Debate Briefing – STEM in early years education

BT welcomes this opportunity to brief members on the work BT Group is doing to encourage the uptake of Science, Technology, Engineering and Mathematics (STEM) in early years education.

We believe that STEM subjects are vital to individuals for their future jobs and life skills, to businesses for their future employees, but also vital for a successful and thriving Scottish economy and for facing society's challenges, now and in the future. Engaging young children with an interest and passion for STEM in childcare and school education will encourage more people to consider taking STEM subjects and careers when they are older.

Scotland is aiming to become a leading digital economy but faces a major digital skills challenge. The tech sector is forecast to be one of the fastest growing sectors in Scotland to 2029, in terms of GVA (26%), growing 1.5 times faster than the economy overall (18%)[1]. Moreover, it is estimated that Scotland needs around 13,000 new people to work in tech each year, with around 100,000 people currently employed as tech professionals across all sectors[2].

Our expertise and reach make us uniquely qualified to help tackle this challenge. That's why we've put digital skills at the heart of our new strategy on digital impact and sustainability. Doing so will also help us futureproof our business by increasing demand for our products and growing the pipeline of digital talent. We aim to help build better digital lives for families and businesses through targeted support at key stages of life – starting at primary school.

Skills for Tomorrow

Launched in 2019, BT's Skills for Tomorrow is an ambitious programme to provide people of all ages with the skills they need to understand and use technology. As well as a range of face-to-face programmes, Skills for Tomorrow also provides a range of free family resources and guidelines to help parents keep their children safe online.

BT's Barefoot computing programme

Developed by teachers and backed by research, Barefoot supports primary teachers' subject knowledge and brings computing to life in the classroom. Barefoot was launched in October 2016 in Scotland to help pupils aged 5-11 develop basic computing skills and computational thinking. It is the most recognised computer science teaching resource in primary schools across the UK[3].

- Teachers from 75% of Scottish schools have signed up
- Teachers from 1,556 primary schools in Scotland – including a total of 8,093 teachers – have registered to use the programme which offers free, classroom-ready teaching resources
- Over 548 free workshops for teachers have been delivered across Scotland by Barefoot volunteers, including BT employees, to introduce them to the resources available

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[1] https://www.skillsdevelopmentscotland.co.uk/media/43306/scotlands-digital-technologies-summary-report.pdf

[2] Ibid

[3] https://royalsociety.org/-/media/policy/projects/computing-education/computing-education-report.pdf

- Working with our partners, we have aligned resources to the curriculum – Barefoot is recognised as a component programme in the Scottish Government's Digital Learning and Teaching Strategy for Scotland[4].
- The Barefoot resources, whilst focused on teaching computational thinking, also offer opportunities for cross-curricular teaching and learning
- The resources, available in English and Gaelic, promote problem-solving, creativity and collaboration among pupils
- Resources also tackle the issues around internet safety and workshops can be delivered in remote rural schools by streaming the live interactive workshop

Impact

We have anecdotal evidence that teachers see big improvements in their pupils as a result of the Barefoot programme, and this has been substantiated by Ipsos Mori[5]:

- Maths – 96% see improvement
- English – 69%
- Problem solving – 99%
- Independent working and collaboration – 82%

This is why the Barefoot programme is so important today; it provides primary school children with basic computing skills and provides teachers with lesson plans to promote problem-solving, creativity and collaboration among their pupils.

Other initiatives

BT is engaged with a number of STEM initiatives and has been active supporters of two specific programmes that play an effective role in the mix of school and community learning:

Young Engineers and Science Clubs Scotland

The Young Engineers and Science Clubs Scotland (YESC) programme, delivered in partnership with the Scottish Council for Development and Industry (SCDI), supports learners aged 3-18 and their teachers with a range of innovative STEM projects.

- A range of interdisciplinary projects – accompanied by resource kits and teacher CPD courses – helps teachers tackle challenging STEM concepts through engaging activities; while supporting pupils to develop valuable skills and knowledge; to encourage uptake in STEM subjects and careers.
- There are more than 1,500 clubs in the programme, with an estimated membership of over 30,000 boys and girls across Scotland.

Digital Xtra

Created in 2016, the Digital Xtra Fund aims to ensure that every young person in Scotland has access to innovative and digitally creative activities, regardless of gender, background or where they live. The Fund allows out-of-school and community-based opportunities to encourage and support children and young people to develop skills in STEM.