MARLING SIXTH FORM
Downfield Road

Marling Diamond: PHYSICS & ENGINEERING

Particle Physics

Each year Marling students travel to Geneva to meet scientists working at the cutting edge of particle physics.

Students interested in physics, either as part of their A Level study programme or as an extra-curricular activity, have the opportunity to visit CERN (European Organization for Nuclear Research) - the home of the Large Hadron Collider and the discovery of the Higgs boson particle. A guided tour of the labs and anti-matter equipment is combined with the opportunity to meet with scientists at the cutting edge of particle physics research. Students will have access to CERN's permanent exhibitions: 'Microcosm' where they can follow the path of particles from a bottle of hydrogen through the network of accelerators to the collision experiments and 'Universe of Particles' which presents the challenges facing contemporary physicists and how they are being explored via the Large Hadron Collider and other CERN accelerators. Students can also visit the ALICE (A Large Ion Collider Experiment) underground exhibition, which recreates and studies a state of matter which is thought to have happened moments after the big bang.

'The students were very fortunate to be able to see the (CMS) detector close up. It is a truly remarkable device and the memory will stay with them. Going to CERN and seeing cutting-edge scientific research first hand is a fantastic experience for our future scientists.'

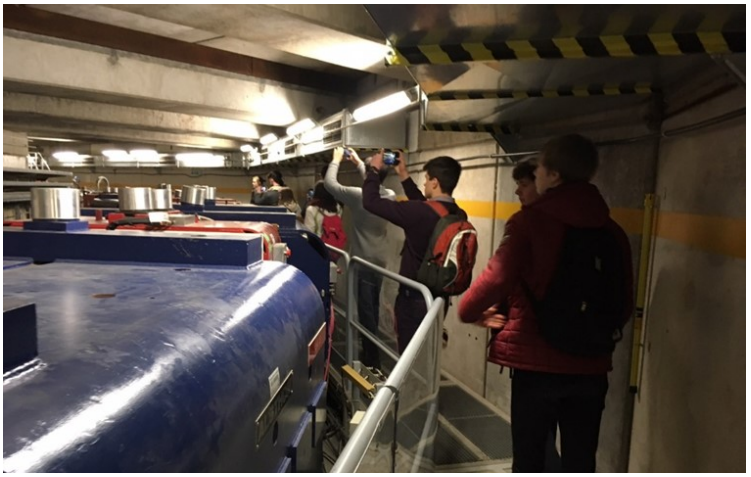
Steve Berry, *Marling physics teacher who has been running the trip for 6 years*

'I really enjoyed physics but I wasn't sure if I would study it in the future. Seeing CERN inspired me and I now know that there are huge opportunities out there that could change the world.'

Piotr Zaretski, *now studying Mechanical Engineering/ Mechatronics at the University of Southampton*

UNIVERSITY OF BIRMINGHAM

Marling sixth formers worked closely with scientists and academics from the University of Birmingham. In addition to attending a series of master classes and visits, students installed a cosmic ray detector on the roof, designed a computer programme to analyse the cosmic data and created their own mini version of the detector.



Marling students observe an accelerator that makes anti-atoms of hydrogen.

'I was able to relate some of the work at CERN to what my group did in our Cosmic Ray project studying muons that hit the Earth's surface. It also linked to the particle master classes that I attended at Birmingham University, particularly the study of real collision events that were measured whilst searching for the Higgs particle.'

Thomas Wadsworth, *now studying Mechanical Engineering at the University of Manchester*

Greencar Project Racing for the Future

Greenpower invites teams of students aged 9 to 25 from across the globe to compete at events in the UK and other countries including USA, Poland and China. The annual International Final takes place at venues such as the UK's Silverstone National Circuit and Goodwood Motor Circuit.

Our current Greencar team consists of a group of Year 12 students who are renovating a vehicle donated by Siemens in 2020 to make it 'race ready' for the upcoming season. So far they have stripped the vehicle back to a bare frame and chassis before strengthening the design and modifying the floor pan and body panels. Over the coming months they will upgrade and fit the motor and electronics along with a wide range of other 'tweaks' to improve the competitiveness of the car.

We are hoping to enter competition heats during 2022 with the aim of reaching the final at Silverstone later in the year.