turn, supports the development of their science capital.

*The science capital teaching approach helps teachers to support and further build their students’ science capital. Science capital is an individual’s science-related resources – their knowledge, attitudes, experiences and social contacts – which help them engage with science. The more science capital someone has, the more they feel it is ‘for me’. More info at imascientist.org.uk/science-capital



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Scientist winner: Russell Arnott

Russell's plans for the prize money: "I've put together a talk called "Sea Soup – why you should care about plankton"...It involves dressing up in silly costumes and showing off how amazing plankton are. It is accompanied by an awesome plankton workshop where pupils get to analyse seawater and discover the plankton that lives in there using microscopes. I would use the prize money to take my talk / workshop to as many deserving schools as possible!"

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

Student winners: Druv and Kaden

Druv and Kaden from Mandeville Primary School shared a login in the Rutherfordium Zone. They were nominated by the scientists for their 'active participation' in their live chat. They 'always responded back to the scientists' answers to their questions and had good conversation with Adelie especially.' As the student winners, Druv and Kaden will receive a certificate and a gift voucher.

Feedback

We're still collecting feedback from teachers, students and students but here are a few of the comments made about March's I'm a Scientist activity...

It was fab! The children were engaged, there was a buzz around the room! What a pleasure to witness and inspire them! – **Teacher**

[I have learnt] scientists are normal people aswell not just nerds – **Student**

love the live chats! It gives students the chance to ask anything and they really do! I have grown so much through my participation in this event! Thank You! – **Scientist**

Jose Angel Martinez @jomartg_ · Mar 5
 Warming the fingers for today's Chat with the students of Irester Community Primary School @imascientist @STFC_Matters @isisneutronmuon #Rutherfordium_Zone
 1 1 2

Jose Angel Martinez @jomartg_
 The chat session has just ended but not the joy of having so many students asking for your science work or your motivation. Science Rules!!!!
 2:52 PM - 5 Mar 2019

I sign up every term as it is a great addition to help students engage with science. It also ticks an Ofsted box of helping disadvantaged students to relate what happens in the classroom to the real world. – **Teacher**