

Engineering the UK's first artificial luge track

Developing skills for future life and working through partnership

For the past few years students from schools across Renfrewshire, led by David Rigmand (STEM lead for Brediland Primary school, who was awarded a Partnership Grant in 2018) have been working with Honours and MEng students from Glasgow Caledonian University (GCU), under the supervision of Dr Patricia Munoz de Escalona from the School of Computing, Engineering and Built Environment at GCU. This successful partnership has enabled pupils to learn first-hand about problem solving and the skills required for engineering careers. The Honours and MEng students, from GCU, have developed their education outreach, public engagement, and communication skills. For 2021, David and Patricia are developing an exciting real-world problem-solving project with the Royal Navy to design the UK's first artificial luge track.

Overview

The Royal Navy have worked with GCU previously in a number of areas. The Royal Navy Luge Team and a group of 5 GCU MEng students will discuss product specifications. The design and manufacture of the ramp will take place in GCU facilities.

Five schools will be offered the opportunity to take part in this collaborative project and apply for a Royal Society Partnership Grant, each of whom will be supported by the MEng team together with their supervisors. The project will be overseen a member of the Royal Navy Luge Team and Dr Munoz de Escalona from GCU. Through their teachers, pupils will learn about the stages of a design and manufacturing process as well as the sport at a grassroots level. They will carry out material testing in the classroom as well as visit the university to observe the design and manufacturing process. This will enable pupils to observe further education at primary level, develop science capital, and explore skills required for future career pathways. The Royal Navy STEM Engagement Team led by Cdr CD Pinder will also support schools by conducting STEM engagement activities that will reinforce and contextualise teaching that is taking place in the schools.

Outcomes

- By undertaking this project pupils will be gaining experience of problem solving and engineering skills. They will gain an understanding of how engineers need to work within sports regulations and design specifications.
- The project has exceptional curriculum links throughout the Curriculum for Excellence, but it is the potential for students to engage with a real-world problem that will hopefully inspire them to continue with a career in engineering or other sciences.
- As a teacher, the project provides examples for many theory lessons, helping to scaffold learning and the application of skills for their pupils. Through working in a collaboration with each other and their STEM partners they will have an excellent opportunity for CPD.
- Schools will be able to develop long lasting relationships with the Mechanical Engineering Department at GCU and the Royal Navy.
- In collaboration with all project partners, an artificial luge track will be designed and manufactured by May 2022