



January - March 2020

The ExoMars Rover Zone was funded by the UK Space Agency, as part of the Space Exploration Education and Outreach Award Scheme. The activity allowed school students to connect with different teams who worked on the ExoMars mission, gaining insights into the engineering, science and technology needed to send a robot to another planet.

The ExoMars Rover Zone was initially planned to run from January - July 2020. However, due to the COVID-19 pandemic and the school closures that ensued, the decision was made to close this zone early.

Four teams took part in this zone:

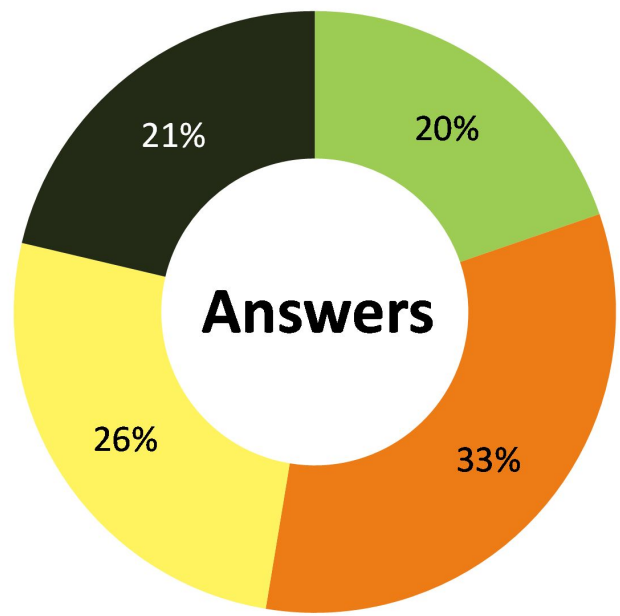
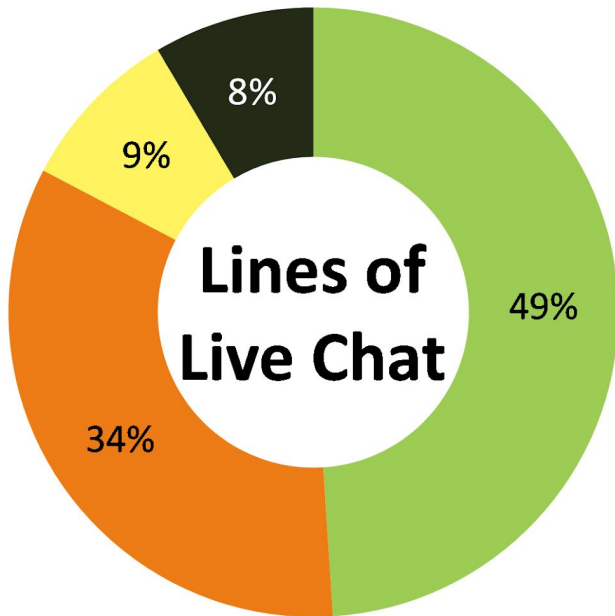
- **Engineering Team** - a group of engineers from Airbus, responsible for the design, building and testing of the ExoMars Rover. The members of this team were Paul Meacham, Abbie Hutty, Alex Taylor-Gates, Paul Norridge, and Trevor Deacon.
- **Planetary Science Team** - a group of scientists who helped to select the landing site, and are now studying it. The members of this team were John Bridges, Adam Parker Bowen, and Peter Fawdon.
- **PanCam Team** - a group of engineers and scientists who designed and built the PanCam, the main scientific camera on the ExoMars Rover. This team consisted of Craig Leff, Divya Persaud, and Andrew Coates.
- **ESA Project Systems Team** - a group of managers, administrators, and engineers working at the European Space Agency responsible for the management and coordination of contractors who are building and testing the ExoMars Spacecraft. The members of this team were Stephen Durrant, Andrew Ball, Yuri Yushtein, Leila Lorenzoni, Joe Pereira, and Coralie Alary.

Key figures

Due to the Covid-19 Pandemic, and the early closure of the Zone, the amount of questions submitted to the Teams was not as high as expected. Despite this, for the time ExoMars ran, there was high student engagement with 89% of participating students submitting questions to Ask, and participating in Chat's and Voting.

EXOMARS ROVER ZONE	
Schools	20
Students logged in	591
% of students active in ASK, CHAT, VOTE, or comments	89%
Questions asked	242
Questions approved	185
Answers given	283
Scientist comments	17
Students comments	8
Votes	253
Live chats	30
Lines of live chat	8,739
Average lines per chat	291

Engineer activity



Key	Team	Lines of chat	Answers
	Project Systems (ESA)	1277	87
	Engineering (Airbus)	879	145
	PanCam	229	115
	Planetary Science	222	94

Popular topics

Students in the ExoMars Rover Zone engaged well with the engineers' work. A majority of the questions focused on the Teams' projects, such as time to completion, and how the rovers will conduct research on Mars. There were also ethical questions regarding the need to research Mars, when there are many humanitarian concerns on Earth. Space in general was a popular topic.

Students also focused heavily on the engineers' jobs and career choices. There were a lot of questions about how to become an engineer, if the job is enjoyable, and what alternative careers the engineers would choose.

School Activity



CLASSES

A	St Katherine's School, Bristol	2
B	St Bridget's Primary School & Nursery Class, Glasgow City (WP)	2
C	Sandymoor, Runcorn (WP/U)	3
D	Lancaster Girls' Grammar School, Lancaster	2
E	Smithdon High School, Hunstanton (U)	3
F	Allerton High School, Leeds	1
G	St Winefride's RC Primary School, London (WP)	1
H	Mid Yell Junior High School, Shetland Islands (U)	2
I	Clytha Primary School, Newport (U)	1
J	Ardrossan Academy, North Ayrshire (WP/U)	1
K	Robert May's School, Hook (U)	2
L	St Martin in the Fields High School for Girls, London (WP)	2
M	Smithycroft Secondary School, Glasgow City (WP)	2
N	Mallaig High School, Highland (U)	1
O	The Elton High School, Bury	1
P	Beech Hill Community Primary School, Wigan (WP/U)	1
Q	Reepham High School and College, Norwich (U)	1
R	The Heathland School, Hounslow (WP)	1
S	Kiveton Park Meadows Junior School, Sheffield	1
T	Llanyrafon Primary School, Torfaen (U)	1

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/

Engagement Examples

There were many discussions in live chats on how to become an engineer. Many students seemed unaware that there are vocational options that can help them progress in an engineering career, and not just the traditional university route:

MCrow27 how long hav you guys been engineers

Stephen - ESA Team @MCrow27: I've been working in Space companies since 1982, with a brief 2 year break to do a Masters Degree

MCrow27 @Stephen - ESA Team: wow you really stuck in with your work then

Stephen - ESA Team @MCrow27: Yep, in my first job as an apprentice I started working on Mechanisms and really enjoyed it, first as a draughtsman and then as an engineer after my Masters

MCrow27 @Stephen - ESA Team: oh that seems very cool if im honest i wouldnt of chose to be an engineer becausei didnt really understand it but as youve explained it it seems very cool and now i might consider it


Many students in Ask and the Chats wanted to know about the reasons behind the mission. There were ethical conversations such as this thoughtful question from a student, with Andrew explaining how learning about other planets can also help Earth:

? Question: why have you decided to try get to mars first instead of helping earth first as we might not be able to live on mars

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Keywords: [Earth](#), [help](#), [Mars](#), [space exploration](#)

Asked by [time130pen](#) on 19 Mar 2020.

 **Andrew Ball** answered on 19 Mar 2020: last edited 19 Mar 2020 6:42 pm

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It's not 'instead of' – we do 'as well as'; ESA has a world-leading programme of Earth observation missions to monitor and understand our environment, and we understand our own world better by comparing it with others with different climates.



Students often applied their wider scientific knowledge and understanding to the ExoMars project. In this example, they considered the implications of bringing back potentially contaminated rock samples from Mars. The engineers were all great at explaining topics like this in ways students could understand and relate to:

five130tea @all Are you worried that bacteria from Mars will kill everybody on Earth?

Abbie - Engineering Team @five130tea: Not really. There are loads of chunks of Mars rock that have landed on Earth as meteorites and we're not dead yet. We could have evolved from bacteria from Mars!

five130tea @Abbie - Engineering Team: But what if the heat from the rock from Mars killed the bacteria, but if you are taking a sample, then it's different, don't you think?

Abbie - Engineering Team @five130tea: Yes, true. But we will have very strict quarantine to make sure that nothing ever gets into the Earth environment, a bit like the labs where they keep samples of known diseases and things already.

Overall Winner

The Overall Winner of the Exomars Rover Zone was the ExoMars Rover Engineering Team.



The Airbus Team plan to spend the prize money on developing a new workshop in the STEM Centre. They will use mini robots (like Lego Mindstorms and BBC Microbit) to demonstrate the key parts of the ExoMars mission, such as determining the best place to drill and take a sample, and how to let the Rover drive itself across the surface of Mars.

Student Winner

Bump130cup was voted as the student winner of the ExoMars Rover Zone, for asking great questions throughout the event. Bump130cup has received a certificate and a £20 gift voucher.

Feedback

“They don’t want to go to their next lesson, they just want to keep chatting about space.”
Teacher

“Thanks guys! I really want a career in engineering, physics or chemistry and you have inspired me.”
Student.

“Thank you very much for the chat it was a great experience.”
Student

“Thanks for giving up your time. Our students really appreciate this.”
Teacher.

“Thank you all so much for all of your amazing replies. I enjoyed talking to all of you.”
Student