

What is STEM?

Think about the modern world. Look around the room you're in. Pretty much everything, from the laptop, tablet or PC you're reading this on and the software that runs it, to the paint or wallpaper on the walls, the fibres your clothes are made of and even the food you serve the family is, at least, in part available due to the efforts of scientists, researchers, engineers and technicians who all have STEM skills.



STEM is an acronym for **S**cience, **T**echnology, **E**ngineering and **M**athematics education. We focus on these areas together not only because the skills and knowledge in each discipline are essential for student success, but also because these fields are deeply intertwined and crucial to the modern business world.

Since the early 1990s not enough young people are choosing STEM subjects to maintain a ready supply of skilled scientists to filter into our local economy. Research from the Confederation of British Industry (CBI) highlights that the UK needs to double the number of new science graduates over the next seven years or see skilled jobs disappear. The importance of STEM expertise to the NI economy is generally accepted as key to maintaining our international competitiveness. At present, we simply don't have enough young people choosing science-related subjects to maintain a ready supply of skilled STEM specialists.

What's all the fuss about?

Most of our daily lives are in some way touched by scientific endeavour, clever engineering or the ingenious mathematics that keeps the world around us working. The influence of technology is so pervasive that few of us give much thought to the role it plays in our daily lives – yet its widespread use is only possible due to the work of Researchers, Food Technologists, Statisticians, Engineers and Computer Scientists who dream up solutions to our everyday problems and challenges.



Northern Ireland's economic success relies on building an innovative, knowledge-intensive economy, underpinned by a highly skilled STEM workforce. Labour market forecasts show that demand for higher level skills in STEM will continue to grow in the short, medium and long term.

Both the Northern Ireland Executive's 'Programme for Government' and the Skills Strategy for Northern Ireland, recognise that the future success of the Northern Ireland economy is likely to require an increased number of skilled workers with

STEM qualifications and skills. Widening the STEM skills base is central to growing and rebalancing our economy.

The challenge we face though is that businesses report widespread difficulties in recruiting people with STEM skills. The 2015 Confederation of British Industry Report, 'Inspiring Growth Education and Skills Survey', found that nationally, businesses are experiencing recruitment difficulties at every level: from new entrants taken on to train as apprentices (20%) to people with more than five years experience of STEM-related work (32%).

These are troubling results but they are not a new development. The proportion of businesses reporting problems in recruiting STEM graduates has more than doubled since 2013 (from 12% to 26%). The shortfall in experienced staff with STEM expertise has been consistently high and rising.

The place of STEM subjects in education (both primary and post primary level) and the provision of high quality careers advice is essential to increasing the supply of young people into the local STEM sector. Educating and informing them on the huge array of exciting, dynamic, well paid and challenging careers available within these industries and the various entry routes from apprentice to graduate level has to be a priority for our schools.

What are our schools doing about it?

Schools within the East Belfast Area Learning Community take a positive and proactive approach to promoting STEM to our students by:



- building stronger links with local STEM employers;
- raising awareness of training and Further Education options;
- the promotion of diverse job roles and career paths to our students.

Through curriculum delivery and Careers Education Information Advice and Guidance (CEIAG) lessons from Year 8 upwards in each school, we strive to ensure students are fully aware of the broad skill base studying STEM will provide. Our teachers and schools have a pivotal role in highlighting how relevant STEM subjects are in the current and future economy and job market. Recent years have seen subject teachers and Careers Teachers in all East Belfast schools strive to provide crucial information and design new learning resources to help them engage their pupils in the delivery of the Key Stage Three STEM curriculum. This is to ensure students are aware of the career paths and opportunities available to them if they continue to study STEM subjects at post primary level and beyond.

Working in partnership with the Belfast Education & Library Board, we have designed this website as a resource for parents to utilise when discussing and exploring training, education and possible career options within the STEM sector with their children. Schools involved in this project include:

- Ashfield Boys' High School
- Ashfield Girls' High School
- Bloomfield Collegiate School
- Campbell College
- Grosvenor Grammar School
- Mitchell House School
- Park School
- Strathearn School
- Lagan College
- Our Lady & St Patrick's College, Knock
- Tor Bank School

Continuing to study STEM subjects at GCSE, A Level and beyond will ensure our young people are equipped with a broad skills base, allowing them to keep their career options open thus ultimately ensuring they play an active role in one of the fastest growing, dynamic employment sectors in Northern Ireland.

Opportunities are in a wide range of industries across Northern Ireland including:

- Agriculture;
- Food Technology;
- Engineering;
- Manufacturing;
- Information and Communication Technology;
- Renewable Energies and Recycling;
- Health and Life Sciences;
- Creative / Digital Media.

Despite the challenging economic conditions of the past few years, Northern Ireland is leading the way with successful, innovative companies across many industry sectors.

Did you know?

- 1 in 5 computer drives has a part created in Northern Ireland by Seagate,



Londonderry;

- 1 in 3 London buses are made in Northern Ireland by Wrightbus, Ballymena;
- 1 in 3 of the world's aircraft seats are made in Northern Ireland by B/E Aerospace, Kilkeel;
- 40% of the world's mobile stone crushing and gravel screening equipment is made in Northern Ireland, mainly in County Tyrone;
- 50% of the worldwide market for tyre pressure monitoring sensors is produced by Sensata Technologies (formerly Schrader Electronics), mostly from their factories in Antrim and Carrickfergus;
- 1 in 4 of the world's full scale marine energy prototypes have been developed, tested or manufactured in Northern Ireland.



Belfast is Europe's leading destination city for software development and technical support investment. Some of the world leading global brands which have located in Northern Ireland include Seagate Technology, Bombardier Aerospace, B/E Aerospace, Caterpillar, Allstate Northern Ireland, Liberty IT, Microsoft, HCL Technologies Abbey, Citi, DuPont and Allen & Overy.

We are fortunate in having many world class indigenous companies such as Almac, Radox, Norbrook, First Derivatives, Creative Composites, Kainos, Asidua, Kelvatek, Andor and HeartSine, with over 120 STEM companies from entrepreneurs to global brands, located in the NI Science Park and Titanic Quarter.

Extracted from 'STEM Careers Booklet' by DEL 2015