THE ROYAL SOCIETY

The Olympic GB luge team need a luge starting ramp! Can pupils across Renfrewshire create the near perfect design?

For the past few years pupils from schools across Renfrewshire have been working with masters students from Glasgow Caledonian University (GCU), under the leadership of the senior lecturer from the School of Computing, Engineering and Built Environment at GCU and the Lead teacher from Todholm Primary School. This successful partnership has enabled pupils to learn first-hand about problem-solving and the skills required for engineering careers.

This year an exciting real-world problem-solving project is being developed in which five schools will collaborate with the Royal Navy to design the United Kingdom's first artificial luge track.
The five schools involved in this project, will work with STEM professionals, academics and higher education professionals over the 2021-22 academic year to design and build the UKs first artificial luge track to enable UK athletes to enhance their competitive edge. Pupils will learn more about the sport and the design features required whilst replicating material experiments.

The investigations the pupils will undertake are:

1. Properties of materials: By exploring properties of materials in settings that are familiar to children, it will open up a discussion about which properties of the luge ramp material are important and they can then discuss this with the engineers.

2. Angle of luge ramp descent: pupils will investigate which angle of descent is better to give the fastest speed and longest distance over a set course. Is there a point at which the ramp becomes too steep and the luge does not travel very far?

3. Luge design: pupils will explore the best design for the luge by researching its current design and exploring if it could be improved. Whilst the engineers are making the ramp, pupils will look at how the design came about and could it be improved.

4. Athlete fitness: do luge athletes need to be strong but not fast? Fast but not strong? How will the ramp be suitable for the fitness of the athletes? Pupils will carry out interviews with the luge athletes to ask about their fitness routines and which fitness aspects are most important?

5. Aerodynamics: investigating and experimenting with aerodynamic clothing.

“The new resources have been fantastic! The pupils have been excited by this and have worked well together to conduct a series of investigations.” **Teacher**

“This project has offered our learners the opportunity to develop science capital and make purposeful connections to STEM careers. The children have participated in excellent investigations in partnership with GCU and have developed their knowledge of the design process” **Teacher**

“Most importantly P6 have a reignited passion for learning. The Royal Navy and GCU visits have hooked them into STEM learning and has developed confidence not only in the pupils but the class teacher.” **Teacher**

“I love learning from the Royal Navy. We learned about welding using chocolate and even tried virtual welding. That is what the university are doing to build our luge ramp.” **Project student**