STEM Ambassador Programme

Case study: STEM Ambassador – George Barry Lowe BSc. CEng. FIMechE

Overview

George Barry Lowe (generally known as Barry Lowe) is from Beverley in East Yorkshire and is our most active STEM Ambassador – giving his time freely to support young people in STEM. He has over 2079 hours recorded (and this doesn't include all of his preparation time). During his 15 years of involvement, he has taken part in over 520 activities, working with over 13,670 young people.

Charlotte Land, STEM Ambassador Hub Manager for North Midlands, South and East Yorkshire said, "We recently introduced certificates to recognise volunteer hours and Barry contacted us to say that he hadn't recorded all of his activities. Luckily for us he had been keeping a spreadsheet listing everything! We were astounded with the truly incredible level of support and were keen to share his story!"

Education/career journey

Barry is now retired but has worked in the chemical and textile industries for 33 years. Most recently working as Chief Engineer at Croda Chemicals Europe Ltd in Hull with responsibility for all maintenance and capital engineering on site.

Barry said, "During my time as Chief Engineer I always thought there wasn't enough liaison between the industry and education sector. I thought becoming a STEM Ambassador would be an ideal way for me to try and improve this, as well as passing on my engineering experience and knowledge to help pupils be more aware, and hopefully, want to follow science and engineering for their future education and careers."

Barry's first insight into engineering was at Mexborough Technical School. He then started work at NCB, Hickleton Main Colliery, South Yorkshire completing a five-year Apprenticeship in Mechanical Engineering and then becoming a Qualified Fitter and Technical Assistant to the Chief Engineer.

Some highlights of Barry's education/career journey include:

- ONC Certificate in Mining, ONC Certificate in Mechanical Engineering and HNC Mechanical Engineering at Barnsley Technical College - winning a gold watch for having the highest mark (98%) for HNC Theory of Structures in the country.
- Obtained a BSc in Mechanical Engineering at Swansea University.
- Joined IMechE as a Graduate Member.
- Joined Courtaulds Ltd, Coventry as Design Engineer, Project Engineer and then main Project Engineer building a Polyester Plant in Northern Ireland.
- Engineering Manager at Templeton Grays Carpets Ltd, Glasgow with responsibility for maintenance and capital engineering at all the Spinning Mills, Dye House and Weaving Mills within the group.
- Re-joined Courtaulds Acetate Ltd, Derby as Works Engineer responsible for all maintenance and capital engineering on the Acetate Chemical Plant. This entailed bringing the works up from 30% optimisation to 100%. Then Site Project Engineer responsible for all capital project work on the Spondon site.
- Engineering Manager at W & J Whitehead Ltd, Bradford responsible for all Maintenance and capital engineering on site.
- Submitted a paper with an IMechE colleague on "Proposed Primary School Outreaching to Reduce UK Skills Gap."

Along the way, Barry was taught by and managed by many inspirational people who were key in signposting and encouraging the directions taken. They provided good engineering learning experiences, as well as, helping to improve management skills and self-confidence.

STEM Ambassador activities

In 2019, Barry has delivered the following activities:

Bloodhound SSC

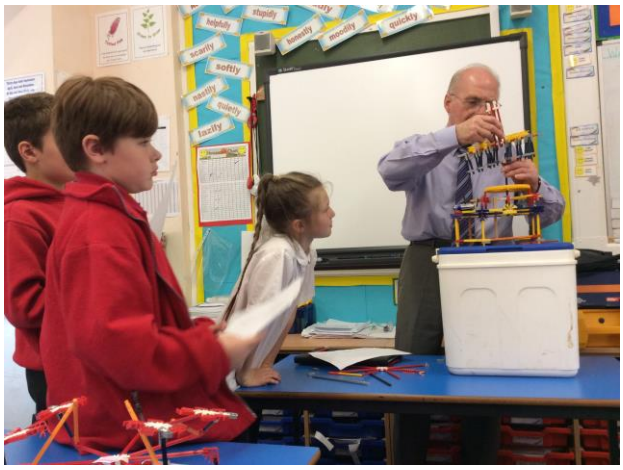
Barry is member of the Institution of Mechanical Engineers (IMechE) and runs workshops based on the Bloodhound Super Sonic Car (SSC) Land Speed Record (LSR). Pupils get to learn how engineers are involved with the Bloodhound SSC and the attempt to break the world land speed record in Autumn 2020. Pupils also get to build their own air powered model and compete against each other to determine which cars will travel farthest/fastest.

Paper Gyrocopter

In this session, the young people make Paper Gyrocopters (where the engine powers a back propeller that pushes it forward and air passes naturally through its rotor blades to create lift). Pupils make two Paper Gyrocopters using templates but make a change to one of them. They then fly the two paper gyrocopters to see which gets closer to a target.

K'Nex Challenges

Barry delivers a range of K'Nex challenges to help young people learn about civil engineering. Pupils work in teams on a theme such as building fairground carousels, waterwheels, wind turbines, bridges and moon buggies to name but a few!



The fairground activity starts with a PowerPoint presentation explaining STEM; what is an Engineer; what are gears and pulleys and how to work out the gear and pulley ratios using mathematical formula. Then the pupils work in teams of three to build a K'Nex carousel to fit onto a base drive and calculate the gear and pulley ratio.

Other activities

Barry has also run or supported many other activities over the years including judging competitions, supporting STEM clubs, mock interviews, engineering talks and much, much more!

Barry said, "I get a great deal of enjoyment from my involvement as a STEM Ambassador. The verbal thanks after activities as well as the letters from pupils and emails from teachers is very rewarding. It makes me feel that I have helped those involved to have more understanding and appreciation of science and engineering. If after every activity/challenge I manage to persuade one pupil to want to follow Engineering or Science, then I have fulfilled my purpose. Since retiring the involvement has also kept my mind constantly active as well as being physically active."

Barry continued, "When giving advice to young people, I encourage them to have a good understanding of mathematics, show an attitude to work hard and a desire to want to be in the Science and Engineering sector. I try to inform them of the vast spectrum of Engineering that is available and the definite requirement for more young people, especially females, to enter into the Engineering and Science sectors. And that there are a whole host of ways to do this. Also Engineering and Science can be "Fun" to work in too!"

Impact

Barry said, "It has been challenging in making me think about and design activities to meet teachers' requirements and the curriculum. I've improved my presentation skills with the use of PowerPoint and must always consider that I'm addressing pupils and not adult engineers. It has been a great assistance to my careers development program."

Future plans

Barry is already in discussions with a number of schools to arrange activities in 2020. These include:

- Paper gyrocopter activities at Cherry Burton Primary School, Beverley and St James Primary School, Hull.
- K'Nex Fairground activity at Hall Road Academy, Hull.

Charlotte Land, STEM Ambassador Hub Manager for North Midlands, South and East Yorkshire said, "Thank you so much to Barry for all the support he has provided and continues to provide to the STEM Ambassadors programme and helping to inspire young people in STEM."

More information

If you'd like to share your own involvement as a STEM Ambassador please follow our:

- HUB twitter account and tag us into your posts about your STEM activity using the hashtag #STEMAmbassadors.
- LinkedIN company page and join our HUB group – we are setting this up as a way for STEM Ambassadors to talk to each other about their experiences and to share good practice, resources etc.
- Instagram page and tag us into your photos showcasing your STEM involvement using the hashtag #STEMAmbassadors.

If you're inspired about Barry's story and would like to know more about becoming a STEM Ambassador or working with a STEM Ambassador please email ambassadors@debp.org