

SCPS WORK PLACEMENT WEEK 2026

Impact Report

By **Dr Nilanthy Balakrishnan**



Figure: Year 12 students visiting the Keele Low Carbon Energy Park during the SCPS Work Placement Week 2026.

From Renewable Energy to Exoplanets: Inspiring the Next Generation of STEM Talent

School of Chemical and Physical Sciences

Keele University

13-17 July 2026

Date: 20th July 2026

13 Students | 9 Schools | 5 Days | STEM

Executive Summary

In July 2026, the School of Chemical and Physical Sciences (SCPS) delivered a week-long STEM work placement programme for 13 Year 12 students from nine schools and colleges across the UK. The programme was designed to increase awareness of STEM degree opportunities, expose students to cutting-edge research and facilities, and provide meaningful insight into careers in Physics, Astrophysics, Chemistry, Forensic Science, Engineering, and Sustainability.

Through a combination of laboratory practicals, observatory experiences, engineering challenges, computational modelling, renewable energy activities, and career-focused discussions, students experienced university-level STEM in an authentic and engaging environment. Student feedback demonstrated exceptionally high levels of satisfaction, with participants particularly valuing the hands-on activities, access to specialist facilities, and interactions with academic and technical staff.

Programme at a Glance

Participants: 13 Year 12 students from

- Blythe Bridge High School & Sixth Form (x 2)
- St Thomas More Catholic Academy (x 2)
- NSCG Newcastle College (x 2)
- Thomas Telford School (x 1)
- Wolgarston High School (x 1)
- NSCG Stafford College (x 1)
- City of Stoke-on-Trent Sixth Form College (x 2)
- St John Fisher Catholic College (x 1)
- Hampton Gardens Secondary School, Peterborough (x 1)

Disciplines Showcased

- Physics
- Astrophysics
- Renewable Energy
- Engineering
- Forensic Science
- Computational Physics
- Sustainability
- Science Communication

Outreach Objectives

The placement week aimed to

- Increase awareness of STEM degree pathways.
- Provide authentic experiences of university-level teaching and research.
- Inspire future applications to STEM courses.
- Showcase the breadth of STEM careers.
- Develop students' practical, analytical, and teamwork skills.
- Increase understanding of sustainability, energy, and emerging technologies.
- Promote diversity and inclusion within STEM.

Highlights from the Week

Day 1: Forensic Science and University Facilities

Students began the week with a Health and Safety induction before touring laboratories, teaching spaces, and the Forensic Crime Simulation Centre. They then participated in crime investigation activities that introduced forensic techniques and scientific problem-solving.

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Students gained their first experience of specialist university facilities and developed an understanding of how scientific methods are applied to real-world investigations.



Figure 1. Students undertaking hands-on laboratory activities exploring forensic crime investigation.

Day 2: Renewable Energy and Sustainability

The group visited the Keele Low Carbon Energy Park and the Smart Energy Network Demonstrator (SEND), where they learned about

- Renewable electricity generation
- Energy storage systems
- Smart energy networks
- Biodiversity impacts of renewable technologies
- Real-time energy monitoring and balancing

Students also participated in a Renewable Energy Trivia Challenge developed through student-led innovation projects.

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Students gained a practical understanding of sustainable energy systems and the challenges associated with the UK's transition to net-zero energy.



Figure 2. Students visiting Keele's Low Carbon Energy Park and learning about renewable electricity generation, energy storage, and sustainability.

Day 3: Renewable Energy Physics and Science Communication

Students carried out laboratory investigations exploring

- Hydrogen fuel cell efficiency
- Determination of the Faraday constant
- Wind turbine power generation
- Water battery energy storage

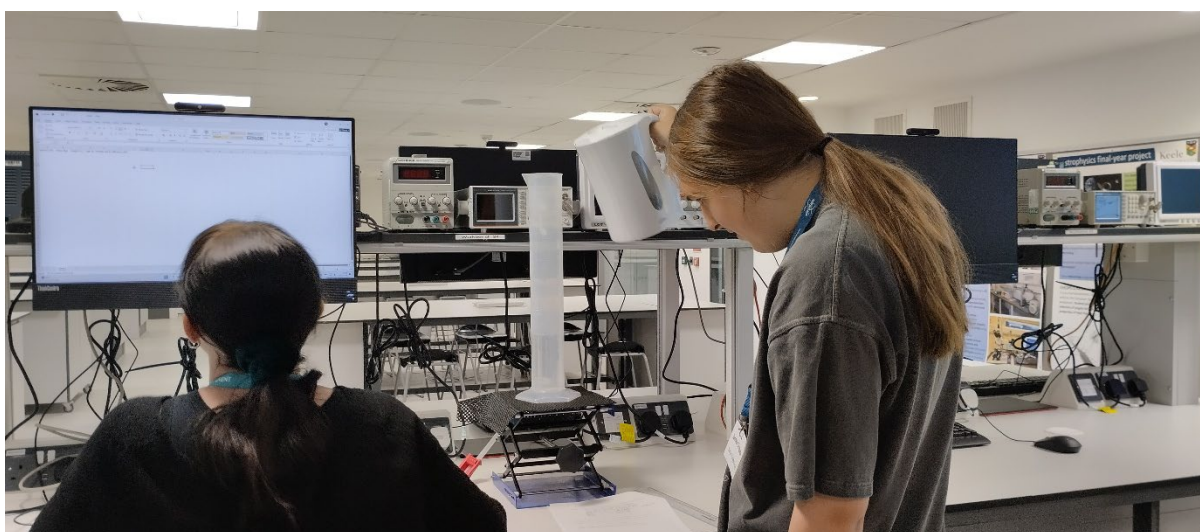


Figure 3. Students undertaking hands-on laboratory activities exploring renewable energy technologies.

The second activity of the day focused on the MC³ (My Course, My Campus, My Culture) project, where students created posters celebrating diverse scientists from a range of backgrounds and disciplines.

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The activities strengthened experimental skills while promoting awareness of diversity, representation, and inclusion in STEM.



Figure 4. Students creating posters of diverse scientists.

Day 4: Engineering Design and Solar Astronomy

Students participated in an engineering tower challenge where teams designed and built freestanding structures capable of supporting loads while withstanding simulated wind conditions.



Figure 5. Students participating in engineering design activities focused on teamwork, communication, and problem-solving.

The day concluded with solar imaging and observations at Keele Observatory, where students explored the Sun's surface and learned about safe solar observing techniques.

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The challenge developed teamwork, communication, design thinking, and engineering problem-solving skills.



Figure 6. Students learning about safe solar observing techniques, outside the Keele Observatory.

Day 5: Computational Physics and Exoplanet Discovery

Students explored how quantum physics can be used to model materials at the atomic scale. Activities included investigating two-dimensional materials and computational modelling of the hydrogen atom.

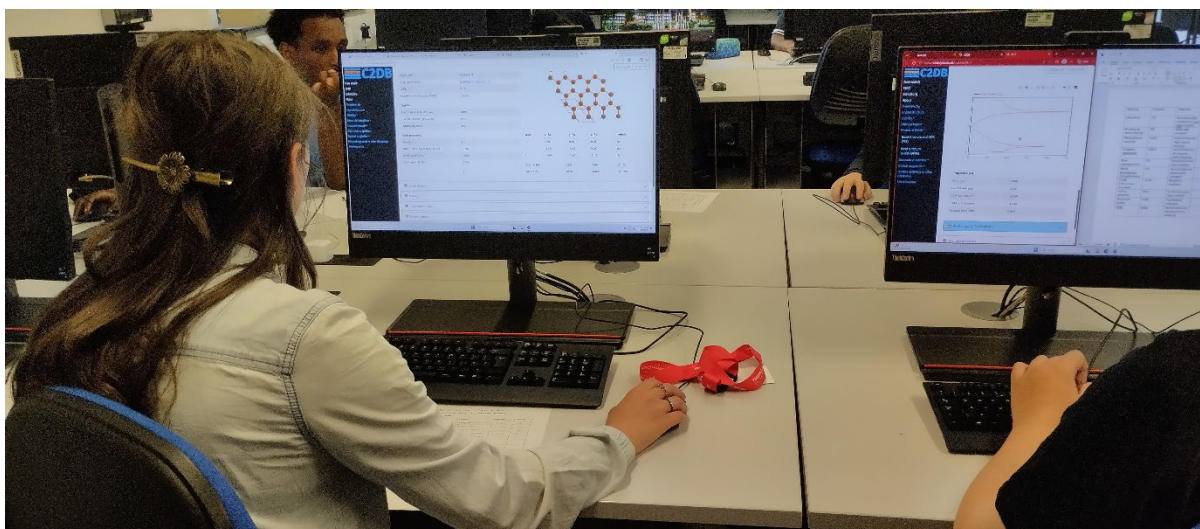


Figure 7. Students investigating the electronic properties of two-dimensional materials.

Later, students analysed real light-curve data from NASA's TESS mission to identify and characterise exoplanets orbiting distant stars. The week concluded with a session on career pathways in Physics and Astrophysics.

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Students experienced how modern scientists use computation and data analysis to address research questions ranging from quantum materials to planetary discovery.



Figure 8. Students analysing the real light-curve data from NASA's TESS mission.

Student Feedback

The programme received overwhelmingly positive feedback. Average ratings indicated strong satisfaction across:

- Staff support
- Activities delivered
- Facilities accessed
- Collaborative working opportunities

Examples of Student Voices are:

"This placement provided useful insight into various careers in science and STEM, and the opportunity of working in a professional university environment and facilities."

"The best parts were the hands-on activities where we as students got to use some of the equipment ourselves. It gave me a feel of what it would be like to do practical work in a university or other research positions."

"I loved the variety of practicals and university experience we got to take part in." "It was a fantastic week altogether."

Staff Collaboration and Contributions

The programme was delivered through a highly collaborative effort involving academic, research, technical, and professional services colleagues. SCPS would like to thank Nilanthy Balakrishnan, Victoria Cartwright, Charlie Pilbeam-Bailey, Laura Rhodes, Ashley Dean, Steve Wye, Matt Goodwin, Tasnim Munshi, Katherin Haxton, Juliana Morbec, Jacco van Loon, Pierre Maxted, and John Tyler for sharing their expertise and creating an engaging programme that showcased the breadth of activities across SCPS and Keele University.

Organiser Reflection

Dr Nilanthy Balakrishnan, who organised and led the programme, said:

"It was wonderful to see the enthusiasm, curiosity, and engagement demonstrated by the students throughout the week. They embraced every opportunity to explore new areas of science, work collaboratively, and experience university life. The feedback received has been overwhelmingly positive and highlights the value of providing young people with hands-on STEM experiences."

Key Outcomes

Educational Impact

- Increased awareness of STEM degree options.
- Improved understanding of scientific research methods.
- Exposure to multidisciplinary STEM applications.
- Development of practical laboratory skills.

Career Impact

- Increased understanding of STEM career pathways.
- Greater awareness of opportunities in Physics and Astrophysics.
- Exposure to research, engineering, sustainability, and data-driven careers.

Outreach Impact

- Engagement of students from nine schools and colleges.
- Strengthened relationships with regional schools.
- Showcased Keele University's facilities, expertise, and student experience.
- Demonstrated SCPS's commitment to widening participation and STEM outreach.

Looking Ahead

The success of the 2026 SCPS Work Placement Week demonstrates the value of immersive, hands-on outreach activities in inspiring future scientists, engineers, and innovators. Building on the positive feedback received, SCPS aims to continue developing opportunities that provide young people with direct experience of STEM education, research, and career pathways at Keele University.