

## March, 2019

The Molecule Zone was a themed zone for Scottish schools, supported by ScotCHEM and with chemists based at universities in Scotland.

- Sylvia Soldatou works on marine organisms to discover new antibiotics at University of Aberdeen.
- Sumit Konar creates new crystals and molecules and solves their structures at the University of Edinburgh.
- Martin McCoustra, the winner of the zone, is an astrochemist at Heriot-Watt University who studies how chemistry controls the evolution of the universe.
- Kate McGonagle at the University of Dundee creates molecules that can kill parasites.
- Bryony Hockin, a PhD student at University of St Andrews, studies chemical reactions powered by sunlight.
- Aryanne Finnie, a PhD student at the University of Strathclyde, makes gold nanoparticles for bacteria-finding sensors.
- Andrew Jamieson, from the University of Glasgow, was due to take part in the zone but unfortunately had to withdraw from taking place before the start of the event.

### Key figures from the Molecule Zone and the averages of the March zones

| PAGE VIEWS | MOLECULE ZONE | MAR '19 ZONES AVERAGE |
|------------|---------------|-----------------------|
| Total zone | 18,435        | 15,399                |
| ASK page   | 1,326         | 1,114                 |
| CHAT page  | 1,080         | 1,291                 |
| VOTE page  | 1,295         | 1,327                 |

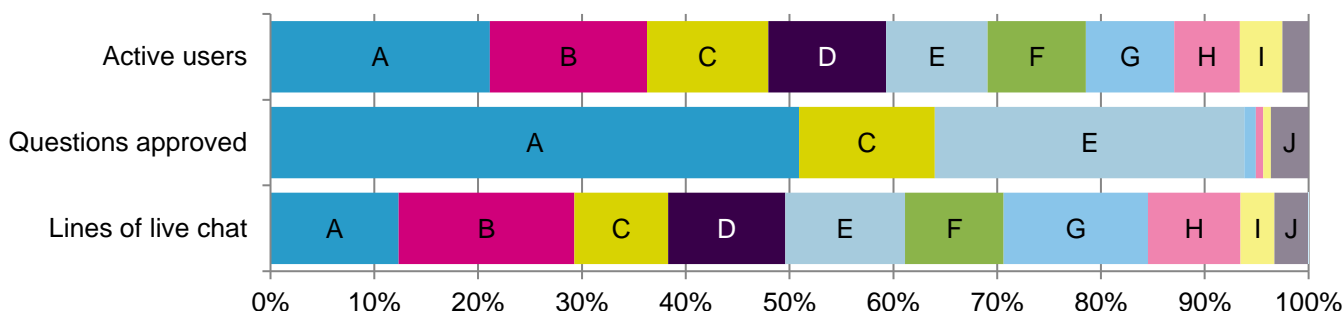
### Popular topics

Students asked 573 questions in ASK, and many more in live chats. They wanted to discuss chemistry, crystals, molecules and science experiments. Questions about molecules and particles themselves were often relating to the process behind the science, or about the wider context of the science – for example: “how do you think your investigation/research will impact the community?”

Students asked about the scientists’ daily lives, both in and outside work. They were keen to get to know the scientists as people, and to know about their hobbies and interests.

|   | MOLECULE ZONE | MAR '19 ZONES AVERAGE | IAS 2012-19 AVERAGE |
|---|---------------|-----------------------|---------------------|
| Molecule Zone Schools                     | 10            | 8                     | 10                  |
| Students logged in                        | 338           | 388                   | 391                 |
| % of students active in ASK, CHAT or VOTE | 94%           | 92%                   | 86%                 |
| Questions asked                           | 573           | 443                   | 675                 |
| Questions approved                        | 275           | 216                   | 297                 |
| Answers given                             | 770           | 437                   | 532                 |
| Comments                                  | 38            | 29                    | 71                  |
| Votes                                     | 315           | 312                   | 308                 |
| Live chats                                | 23            | 19                    | 16                  |
| Lines of live chat                        | 6,982         | 6,732                 | 5,711               |
| Average lines per live chat               | 304           | 352                   | 358                 |

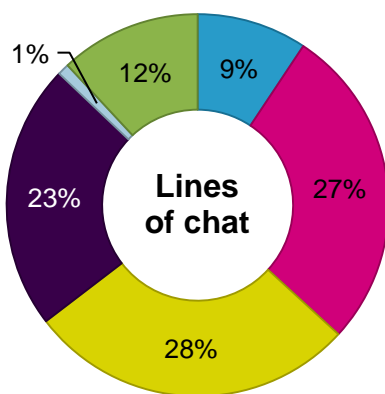
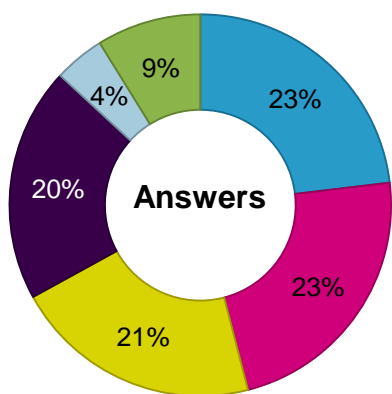
**School data at a glance**



| School  | Year/s | Classes |
|---|--------|---------|
| <b>A</b> St Joseph's College, Dumfries & Galloway, U      | S3     | 5       |
| <b>B</b> Lasswade High School Centre, Midlothian          | S1, S2 | 4       |
| <b>C</b> Vale Of Leven Academy, West Dunbartonshire, WP/U | S2, S3 | 3       |
| <b>D</b> Levenmouth Academy, Fife, WP/U                   | S1     | 2       |
| <b>E</b> Arbroath High School, Angus, U                   | S2, U  | 2       |
| <b>F</b> Smithycroft Secondary School, Glasgow City, WP   | S1     | 1       |
| <b>G</b> Auchinleck Academy, East Ayrshire, WP/U          | S3     | 2       |
| <b>H</b> Mallaig High School, Highland, U                 | S1, S4 | 2       |
| <b>I</b> Tain Royal Academy, Highland, U                  | S3     | 1       |
| <b>J</b> Kirkcudbright Academy, Dumfries & Galloway, U    | S3     | 2       |

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/](http://about.imascientist.org.uk/under-served-and-wp/)

**Scientist activity**



| SCIENTIST        | PROFILE VIEWS | POSITION |
|------------------|---------------|----------|
| Martin McCoustra | 877           | Winner   |
| Sylvia Soldatou  | 638           | 2nd      |
| Sumit Konar      | 891           | 3rd      |
| Kate McGonagle   | 476           | 4th      |
| Aryanne Finnie   | 456           | 5th      |
| Bryony Hockin    | 343           | 6th      |



Sylvia



Sumit



Martin



Kate



Bryony

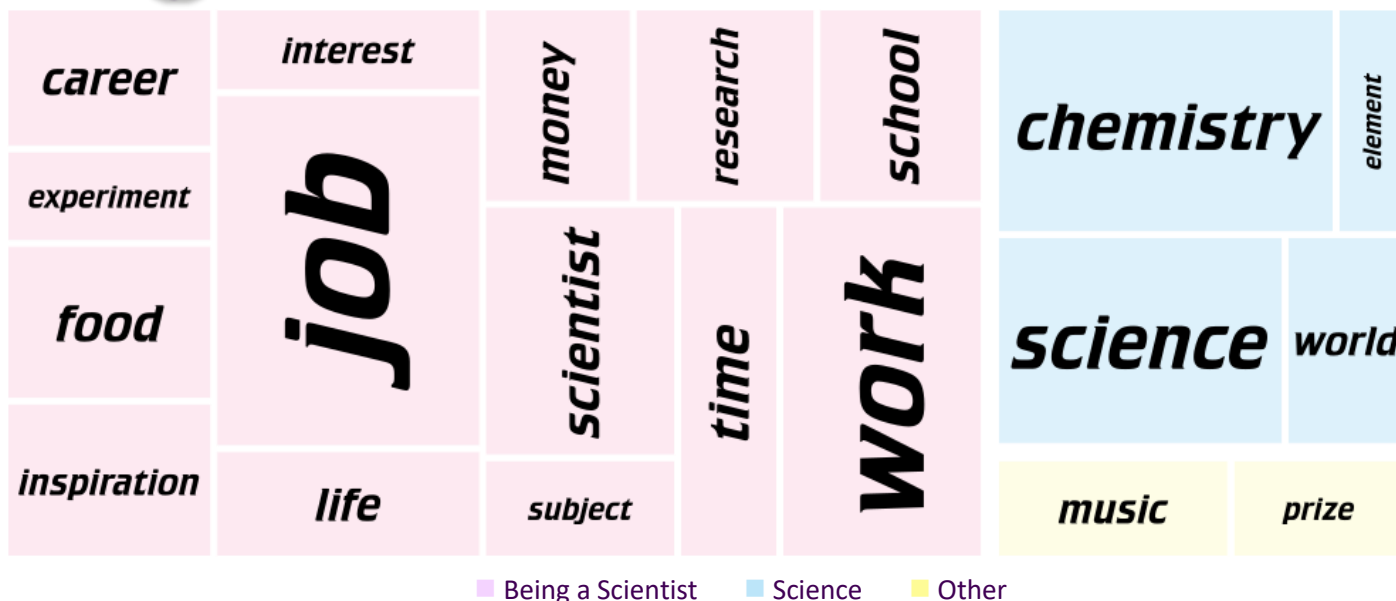


Aryanne

Ask?

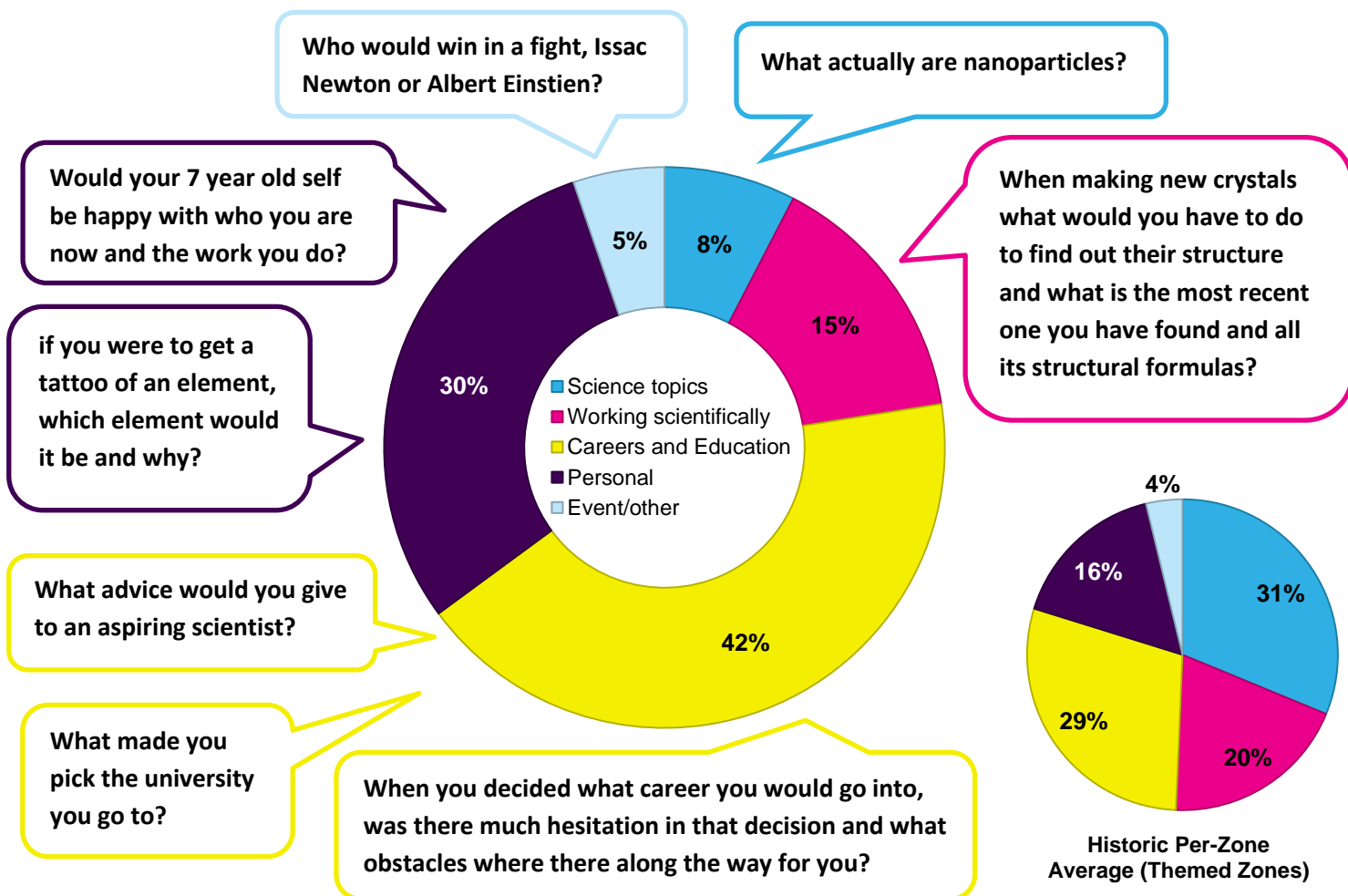
Top Keywords of questions approved in the Zone

Area represents frequency of use



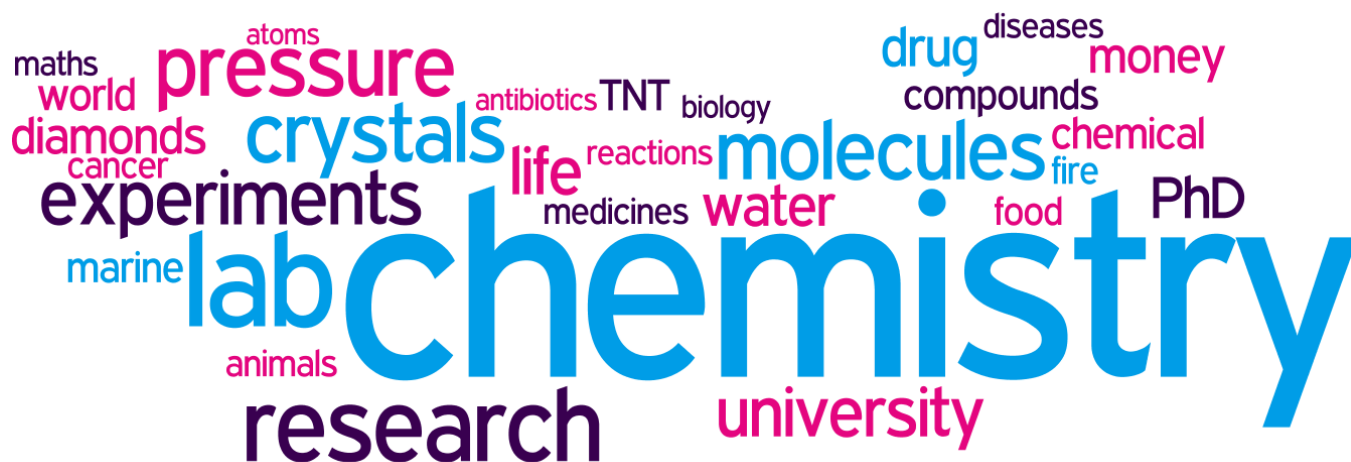
Question themes and example questions in the Zone

Find out about how we've coded the questions at [about.imascientist.org.uk/what-do-students-ask-about/](http://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' conversations with the scientists would start with one question, but broaden to involve personal experiences and sharing interests. One student learned that scientists can travel the world for their work with this conversation with Sylvia:

*"What is it you get from the bottom of the ocean?" - Student*

*"We collect sponges, corals, algae and microorganisms that live within organisms or that live in sediment samples or in the water" - Sylvia, Scientist*

*"That sounds so interesting, what has been your favourite discovery?" - Student*

*"Thank you! My favourite discovery is a set of new compounds I found from an Irish red algae and showed to have anticancer activity. Of course these are preliminary results but are very promising!" - Sylvia, Scientist*

*"That would be very interesting. Would u want to work anywhere else in the world?" - Student*

*"I would like to live in Australia for a couple of years. I was also in Norway a couple of weeks ago for a scientific meeting and I loved it, so wouldn't mind working there!" - Sylvia, Scientist*

*"I love Norway I would love to go there one day myself" - Student*

The scientists would also ask the students questions to start conversations:

*"Hi.. do you know how to make a diamond?" - Sumit, Scientist*

*"@Sumit put it under very high pressure" - Student*

*"Very good, how high?" - Sumit, Scientist*



*"I'm not sure how high!" - Student*

*"i can generate very high pressure between two diamonds.. millions times higher than atm pressure. 6 GPa...60000 atm" - Sumit, Scientist*

*"So 60000 higher than atmosphere pressure?" - Student*

*"Yes that's right. I can make this pressure at the laboratory" - Sumit, Scientist*

*"So have you made a diamond?" - Student*

*"Yes I've made a diamond. But only once." - Sumit, Scientist*



### **Scientist winner: Martin McCoustra**

Martin's plans for the prize money: *"I want to donate the money to the Heriot-Watt University Student Chemical Society with the proviso that it is used to support activities in which our students reach out to schools across Scotland and perhaps more widely."*

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

### **Student winner: Kate**

Kate from St Joseph's College was nominated by the scientists for "asking a direct question and relevant question" to one particular scientist, and for sending "the most thought provoking questions" in their chat.

As the student winner, Kate will receive a certificate and a gift voucher.

### **Feedback**

We're still collecting feedback from teachers, students and scientists but here are a few of the comments made about the Molecule Zone...

I would have loved something like this when I was at school because I didn't know a thing about this job! I kind of fell into it, but I love it, so it's lucky!

Even if it helps a few students to decide – that's absolutely NOT for me, it's good to be informed! – **Kate, scientist**

Our pupils thoroughly enjoyed engaging with scientists in the Molecule zone. There was a buzz about the activity during BSW and pupils were certainly keeping track at home and on their mobile devices. The fact that the scientists were all based in Scotland made a difference as the pupils identified with their locations. The mention of the prizes for good questions also helped motivate pupils too.

We felt that pupils learned a lot about scientific careers and opportunities for the future without really realising it ...and they had fun. – **Julie, teacher**





Sylvia



Sumit



Martin



Kate



Bryony



Aryanne

And here are a few made about the March *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] a lot really about the level I should keep in a conversation to keep interest and how to give students little snippets of info so they do become curious... a crash course in communication really.

And I think I just became passionate about them, who they are what they think, what interests them – **Sylvia, scientist**

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

Thank you very much for answering all of our questions. we have learnt a lot today and we really appreciate it because it has truly inspired us to follow our dreams and not worry about all the bumps in the way – **Student**

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**

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**