



Professor Robert Wicks from Northumbria University demonstrates an interferometer – an instrument which uses two beams of light to make precise measurements – for pupils.

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## University partnership brings space research to life for school pupils

A North East school has partnered with solar and space physics experts from Northumbria University for a project supported by a Royal Society Partnership Grant which aims to bring academic research and STEM careers to life.

Year 7 pupils are among those from [Whytrig Middle School](#) in Seaton Delaval who have already visited the University's [Northumbria Space Technology Laboratory](#) (NSTL) to see first-hand where studying the subjects of Science,

Technology, Engineering and Maths (STEM) can lead.

Researchers from the Solar and Space Physics Group within Northumbria's [School of Engineering, Physics and Mathematics](#) are collaborating with the middle school on the innovative project which will allow pupils to investigate "*How can we communicate beyond the earth?*" over the next few months.

Led by Whytrig teacher Preetha Lowden and [Royal Society University Research Fellow, Dr Luca Franci](#) from Northumbria University, the project gives pupils the opportunity to explore how satellites communicate using laser technology – an advancement which is set to replace traditional radio communications in space. More than 80 11-year-olds kicked off the project recently by exploring laser communications and miniature satellites known as CubeSats in a lab setting.



Dr Luca Franci from Northumbria University explains how to build 3D models of CubeSat satellites.

Around the size of a shoe box, the [CubeSats](#) contain high-speed laser communications systems capable of transmitting data one thousand times faster than it is currently possible to do through radio frequencies, while orbiting the earth. Satellite communications are used for maintaining key services such as telecommunications, navigation and weather forecasting

systems across the globe.

Dr Franci, who leads observing campaigns as part of the European Space Agency (ESA) and NASA's Solar Orbiter Mission which studies the Sun and its influence on the solar system, explained: "This first visit was one of many opportunities to work together over the coming months and it was great to see the young people really engaged in a range of practical activities, including a demonstration of the principles of laser communications, which work by blinking light a billion times per second.

"We combined equipment demonstrations with careers talks, spending time in real laboratory environments and solving 3D puzzles, bringing classroom learning to life and showcasing the breadth of STEM career opportunities available. The visit also provided a fantastic opportunity for PhD and postdoctoral researchers at Northumbria to develop outreach skills by working with small groups of young people and would not have been possible without their support, as well as input from many other talented colleagues from the Solar and Space Physics Research Group."

The [Royal Society Partnership Grants](#) scheme funds UK schools and colleges to work in partnership with STEM professionals from academia or industry to run investigative STEM projects. The scheme aims to provide opportunities for students to develop key skills including research, problem-solving and data-handling abilities, while demonstrating the range of STEM careers available and fostering long-term working relationships between educational institutions and STEM professionals.

Lead teacher on the project from Whytrig Middle School, Mrs Lowden, said: "This Royal Society Partnership Grant gives our pupils an incredible opportunity to work alongside world-class researchers and experience real space science in action. The project has already brought their learning to life in ways that simply aren't possible in a traditional classroom setting. It's opened their eyes to the exciting career possibilities in STEM, and many are now asking questions about becoming engineers, physicists and space scientists of the future."



Dr Jefferson Andres Agudelo Rueda at Northumbria University uses models and a laser torch to demonstrate how CubeSat satellites work.

Northumbria is home to the [North East Space Skills and Technology Centre](#)(NESST), a cutting-edge facility under construction in the heart of the University's Newcastle city campus. NESST is the result of a £50 million investment, with partners including the UK Space Agency and Lockheed Martin UK Space, to power the space sector workforce of the future and drive world-leading research and technology development.

To support the creation of a talent pipeline of young people with an interest in the growing UK space sector, Northumbria has previously hosted successful "[Space Camp](#)" events providing practical workshops for pupils from North East primary and secondary schools.

Discover more about studying [Aerospace Satellite Engineering](#) and [other Engineering, Physics and Mathematics courses](#) at Northumbria University.

**Ends**

[Notes to editors](#)

Image captions:

- Dr Luca Franci from Northumbria University.
- Pupils listen to a careers talk led by Northumbria Solar Physicists Dr Natasha Jeffrey and Dr Samuel Skirvin.
- Professor Robert Wicks from Northumbria University demonstrates an interferometer – an instrument which uses two beams of light to make precise measurements – for pupils.
- Dr Luca Franci explains how to build 3D models of CubeSat satellites.
- Northumbria Postgraduate Researcher Devesh Dhole constructs 3D models with pupils from Whytrig Middle School.
- Dr Jeffersson Andres Agudelo Rueda at Northumbria University uses models and a laser torch to demonstrate how CubeSat satellites work.

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Two thirds of Northumbria's undergraduate students come from the North East region and go into employment in the region when they graduate, demonstrating Northumbria's significant contribution to social mobility and levelling up in the North East of England.

Find out more about us at [www.northumbria.ac.uk](http://www.northumbria.ac.uk)

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