LEADING LIGHTS – STEM AMB

Challenging perceptions of science, technology, engineering and mathematics

The STEM Ambassadors Programme involves a network of 19,000 volunteers who use science, technology, engineering and maths (STEM) skills to push the boundaries of what is possible and to make the world a better and more exciting place to live. It is co-ordinated by STEMNET, a government-funded organisation leading UK initiatives to enthuse young people about STEM.

STEM Ambassadors across the UK work with local schools and colleges on a voluntary basis to run workshops, activities and experiments, give careers talks and mentor promising students. In the majority of cases these Ambassadors are supported by their employers. Over half of them are under 35 and 40% are women. Their day-jobs range from astrophysics to materials technology, web design to sustainability. STEMNET is aiming to recruit 8,000 more STEM Ambassadors by 2011.

At a recent awards ceremony at the House of Lords Roger Highfield, Editor of *New Scientist*, said: "It is a no brainer that our economy is going to be ever more dependent on STEM subjects but it is a matter of some angst just how we get young people animated by science. I love the STEM Ambassador idea. It sends out a signal that science, engineering, technology and maths are useful and relevant. It shows the human face of science (not the crazy, white-haired, old bloke). It gives teachers much needed support. There's no better way to turn kids on to STEM than to connect them with people who have a genuine passion for the subject. "Enthusiasm is infectious," he added, before calling on STEM Ambassadors to "keep on fanning those little embers of interest into flames."

Yvonne Baker, Chief Executive of STEMNET, said: "The STEM Ambassadors programme has gone from strength to strength since its establishment in 2002. More and more employers and professionals in science, technology, engineering and maths are realising that for their pioneering work to have a future, a new generation of young people

RANNA PATEL

Richard Cannon / STEMNET

Ranna Patel did a doctorate in Biochemical Engineering at UCL which broke new ground in the development of processes to make antibiotics, vaccines and monoclonal antibodies. Monoclonal antibodies are similar to the antibodies created by our own body's immune system, and are providing the latest breakthroughs in the treatment of cancer and other debilitating diseases.

Ranna's research contributed to making these life-saving treatments faster, safer and cheaper. Ranna says of her job: "It's challenging and I get to use my knowledge of science and technology to make a direct difference to society. Meeting an engineer at my school was enough to make me realise it was the career I wanted to pursue – I want to do that for the next generation."

Ranna is pictured here inside a giant bubble – her career as a process engineer has included making washing-up liquid and glycerine, both of which are ingredients of bubble solutions.

LIZA BROOKS

Richard Cannon / STEMNET

Liza Brooks is a mechanical engineer in the third year of her engineering doctorate at Cranfield University. She is also co-founder and technical director of True Snowboards in Wiltshire. Liza uses her engineering skills to analyse the performance characteristics of different snowboards, and develops new materials for them – she then has the fun of testing them out on the slopes at Morzine in the French Alps.

True Snowboards sponsored a team at the British Snowboarding Championships in 2008 which had a 74% medal win rate.

"I love my job", says Liza, "because of the variety. One day I can be in the laboratory testing materials for a new board, and the next day I'll be out testing it on the slopes to see if all my work has paid off."

Liza is pictured testing one of her True Deviant snowboards in Sevenoaks in Kent.

ASSADORS

must be interested and excited enough to want to take over the baton. Their support for the STEM Ambassadors Programme, through making it part of their educational outreach, CSR or staff-development programmes can be shown to reap real and tangible rewards all round.

"We are determined to ensure that the widest possible number of teachers get to know about the extra dimension that the programme can bring to their classrooms and how the real world insights of a STEM Ambassador, coupled with their own inspirational teaching, can spark a life-long love of science, engineering, technology or maths in a young person."

To showcase STEM Ambassadors, STEMNET has commissioned Leading Lights – an inspiring new exhibition of portraits by award-winning photographer Richard Cannon, four of which are featured here. The exhibition challenges perceptions about the kind of people who work in these fields and bring to life the ground-breaking projects and cutting-edge research that these young men and women are working on. It can be seen at Explore@Bristol 4 July-27 August and The Lightbox, Woking 5-10 September.

Their work takes them all over the world from the deserts of South Africa to the French Alps. Their dedication is preventing diseases like cancer. Their expertise is helping the UK to break the world land-speed record. Their vision is protecting our precious energy resources and their creativity is finding new ways for us to communicate with each other.

HEATHER WILLIAMS

Richard Cannon / STEMNET

Heather Williams is a senior medical physicist at the Manchester Royal Infirmary. She works primarily in nuclear medicine imaging, a non-invasive and painless way of diagnosing a variety of diseases, including many types of cancer, heart disease and other disorders within the body.

Nuclear medicine imaging typically involves giving a slightly radioactive injection to the patient and then using a gamma camera to pick up the radiation it gives off as it is taken up in the body. The images show whether tissues and structures, such as the heart, kidneys, liver and brain, are working as they should.

Talking about her work in schools Heather says: "When I talk to groups of young people there are always some that have a 'light bulb' moment, and realise that science is exciting and rewarding, and something that they can and want to do for a living."

Heather is pictured in a gamma camera at the Manchester Royal Infirmary, holding an image of a nuclear medicine bone scan.

JO CARRIS

Richard Cannon / STEMNET

Jo Carris developed a passion for sustainable technology during her undergraduate degree in Technology at the University of Birmingham. Her university studies, and internships at Arup and Scott Wilson, cemented her interest in the area. Jo started working for Laing O'Rourke as a sustainability advisor in 2006, and became qualified in assessing the environmental impact of building and civil engineering projects.

Jo now works within the Sustainability Team for London 2012, specialising in energy and waste. She is helping to ensure that the next Olympic and Paralympic Games are the greenest games in history, and is working on the installation of one of the first-ever large scale wind turbines in an urban environment.

Talking about her work, Jo says: "Being able to implement green initiatives on a project of this scale is hugely satisfying."

Jo is pictured in front of a wind turbine at Coldham Wind Farm in Cambridgeshire.