

STEM Consultation on a Strategy for Education & Training

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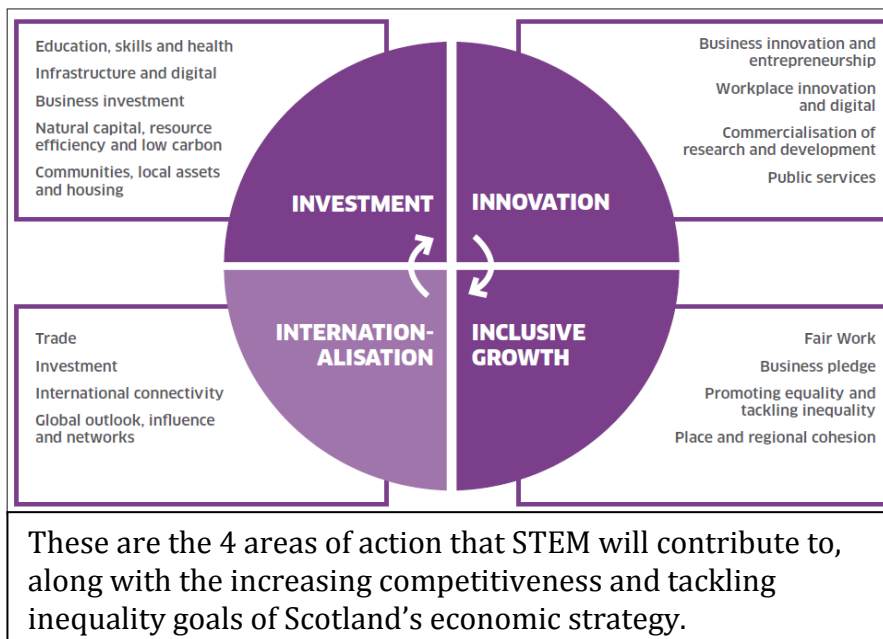
STEM Consultation on a Strategy for Education & Training

Scottish Government

2016

Science, Technology, Engineering and Mathematics (STEM) education and training seeks not only to develop expertise and capability within each individual field but also to develop the ability to work across disciplines and generate new knowledge, ideas and products through inter-disciplinary learning.

This strategy is to be owned and delivered jointly across the Scottish Government and its delivery partners, education, lifelong learning providers, employers and the wider STEM community.



Scotland has a world-leading reputation in a range of STEM sectors, but there are challenges:

- Addressing inequalities
- Challenging perceptions
- Developing coherence
- Building partnerships

Aims

The strategy has two aims:

- To improve levels of STEM enthusiasm, skills, and knowledge in order to raise attainment and aspirations in learning, life and work
- To encourage uptake of more specialist STEM skills required to gain employment in the growing STEM sectors of the economy, through further study and training.

With a priority of addressing above challenges identified we have developed four priority themes for the strategy

Outcomes

We will know we have been successful if:

- All children and young people experience relevant and engaging STEM learning across all the STEM disciplines
- All young people and their families, irrespective of background and circumstance, understand the importance and relevance of STEM to their future success in life and work.
- There is improved gender balance across STEM qualification and courses at school, college and university, and Modern Apprenticeships in the workplace.
- There are a wide range of STEM pathways through further and higher education and other training that young people and adults can follow, well matched to labour market need and their needs and aspirations
- Employers are confident about the STEM skills and capability of their current and future workforce

Actions and implementation

The key principles in implementing the strategy will be to:

- Continue improving our data and understanding of what STEM skills are needed in the labour market, how these are being met by the education and training system, and how this might be improved, including the identification of barriers for particular groups.

- Realise greater efficiency and value for money from publicly-funded programmes through simplifying and streamlining activities and funding.
- Set meaningful key performance indicators for Government and our agencies that drive delivery of the strategy.

The Chief Scientific Advisor, will act as a conduit between the Scottish Government and the wider science sector in terms of the delivery of the strategy.

Priority themes and their associated actions

Excellence

Scot Gov and Education Scotland will:

- Improve the pipeline of STEM teachers into secondary schools, both through building on the success of last year's recruitment campaign to attract STEM graduates into teaching
- Evaluate information on initial teacher education programmes coverage of numeracy and other STEM content where available to help us understand how well teachers are prepared to teach STEM subjects
- Consider relevant minimum entry requirements to initial teacher education programmes to feed into the general teaching council Scotland's review of entry requirements
- Develop a programme of new and enhanced career long professional learning for practitioners with a focus on early learning and primary school through strengthened partnerships and collaboration across the education and training system
- Publish by the end of 2016 draft expected benchmarks for STEM subjects for each level of Curriculum for Excellence. This will allow teachers to ensure their learners are on track.
- Identify, with universities, new opportunities for increasing promotion and uptake of formally accredited SCQF level 11 (often referred to as 'Masters' level learning) courses in STEM subjects and teaching approaches for teachers.
- Deliver the Making Maths Count Report recommendations to improve confidence and fluency in maths for children, young people, their families and adult learners, including working with

Learning Link Scotland and other partners to establish a numeracy network with a focus on improving number skills for adults as workers and parents.

Equity

The Scottish Government and Education Scotland will:

- Review the impact and effectiveness of numeracy and STEM related activity funded through the Attainment Scotland Fund, in order to help inform future decisions by schools and local authorities on their use of the funding.
- Conduct a STEM-focused review to share what we know and have learned about effective practice to reduce the poverty-related attainment gap.
- Use the data and evidence gathered through the National Improvement Framework to inform policy development on numeracy and target intervention accordingly.
- Extend the Read, Write, Count campaign, that supports parents to continue learning outside of school, into P4-P7 in areas of high deprivation from April 2017.
- Work together with national and local partners to take action to address gender bias in young people's career options, including raising awareness of gender bias with parents, families and teachers so that they can better promote the importance of STEM skills for career options with young people.
- Explore how to generate innovative ways to engage disadvantaged adults in the STEM agenda through community learning and development.

Inspiration

The Scottish Government and Education Scotland will:

- Support the Science Centres and Festivals to provide children and young people, their families and the wider public, opportunities to engage with and be inspired by STEM.
- Maximise the impact of our science engagement activity to direct support to hard to reach individuals, groups and communities in deprived, rural and remote areas.

- Ensure an enhanced focus on numeracy in the Read, Write, Count campaign.
- Expand the Making Maths Count recommendation for raising the profile, relevance and attractiveness of mathematics to STEM education and employment more broadly.
- Champion STEM through our new Chief Scientific Adviser, Professor Sheila Rowan, in her programme of visits to schools, colleges and universities, and public events. Professor Rowan will help inspire our young people by showing the opportunities offered by a career in STEM, and will engage with people of all ages to explain the relevance of STEM to our lives.
- Use the Career Education Standard (3-18)¹⁰ and Work Placements Standard (senior phase)¹¹ to embed STEM careers awareness within STEM learning, teaching, courses and training programmes. This will be part of the enhanced career long professional learning offer to teachers, recognising the crucial role that teachers have in inspiring and enthusing young people about STEM.

Connection

The Scottish Government and Education Scotland will:

- Encourage schools to make more effective use of labour market information and their links with employers to design and deliver the STEM curriculum in their schools.
- Work with the DYW Regional Groups to encourage effective STEM employer-school partnerships.
- Disseminate information to community learning and development practitioners around STEM to raise awareness and build into community programmes.