CASE STUDY

ROBOTICS CHALLENGE, GATEACRE SCHOOL & CHARGEPOINT TECHNOLOGY

all about STEM

STEM AMBASSADOR HUB

STEM Ambassador Hub Merseyside & Cheshire

Context and Overview

As part of The Edge, the official fringe festival for the International Festival for Business (IFB), which took place in Liverpool, ten schools from across the region took place in a Robotics Challenge event funded by the Speke-based company ChargePoint Technology. The event was hosted by the Innovation Hub at Alder Hey Children's Hospital and included a team of students from the Hospital School, which provides education for inpatients of statutory school age, including those with special educational needs.

Schools from across the Liverpool City Region were invited to attend the event, bringing along teams of four Year 9 students. The day started with a presentation by Managing Director of ChargePoint Technology, **Chris Eccles**, about the work of the company and their reasons for sponsoring the event. Chris outlined how the activities of the day would reflect the sorts of skills and attitudes he looks for in his staff.

This was followed by an introduction to the use of robotics across a range of employment sectors, focusing on the growth areas identified by the Liverpool City Region LEP, and a showing of the LEP's 'Making It' short film. There was even a visit from 'Transformers' very own Optimus Prime!

Students spent the morning session building their robots, using the Protobot System from Vex Robotics. Two students worked together to build the robot base whilst the other pair built the robot arm. The team then worked together to bring the two parts together, wire up the motors and set up the controller. During the afternoon session, teams battled their creations against each other in a series of 'Robot Wars' matches.

Teams were each supported by collaborating professionals and STEM Ambassadors from ChargePoint Technology. ChargePoint Technology manufactures the ChargePoint valve, which was developed in conjunction with Glaxo Pharmaceuticals in 1996 and is used in a range of pharmaceutical and chemical process equipment.

Impact on young people

Gateacre School is a large secondary school in the Belle Vale area of Liverpool. At the time of writing, the vast majority of students are from White British backgrounds and the proportion of students supported by Pupil Premium is well above average.

The school had not previously engaged with the support offered via the regional STEM Ambassador Hub until Science Technician, **Lynn Hughes**, and Community Coordinator, **Lisa Mitchell** met with HUBMC staff. Following the meeting, Lynn was added to the Hub's fortnightly teacher mailer contact list and began to receive information about a whole range of opportunities available to enhance the school's STEM enrichment and engagement activities.

Lynn identified two particular activities she felt supported the school's priorities and organised to take a group of students to a Schools' Taster Session, taking place as part of the UK Radiology Conference at the BT Convention Centre in Liverpool, and a smaller group of students to the IFB Robotics Challenge.

Both events were opportunities for students to gain an insight into the practical, work-place applications of the curriculum they were studying in the classroom and helped provide a platform for Lynn to develop conversations which enabled students to understand the benefits of continuing with STEM-based subjects at GCSE & post-16 level.

At the Robotics Challenge event, students had to make use of a range of employability 'soft-skills' to work as a team: communicating effectively, showing resilience and stickability, problem-solving and planning as well as applying mathematical understanding, design and engineering skills.

The supported provided by the ChargePoint Technology STEM Ambassadors was a particularly powerful element of the day. The engineers were able to discuss the specifics of the STEM curriculum knowledge that they applied in their everyday jobs. They were also able to share with students their own career stories, enabling students to get an insight into the qualifications, skills and personal qualities required to make the successful transition from education to a STEM career.

Lynn reported that, following the event, 3 out of the 4 Y9 students in attendance, opted to continue with their DT studies, expressing an interest in engineering or a similar future career. One girl in particular, who had been very unsure of her future career path referenced her involvement in the Robotics Challenge as having a significant effect on her attitude towards and understanding of STEM subjects.

Impact on educators

Involvement in the event helped cement the school's engagement with the Hub and helped provide momentum for a continuing relationship. Since the IFB Robotics Challenge, Lynn and Lisa have won the STEM Project of the Year Award at the prestigious Educate Awards for their ingenious 'Nursery Crimes' project. They worked with both feeder primary students and Gateacre students to explore questions such as, 'Imagine if Humpty Dumpty had a lightweight parachute that would protect him when he fell off the wall?' The ideas brought science and engineering to life through thought and experimentation using traditional rhymes – thinking outside the box.

Lynn and a colleague also entered two teams of students in the year-long, STEM Ambassador-led Unilever Bright Futures Programme. One of the Gateacre teams beat 35 others to win the Technical Award for their project work at the final Celebration and Assessment Day.

From L to R: Michelle Dow - MD All About STEM, Lynn Hughes & Lisa Mitchell of Gateacre School receiving their STEM project of the Year Award.

Impact on STEM Ambassadors

Chris Eccles, Managing Director at ChargePoint Technology, reported that although his team was really enthusiastic and excited about getting involved in their first STEM Ambassador activity:

> *The thought of working with a group of teenagers for the day was a little daunting!'*
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> *However, the Ambassadors took a lot away from the day, particularly the positive attitude of most of the children and their willingness to learn. The ChargePoint STEM Ambassador volunteers had to 'work differently than they would in a normal working environment, taking time to go through logical steps from the start as opposed to assuming a certain level of knowledge as they would normally do in their working day.*
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> *Overall it has enthused the team and, because they had to take a step back in explaining things to students, they have applied this in their day to day activities.*

Impact on employers

Chris also reported a positive impact on the company generally stating:

> *We have seen a positive impact on employees attitudes by just taking them out of the day-to-day routine and enabling them to get involved with the future workforce.*
>
> *Getting involved in STEM Ambassador activities is our chance to invest in our current employees and our employees of the future. Although it raises the profile of our business, it's not really about that for us. We simply want children to realise that our world of engineering is exciting and you can make a career of it. If one of the children involved on the day decides to go in to a STEM related career, then it has been worthwhile!*

Following the ChargePoint Technology STEM Ambassadors' involvement in the Robotics Challenge event, the company has offered the use of its premises for STEM Ambassador networking and SLP CPD sessions and has teamed up with the Government-backed Your Life campaign to host a 'Best School Trip' event for two Merseyside schools.