

# March 2021

The Space Zone ([space21.imanengineer.org.uk](https://space21.imanengineer.org.uk)) ran from 1 to 19 March 2021.

The Zone was funded by the **UK Space Agency** and featured engineers working across the UK space sector.

## Key activity figures

	Space Zone
Schools	12
Students logged in	459
Students active	86%
Engineers	8
Engineers active	88%
Questions asked	122
Questions approved	75
Answers given	99
Engineer comments	6
Student comments	4
Live chats (total)	25
Live chats (schools)	22
Lines of live chat	5,773
Average lines per live chat	262

## Engineers

8 engineers took part. They included:

- **Naziyah Mahmood** — Earth Information Sales Engineer at Spire Global
- **Adriana D'Souza** — Configuration Management Process Architect for Systems at Airbus
- **Namrah Habib** — PhD student in Atmospheric, Oceanic and Planetary Physics at the University of Oxford

## Students

459 students from 12 schools across the UK logged into the Zone.

71% of active students were from target schools: 47% from widening participation schools and 27% from underserved schools.

## Live chats

25 live chats took place during the activity: 22 were school classes booked by teachers and 3 were additional chats, open to all the students.

An additional 4 live chats were booked, but the schools were unable to attend.

There were 2 instances of teachers asking questions on behalf of their classes in live chats. This means the number of students reached may be higher by up to 50.

On average, 2 engineers attended each live chat.

## School activity

Students from 12 schools across the UK participated in the Zone. In addition to live chats booked by teachers, there were 3 Thursday evening chats for the students and their families.

School	Active users	Live chats attended	Total lines of live chat	Questions asked (& approved)
Sir Herbert Leon Academy, Milton Keynes (WP)	161	7	1,504	23 (9)
Lumley Junior School, Chester le Street	75	3	904	5 (4)
Howden Junior School, Goole (U)	43	2	645	25 (19)
Priestley College, Warrington (U)	27	2	117	1 (1)
Allerton High School, Leeds	23	1	198	45 (29)
Kings Priory School, North Shields	18	2	112	0 (0)
Guisseley School, Leeds (U)	15	1	41	0 (0)
The Brow Community Primary School, Runcorn (WP/U)	15	1	137	0 (0)
New Bridge School, Oldham (WP)*	9	1	54	21 (9)
Coleg Cymunedol Y Dderwen, Tondur (U)	6	1	73	0 (0)
Queen Elizabeth's Girls' School, Barnet (WP)*	1	1	30	0 (0)
Robert May's School, Hook (U)	2	0	0	4 (4)

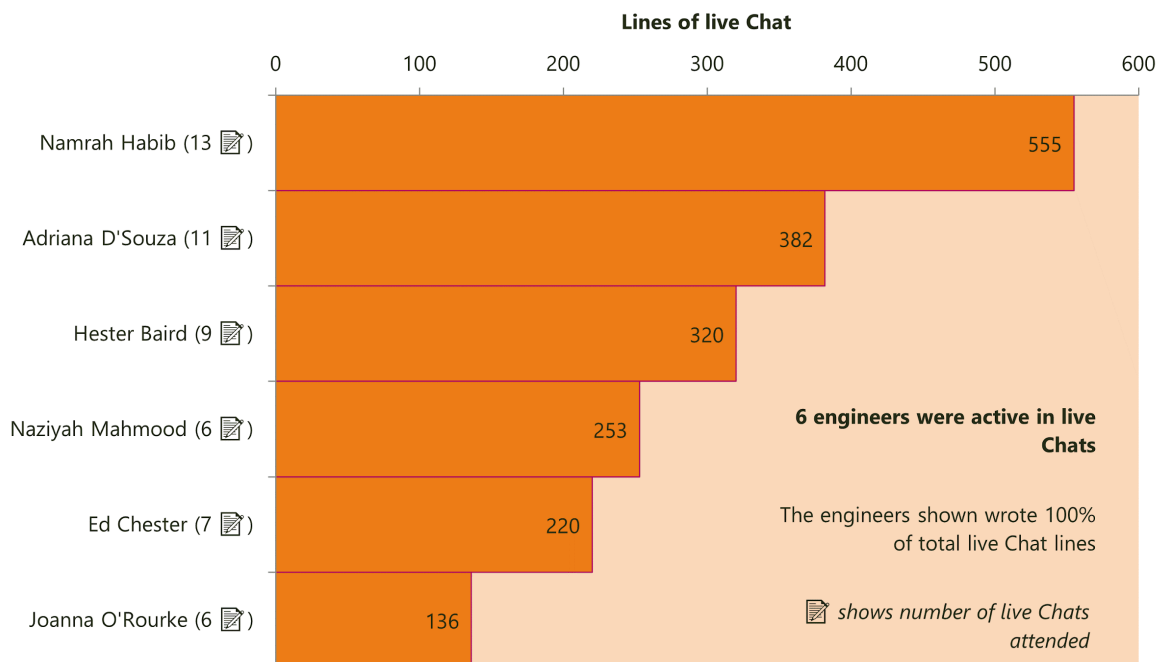
\* In these chats teachers typed questions on behalf of their students.

We want to increase the participation of under-represented groups. Find out what we mean by under-served (U) and widening participation (WP) schools, and how you can support us in working with more of these: [about.imascientist.org.uk/under-served-and-wp](http://about.imascientist.org.uk/under-served-and-wp)

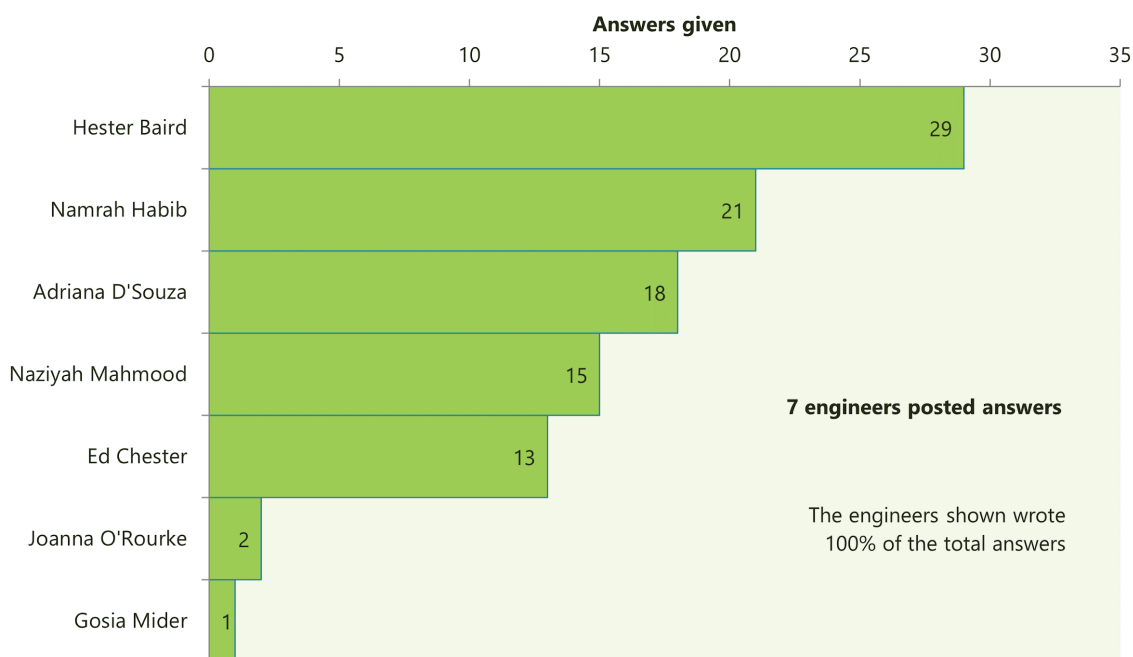
# Engineer activity

7 engineers were active in the Zone, writing 1866 lines of live chat, and providing 99 answers to 75 posted questions. See all the participating engineers at: [space21.imanengineer.org.uk/engineers](http://space21.imanengineer.org.uk/engineers)

## Most active engineers in live Chats



## Most active engineers in posting answers



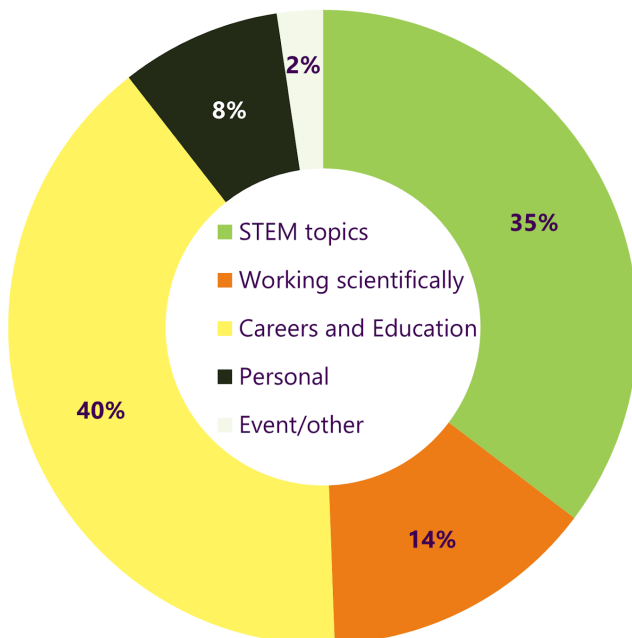
## Frequent words used in live chats

The word cloud below demonstrates what students and engineers talked about in live chats. The bigger the word, the more frequently it was used (word colour has no significance).



## Question themes and examples

The chart below shows a breakdown of questions students sent to the engineers. Examples are coloured by category.



What is an example of a type of satellite?

How much longer will the atmosphere sustain air travel?

## How long does it take to build a rocket?

Could you not make a way to gain energy on the journey to said planet? For instance if you added solar panels to the spacecraft.

What day-to-day challenges do you face?

Did you have trouble finding a career you wanted to be when younger?

Do you have a good balance between your work and personal life?

## Examples of good engagement

Students were keen to get practical advice about careers in space engineering:

**Student:** If someone is interested in what you do, what advice would you give them?

**Namrah (Engineer):** I would tell them to try it out! There are student internships, apprenticeships, and student projects from NASA that let you get involved in studying space systems and they can be really fun and a good way to explore the field

**Namrah:** Are you interested in studying planets?

**Student:** I like studying planets, but it's not my favourite thing in school!

**Namrah:** Whats your favourite subject?

**Student:** my favourite subject is art as i have been drawing and painting most of my life :D

**Namrah:** Beautiful!

Students also learnt about the practicalities of designing machines for space, and the day-to-day concerns of a space engineer:

**Student 1:** how would you fix a problem with a rover on the surface of Mars? do the rovers have a built repair facility?

**Joanna (engineer):** It depends what kind of problem it is. [...] We need to design the rover so it has the right number of spares for what we think could happen to it, so we try not to have single point failures, where if something breaks then it's the end of the mission. Sometimes you can't avoid that, and then it's a question of how likely you think that failure is

**Student 2:** Sounds like a lot of risk assessments and trying to foresee problems in the future!

**Student 1:** so you try to calculate the probabilities of the parts failure?

**Joanna:** Yep, we have specific engineers who do that, and it all feeds into the design. If there's a high probability of failure we'd probably have a spare.

Students learnt about the importance of learning from mistakes, and resilience in the face of frustration:

**Student:** what is the hardest part of your job ?

**Namrah (engineer):** The hardest part of my job I would say is the coding! I'm usually really good about coding but I really struggle to find errors in my code and debug!

**Student:** I have the same problem in it! Coding is not my favourite:(

**Namrah:** I tell myself that each error is me getting better and learning! I bet the same is true for you!

**Student:** yes it is! You can't learn without mistakes!

**Namrah:** Agreed!

Students also learnt about opportunities for people with disabilities:

**Student:** Can people with disabilities go into space now or will they be able to in a few years?

**Namrah (engineer):** I think in the current round of ESA astronaut applications they are considering people with disabilities.

**Ed (engineer):** One of the important things to note here is that in space, in microgravity, people who have conditions that make mobility harder for them on Earth - will not be 'disabled' by these in space.

**Student:** Brilliant!

# Engineers of the Week

Students voted each week for their favourite engineer to be named Engineer of the Week.

The Engineers of the Week were:

- **Hester Baird** - Orbital Analyst at Northern Space and Security
- **Ed Chester** - Space Systems Engineer at Goonhilly Earth Station

The overall winner, with the most votes at the end of the Zone was Hester Baird, who wins £500 to spend on further STEM engagement.



**Hester Baird**

First Engineer of the Week  
and Zone winner



**Ed Chester**

Second Engineer of the Week

## Feedback



**CCYD STEM**  
@CCYD\_STEM

We had a great time at virtual #STEM club today, chatting with space engineers who model the atmospheres of planets (wow rock vapour!) and build satellites and space rovers! Great questions everyone! 😊

Thanks @IAEGMOOH for having us in the #SpaceZone! 🚀👩🏫

It has been great, thank you! The children have really enjoyed the session and are now really keen to go away and do more research. Thanks!

**Teacher**

Namrah thankyou for taking the time out ur day to speak with us it been so intresting thankyou so much

**Student**

Thank you so much for your time today to talk to us. It's been so interesting

**Teacher**

Thank you for your time and responses! It has been a a lot of fun and really interesting. I could ask questions all afternoon... But, thank you!

**Student**

The last couple weeks have been a lot fun! I actually participated in more chats than I originally thought because I really enjoyed all of them :)

**Namrah (engineer)**