For Airbus Group Innovations engineer Rhys Phillips, science is a means of connection. Sharing the basics of his lightning and electrostatic work in his free time is one way he aims to spark scientific curiosity in youth across the globe.

FLASH OF INSPIRATION

he first thing I do is talk about our lightning lab where we blow up bits of aeroplane with lightning. That really gets students onboard." So begins Rhys electricity workshop, run in collaboration with the ouncil's Science in Schools programme.

neer with Airbus Group Innovations' lightning and atic team in the UK, Phillips spends his days working ative methods to optimise lightning strike protection new generation of aircraft that use carbon-fibre tes, materials which have lower electrical conductivity ninium. At 29, his passion for his profession includes co-chairing a cross-divisional Electro-Structural ites working group and a seat on the organising ee of the 2015 International Conference on Lightning Electricity, but also his weekly science and technology ow, Pythagoras' Trousers (pythagorastrousers.co.uk), work as a Science Technology Engineering and Maths ambassador in schools across the globe.

collaboration with the British Council began in 2012 has since run his three-hour interactive lightning p in Paris, Corsica, the Dijon region and Guadeloupe.

The workshop consists of an engaging informational hour followed by two collaborative hours in which students put together a news broadcast with the information they've learned. "Rhys's workshops perfectly illustrate his work as an engineer for Airbus Group," says Irene Daumur, Project Manager with the British Council in France. "Students learn a lot about the sort of work that young STEM graduates can aspire to in the aeronautics industry. They also improve their English and communication in the process, a useful skill set that Rhys also emphasises."

In 2015, the British Council approached Phillips to run maths workshops in the South Pacific territory of New Caledonia, one of which was on the island of Lifou. This island presents an interesting hybrid of old and new, where the population's families, primarily descendants of the original tribes of New Caledonia, still prefer to live in traditional communal houses and often walk barefoot, while being simultaneously attached to the iPods and iPads of their contemporaries.

In a format similarly structured to the lightning workshop, Phillips drew upon his joint degree in maths and physics to select new material for the workshop. "I tried to pick maths relevant to our everyday lives, like calculating the probability of winning the lottery," he says. In order to make it interactive, he conceived a game show to tie the disparate pieces together. "A teacher introduced me at the start of the workshop, and the first thing I said was, 'We're going to play a game!'" he enthuses. "The 'Who Wants to Be a Millionaire?' theme tune came on, and we began playing 'Who Wants to Be a Mathematician?'." He split the students into teams that answered rapid-fire maths questions to win points. "By engaging them right at the start with the game, they were having fun and anticipating what comes next," he says. "Then I could sneak in the little bits of maths that I wanted them to remember."

Phillips and his fellow science communicators often refer to presentations like these as 'shows' – they entertain as much as they educate, an effective combination in establishing a lasting understanding of a subject. "The game and the competition were very funny," wrote one New Caledonian student in her feedback. "We enjoyed doing math and normally I don't like that."

New Caledonia's Vice-Rector of Education Patrick Dion, in his letter praising Phillips' workshop, wrote, "This initiative has enabled our teachers to observe a playful and interactive educative method," opening their eyes to new possibilities. Phillips says that's been an unexpected outcome of his shows: some teachers who have been stymied by the complexity of teaching STEM topics come away from his presentation with a deeper understanding of why the science works and how better to engage their students.

In February, the British Council is sending Phillips to Morocco to train teachers in delivering STEM workshops in English to non-native speakers. He is adamant about making STEM subjects accessible. "The world doesn't have enough engineers to sustain the economy in the future," he says. "A big reason for kids thinking that engineering isn't interesting is because they don't understand the relevance of it. It's important that we continue doing these sorts of things to show that this is cool, this is what engineering is really about."

Jess Holl