The NCETM Maths Podcast Episode 88

Exploring the STEM Ambassador Programme: Inspiring Maths Education in Schools

Julia Thomson: Hello and welcome to the NCETM Maths Podcast. I'm Julia Thomson from the NCETM Communications Team. In this episode, we are finding out more about the STEM Ambassador programme and how it can support the teaching of maths in both primary and secondary settings.

Joining me are Michael Anderson, who was a maths subject specialist at STEM UK at the time of recording and is now an MEI Local Lead, and Garry Packer, who is a STEM Ambassador.

We will be talking about who STEM Ambassadors are, the wide range of careers and industries they represent, and how their visits can support pupils' mathematical understanding and spark curiosity about where maths can take them.

We will also look at what schools can expect from a visit, how to make the most of it, and why these real-world connections matter.

Let's begin by meeting our guests.

Garry, can you tell us about your role and how you are connected to the STEM Ambassador programme?

Garry Packer: My name is Garry Packer. I am a retired electronic engineer. Most of my career was spent working on high-integrity control systems, such as those used for moving explosives or nuclear fuel, and traffic signalling.

For the last 20 years of my career, I worked at National Highways on smart motorway technology. I have been a STEM Ambassador for around eight years. Although I am not a mathematician, I am fascinated by maths.

Julia Thomson: Michael, could you introduce yourself?

Michael Anderson: My name is Michael Anderson. I am a secondary maths teacher, and I am currently the Education Lead for Mathematics for STEM Learning, based at the National STEM Learning Centre in York.

Julia Thomson: Michael, can you explain what the STEM Ambassador programme is and why it exists?

Michael Anderson: The STEM Ambassador programme is a UK-based initiative that aims to inspire and engage young people in science, technology, engineering and maths.

It encourages volunteers from STEM industries to share their knowledge and passion with young people in schools and other educational settings. There are around 30,000 STEM Ambassadors across the country.

The programme is funded by UK Research and Innovation and run by STEM Learning with delivery partners across the UK.

Ambassadors work with pupils in primary, secondary and further education through activities such as mentoring, talks, classroom workshops, group projects, competitions and careers events. They can also support schools as governors or advisers.

If a teacher would like an external expert to come in and talk to students about their career or subject area, we can help arrange that.

Julia Thomson: Garry, how did you become involved as a STEM Ambassador?

Garry Packer: I started through a Civil Service scheme where we went into schools as reading buddies. From there, I ran a workshop about bees, and then some maths workshops. That naturally led me to sign up as a STEM Ambassador.

Julia Thomson: You mentioned bees. Is that another passion of yours?

Garry Packer: Yes. Beekeeping is one of my hobbies. I am working on a worksheet about the maths of bees, although I am still developing it. Most of my maths workshops are based on more everyday contexts.

Julia Thomson: Can you describe what a typical primary or secondary visit might look like?

Garry Packer: It depends on what the school wants. In primary and lower secondary, I often run fun maths workshops. These might include number tricks, making Möbius strips, creating Sierpiński triangles, exploring fractals, or simple statistics with paper planes.

We might also look at how to measure heights without climbing, or talk philosophically about what maths is and whether it is 'real'. We sometimes discuss careers linked to maths.

In secondary schools, I often run a workshop on smart motorways. This links to quadratic equations and data analysis, particularly around congestion. I also run a workshop on estimating pi using Archimedes' method. It helps students think about estimation and mathematical reasoning.

More broadly, maths supports rational and logical thinking, alongside creativity and empathy. That combination is valuable in many careers.

Julia Thomson: Michael, how can schools arrange a visit from a STEM Ambassador?

Michael Anderson: It is very straightforward. Teachers can register for a free educator account on the STEM Learning website. They can then browse existing offers from Ambassadors, filtering by age group, activity or location. If they find something suitable, they can message the Ambassador directly to arrange a visit.

Alternatively, schools can post a request for a specific activity or event, such as a careers day or STEM club. Ambassadors will see these requests and respond if they are interested.

The service is completely free. I have used it myself as a teacher, and it is very easy.

The key to success is communication. Ambassadors are experts in their fields, but they are not usually teachers. It is important for schools to clarify expectations, routines and safeguarding procedures.

Julia Thomson: Garry, what advice would you give teachers to help visits run well?

Garry Packer: Clear communication is essential. Knowing who the session is for, when it is happening, and what the focus is makes a big difference.

Timing is important. Sometimes sessions start late because of timetable changes, which affects planning.

It also helps to know what pupils are studying. If I know they are working on statistics or probability, I can make stronger links. And, practically, it is helpful to know where the staff toilets are.

Julia Thomson: Michael, what impact have you seen on students?

Michael Anderson: It is mainly about inspiration. Students often remember visitors more clearly than individual lessons. Ambassadors help pupils understand STEM careers and broaden their horizons. They provide role models from outside school and show what is possible. This can be particularly powerful when someone has followed a similar path to the students. It helps build enthusiasm, confidence and aspiration.

Julia Thomson: Garry, why do you continue volunteering?

Garry Packer: I enjoy it and value the sense of community. Occasionally, you receive very positive feedback, which is rewarding. Some pupils have told me it was the best lesson they had ever had. That makes the effort worthwhile. It feels good to give something back.

Julia Thomson: Is there anything else you would like to add?

Garry Packer: Yes. There are some excellent external resources. The Operational Research Society run workshops, including Lego-based activities linked to linear programming.

There is also a traffic-flow model using rice and funnels, developed in New Zealand, which demonstrates congestion in a memorable way.

Julia Thomson: Michael, are there other resources schools should know about?

Michael Anderson: When teachers register with STEM Learning, they also gain access to thousands of high-quality teaching resources, including the SMILE Collection. It is worth exploring the wider site.

I would also like to share a quote from a student who worked with a STEM Ambassador:

‘I have not had many chances to talk with scientists before. Meeting professionals and learning about their careers helped me feel less anxious about the future. They were welcoming and inspiring, and I am grateful for the opportunity.’

Julia Thomson: That is a lovely example of the impact these visits can have.

Thank you both for speaking with me.

That brings us to the end of our conversation about the STEM Ambassador programme. My thanks to Michael Anderson and Garry Packer, and thank you for listening.

If you would like to explore how a STEM Ambassador could support your pupils, please see the show notes for further information or visit the STEM Learning website.