

# June and July 2021

The Candela Zone ([candela21.imanengineer.org.uk](https://candela21.imanengineer.org.uk)) ran for 6 weeks, from 7 June to 16 July 2021. It was funded by the **Digital Engineering Technology & Innovation (DETI)** programme at the University of the West of England.

The Zone featured engineers from across the UK working in a broad range of fields.

2 of the participating schools were based in the West of England Combined Authority (WECA).

Originally intended to run for 4 weeks, the Zone was extended to give teachers and their students more time to engage with it. This was due to the coronavirus pandemic, which was impacting teaching and learning in schools by causing almost 1 in 4 school students in the UK to be absent<sup>1</sup>.

## Key activity figures

Schools	19
Students logged in	580
Students active	86%
Engineers	36
Questions asked	199
Questions approved	130
Answers given	436
Engineer comments	55
Student comments	5
Live chats	42
Lines of live chat	12,260
Average lines per live chat	307
Votes cast	234

## Engineers

36 engineers created a profile in the Zone.

You can see who took part at [candela21.imanengineer.org.uk/engineers](https://candela21.imanengineer.org.uk/engineers)

The winning engineer with the most votes from students was **Chloe James**, Integrated Logistics Support Engineer at BAE systems.

## Students

580 students from 19 schools across the UK logged into the Zone.

44% of active students were from target schools: 34% from widening participation schools and 19% from underserved schools.

## Live chats

42 live chats took place during the activity: 36 were school classes booked by teachers and 6 were additional chats, open to all the students.

There were 6 live chats where teachers asked questions on behalf of their students. Therefore, the number of students reached will be higher by about 150.

On average, 6 engineers attended each live chat.

<sup>1</sup> Reference: [school attendance figures published on gov.uk site](#)

## School activity

Students from 19 schools across the UK participated in the Zone. In addition to live chats booked by teachers, there were Thursday evening chats for the students and their families.

School	Active users	Live Chats attended	Chat lines (total)	Questions approved
Bristol Cathedral Choir School, Bristol	152	8	1490	17
Westfield Primary School, Radstock	96	4	1654	3
Westbourne Academy, Ipswich (WP/U)	44	4	432	15
St John's Church of England Primary School, Dorking (WP) *	33	4	715	1
Allerton High School, Leeds	29	1	250	42
Maltings Academy, Witham (U)	29	1	176	1
Queen Elizabeth's Girls' School, Barnet (WP)	25	1	89	10
Malmesbury Primary School, Morden (WP)	23	1	60	16
The John Roan School, London (WP)	22	1	279	3
St Dominic's High School, Belfast (WP)	21	1	405	16
Dunfermline High School, Fife	10	1	133	4
Beaulieu Convent School, Jersey (U)	8	1	82	2
Coleg Cymunedol Y Dderwen, Tondur (U)	8	1	80	0
The New Beverley Community Primary School, Leeds (WP) *	6	3	123	0
Aberdare Community School, Aberdare (U)	5	1	64	0
Potters Bar Clinic School, Potters Bar *	2	3	65	0
Primary School, London (WP) †	1	5	233	0
Great Hockham Primary School and Nursery, Thetford (U) *	1	1	20	0
Salisbury Sixth Form College, Salisbury (U)	1	1	9	0

\* In some of these chats teachers typed questions on behalf of their students, with the chat displayed on a screen.

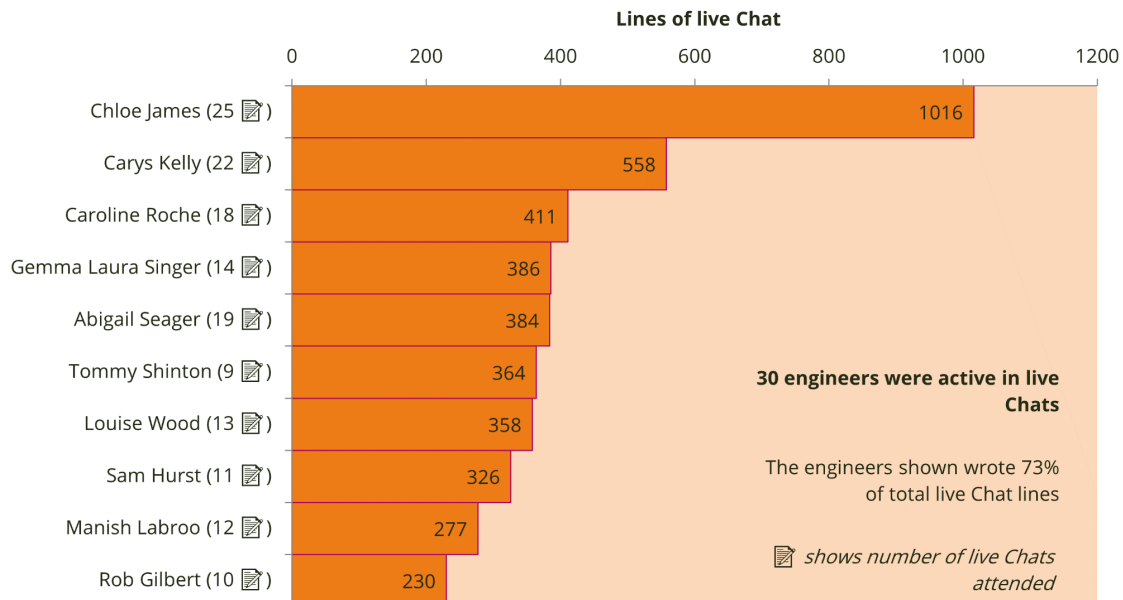
† One student from this school attended 5 Thursday evening chats. School name removed for safeguarding.

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.imanengineer.org.uk/under-served-and-wp](https://about.imanengineer.org.uk/under-served-and-wp)

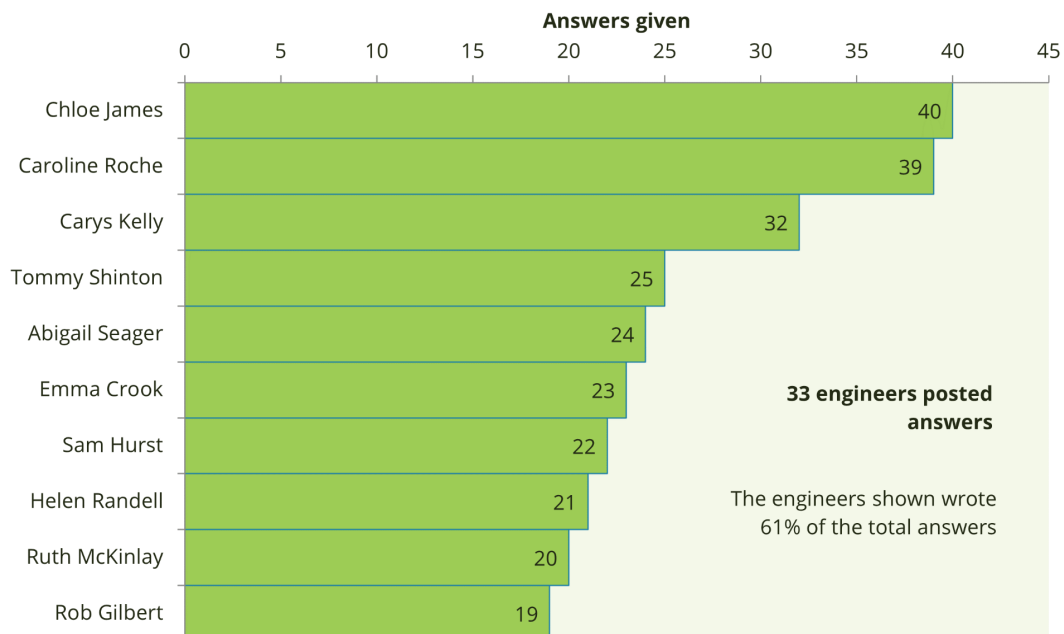
# Engineer activity

During the Zone the engineers interacted with students by writing 5,913 lines of live chat, and providing 436 answers to 130 posted questions.

**10 most active engineers in live Chats**



**10 most active engineers in posting answers**



app idea  
office spend  
material  
world  
degree  
life  
physics  
chemical  
university  
safe  
system  
covid  
technology  
money  
equipment  
data  
school  
project  
bridge  
team  
graduate  
fix  
company  
design  
math  
meet  
test  
solution  
ship  
train  
gas  
power  
water  
career  
travel  
dangerous  
warship  
challenge  
food  
sky  
sound

Topic	Percentage
Careers and Education	65%
Personal	24%
Working scientifically	7%
STEM topics	2%
Event/other	2%

Are you a feminist?

## Good engagement

Many of the students in the Zone were interested in the different career paths they could take to become engineers, and whether they would need to go to university.

**Student 1:** do you need a degree in physics to become an engineer?

**Mark (Engineer):** Definitely not. You don't even need a degree. Apprenticeships are a good way to become an engineer. This was my path.

**Student 2:** Did you have a background in construction before becoming an engineer or is it a job you can get straight into from university?

**Sam (Engineer):** You can get to the very top in construction via an apprenticeship or university but the university route is much quicker. I had no background in construction and wanted to join the Army

**Student 2:** Do you need a university degree to do an engineering apprenticeship or can you start straight from school?

**Sam:** vary depending on the scheme you undertake and where you are doing it: At your workplace At your college or university through a day-release or a block-release Through self-guided study or research

These primary school students were excited to see if the engineers had any ideas for bringing their favourite Marvel characters to life. The opportunity for students to ask the questions that really interest them helps students get excited about engineering, and makes it more relevant to them.

**Student 1:** is it possible to make an iron man suit?

**Carys (Engineer):** you couldn't make one as good as the one in the movie, but I'm sure someone could code and build a suit with armour

**Student 2:** Could you make Jarvis from the avengers?

**Ruth (Engineer):** You would need a coder for that! I'm rubbish at coding

**Carys:** you could make some of it! Like Ruth says, some very clever coding would need to be done as Jarvis is very complicated. But you'd also need to build him. We could build something like this but maybe a very simple version

Throughout the Zone students learned about the variety of roles in engineering, as well as common misconceptions. Not all engineers build things, and you certainly don't need to be a genius.

**Student 1:** @all what do you think the biggest misconception of engineering is?

**Abigail (engineer):** That you have to be a genius to be an engineer. I'm definitely not a genius but I love being an engineer!

**Rob (engineer):** People seem to confuse mechanics and engineers. Like when the photocopier is broken people say they've called an 'engineer'! In other countries an engineer is a protected title and doesn't get misused. (And I wonder if this misuse confuses people about the career of engineering which is a shame)

**Carys (engineer):** That you're someone who hands on builds things. Some engineers do this, but a lot of us have desk jobs and never build anything

**Chloe (engineer):** that it's all spanners and overalls! Some engineers do use these things, but others don't

**Caroline (engineer):** It's all about physically making things, wearing hard hats and following large drawings. I build things but it's all on a computer in my nice office.

Many of the students were interested in diversity within the engineering sector, and whether the engineers had ever experienced any challenges as a result of their identity.

**Student 1:** do you think its difficult to be an engineer as a woman or is it easier now

**Emma (Engineer):** the only thing that you notice being a woman is sometimes the lack of other women! but recently ive been in a lot more meetings where it's been 50/50 men and women and thats great!

**Louise (Engineer):** The only difficult I have is in physical strength. I don't get treated any different. As Emma points out, there is a lack of women, there is a drive to get more female engineers into engineering so right now I think its easier.

**Emma:** I think times have changed for the better and it is easier to be a woman in industry now. However, I have had awkward experiences of no one knowing where my bathrooms are and unfortunately I have also experienced bias in select projects I have worked on. Having said this it is few and far between.

**Student 2:** is there diversity in engineering?

**Helen (Engineer):** its definitely getting better - i've worked with a huge range of people as an engineer

**Sam (Engineer):** The UK has less women in Engineering then every other European Country but we are trying very hard to change this. Women are very collaborative and bring a good edge to any team. Diversity in other ways is good but could be improved.

**Chloe (Engineer):** I'm one of few women in my team, but we are working hard to change that and encourage more young women to think about engineering as an option!

**Gemma (Engineer):** Yes, but there is definitely more to be done. It's just slow as people gain the confidence to talk about their own diversity ... whether that is their heritage or being part of the LGBTQI+ community.

Many students were taking exams at the time of the Zone and the engineers had plenty of encouragement and advice for the students.

**Student 1:** @all can you still get a high up/complex job if you don't score top marks?

**Gemma (engineer):** Yes! I really didn't do that well when I got to university (I got a 2:2) but that hasn't stopped me from progressing in my job. I also know engineers who never went to university. It's much more about having the right attitude on the job.

**Carys (engineer):** you definitely can, if you don't have the best grades you can go through college then go onto uni. If anything you'll be better when you get into your job, as you've taken your time and learned at your pace

**Ruth (engineer):** Yes of course! There are so many different ways to get into technical roles, if you really struggle with exams you can go through an apprenticeship route or take a foundation degree at university instead

**Chloe (engineer):** 100%! I nearly failed my A Levels and still managed to get into university to study engineering. There are also options for college, or apprenticeships, and a lot of places are more flexible with grades now



# Engineers of the Week

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

The first, second, third, and fifth Engineers of the Week were:



**Rob Gilbert**

Civil Engineer who designs bridges for ARCADIS



**Tommy Shinton**

Civil Engineer who designs flood defences for AECOM



**Gemma Singer**

Mechanical Engineer designing medical equipment at mOm Incubators



**Ruth McKinlay**

Lead mechanical asset engineer for INEOS

The fourth engineer of the week was also the overall winner at the end of the Zone:

- **Chloe James**, Integrated Logistics Support Engineer at BAE systems.

As Zone winner, they receive £500 to spend on further public outreach projects.



"I've had a really great time taking part in this event and hope that it has inspired young people from across the UK, and shown that engineering can be a really good, inclusive career choice.

I'd also like to say a huge thank you to the *I'm an Engineer* team for organising such a great event. Things have run so smoothly and this wouldn't be possible without the help from the moderators who have been excellent at moderating questions and just being generally lovely.

I also really appreciate the other engineers for answering so many questions and teaching me lots of new things; I feel like I've learnt so much in this Zone."

You can read Chloe's full statement at

[candela21.imanengineer.org.uk/2021/07/20/a-thank-you-from-your-winner](https://candela21.imanengineer.org.uk/2021/07/20/a-thank-you-from-your-winner)



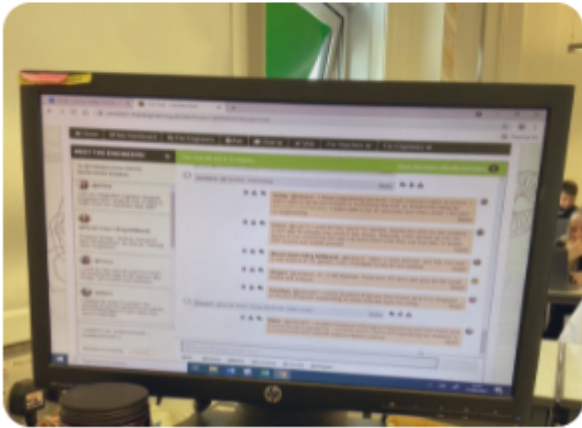
## Feedback



**Dunfermline HS Chemistry**

@DunHSCChemistry

Mrs HF's class are having a great afternoon chatting to real engineers thanks to @IAEGMOOH @DunfermlineHS @DunHSBiology @PhysicsDhs #candelazone #stemcareers #STEM #dhsproud



Thanks everyone - we have all thoroughly enjoyed this session. Absolutely brilliant and so inspiring!

**Teacher**

thank you very much, your answers were very detailed and helped us give an insight into your lives.

**Student**

These chats have been such an enriching opportunity. What a great opportunity to find out more about engineering and each of your specific jobs and projects.

**Teacher**

I'm really impressed with how well everything has been run, I took part in a lot of chats and all of them have been great.

**Engineer**