Science, Technology, Engineering and Mathematics.
Consultation on a strategy for education and training.

General Comments
- We welcome the document and the drawing together of a significant number of strands and initiatives
- The document addresses the issues and challenges which are currently identified within the system.
- We see the proposed strategy as contributing to a larger education and training agenda but not being either the main or exclusive driver of that agenda.
- We feel that the system as a whole would benefit from an overarching and explicit vision on coherence across initiatives/strategies.

Question 1.
Do you agree with the definition provided of STEM for the purposes of this strategy?
- We support the identification of Mathematics as the foundation upon which the other skills are based. We see digital skills as part of the Technology section not as a separate addition

Question 2.
Do you think that the aims of this Strategy and the four priority themes are the right ones to address the challenges identified?
- We are happy with the two aims as they stand.
- We would suggest there be a third aim which specifically addresses the third and fourth challenges on coherence and partnerships. Without this there is no clear link between these challenges, the Priorities and more importantly the Outcomes
- We feel that there should be two more Priorities – Accessibility and Sustainability. This again makes a clear link between Challenges and Outcomes.

Question 3.
Are these success criteria right? If not, tell us what criteria we should use instead.
- Success criteria are not the same as Outcomes. There is a huge subjectivity within at least four of the five statements
- Such statements presume the availability of robust and existing data/information against which to assess/evaluate improvement.
- It would seem appropriate to develop success criteria for schools with the context of existing QA frameworks such as HGIOS
- A QA framework should be devised to support and challenge the actions of all partners.
- Quality assurance must lie within HGIOS 4

Question 4.
Do you think that the scope of the Strategy is right? Tell us if you think it should exclude something or include something else. For example should it include training and development that employers provide for their workforce?
- The Strategy should be based in the concept and practice of "Lifelong learning journey"
- There needs to be a commitment from all partners to encouraging and sustaining lifelong learning.
- Such sustaining of access to lifelong learning has implications for the Scottish Government's Strategy on Digital Learning and national access to broadband.
- Retaining realism is as important as raising expectations.

Question 5.
Give us your views on whether you think the actions already under way across the sectors on STEM fit well with the Strategy and will contribute positively to it.
- The activities outlined in Appendix A will undoubtedly, individually and in cumulo contribute positively to attaining the Aims of the Strategy.
- We have significant concern over the absence of on obvious and coherent master plan to enable the coordination and articulation of good practice to support lifelong learning journeys while avoiding duplication of effort.

- Attention should be given to supporting learners in the creation of a portable portfolio of their learning.
- Reference should be made to Making Maths Count in assuring maths fluency

Question 6.
Tell us of an activity currently ongoing – either included in the document or not – that you think could be adapted or stopped and why.
- We feel that it is important that a major exercise in the coordination of all existing activities currently in operation be conducted to create a coherent, articulated, progressive, responsive and obvious STEM learning programme.
- Off stage carping by special interest groups and lobbies could be closed down through the production of a STEM Learning Master Plan.

Question 7.
Do you agree with the principles set out for implementation?
- The Key principles are consistent with our earlier responses to the consultation
- We would wish to see reference to a research based approach which takes account international trends and seeks to future proof our approach to STEM learning.

Question 8.
What else should Government do to ensure a more coherent approach and maximise impact?
- Professor Rowat should be the conduit between Government and all partners.
- Trends, challenges and opportunities for progressive development should be identified, highlighted with a view to addressing and gaining optimum advantage of.
- The Strategy should lead to a STEM Learning Master Plan to which all partners share a commitment.

Question 9.
Overall do you think this Strategy is clear and action focussed? Do you think that the actions that we propose to take nationally will achieve the aims and intended outcomes.
- With the reservations already expressed, to a degree yes. The subjectivity of the Aims is an issue.
- Much in relation to action to be taken will be dependent upon the review of Governance
- We would suggest that a holistic review of teacher recruitment strategies and ITE programmes would bear greater fruit in relation to system improvement and quality rather than a reactive and narrow focussed reaction.

Question 10.
Will this Strategy improve equity of outcomes? If not, tell us what else it should include. In particular for women and girls and other groups of people – disabled people, care leavers and minority ethnic communities.
- It has the potential to do so in some areas
- It will not of itself and must be woven into, and mutually supportive of, other Strategies
- Again Governance and the opportunity for flexibility in the implementation of National strategies at the point of impact will have a potentially significant bearing on success.
- Government must commit to directing long term and sustained support and resource to its Digital learning Strategy
- Nationwide Superfast Broadband coverage
- "Baby boxes" to include a voucher exchangeable for a Tablet device for all children at the point of entry into education.

Question 11.
What could schools, colleges, universities, community learning and development, the voluntary sector, science engagement providers and museums do to support areas for action?
- A commitment from all of these partners to sharing of expertise and resources has the potential to widen access to learning in all of its aspects and of improving equity and quality of outcomes.
- Promotion of initiatives such as Childrens' University would support areas for action

Question 12.

What could professional organisations and bodies and third sector organisations do to support areas for action? This includes General Teaching Council for Scotland, the CLD Standards Council, the teaching unions and representatives of the learned societies.

- As a Professional Association (SLS is not a teacher union) we are and remain committed to the ongoing professional development of school leaders.
- Promotion of teaching as an attractive career choice financially as attractive as other STEM graduate opportunities.
- Commitment to the full implementation of the recommendation flowing from "Making Maths Count"

Question 13.

What more could science centres and festivals do to complement and enhance STEM formal education, to inspire scientists of the future, and to ensure their activities support those of Scottish Government and its agencies?

- Further develop and expand outreach programmes – physically and remotely
- Engage more obviously with the DYW strategy
- Champion and support STEM Ambassadors – Local STEM heroes

Question 14.

Should this strategy identify more actions for particular sectors, for example in relation to workplace and work based training and development? Please make suggestions on what these actions could be.

- A route plan to enable access to and potential pathways through existing provision would be useful
- A menu with options based approach would support reasoned choice

Question 15.

Tell us what you think about this improvement framework. How can we best ensure uptake of this Framework in early years learning centres, schools and clusters?

- The framework has the potential to achieve its stated aims
- The Framework would benefit from the application of some a clarity within the definitions used to define quality and quality indicators across and throughout the Framework. In many areas definitions are unclear and improvement is guaranteed neither to be continuous or sustained
- The outcome of the Consultation on Governance will impact on the success.
- Our response to Question 14 has a relevance to any success.
- Any new strategy should seek to build on already existing structures and avoid more bureaucracy.

Question 16.

Tell us what you think of our proposal for developing a model of collaboration between schools, colleges, universities and employers. How should we take this forward?

- We see value in this approach and stated so in our response to the consultation on Governance
- There is much to be learned from the LUMA system
- This approach is consistent with and supportive of a number of other strategies; Widening Access, Career Long Professional Learning, Research Driven Development in Learning

Question 17.

T*ell us what you think of our proposals for a STEM ambassador network. How should we take that forward?*

- We feel that there are a number of imaginative ways in which this could be taken forward
- We feel that the most powerful message could come being delivered at a local level through positive role models
- The local approach sits within the response to Question 16
- Financial incentives could be provided to undergraduates and recent post graduates through the writing off of portions of Student Loan Debt

Question 18

What other groups, organisations or people need to be involved in delivery of this strategy?
- SSERC
- National Union of Students
- Scottish Children's Parliament

Question 19.

Tell us what you are doing in your organisation, establishment or community that supports the aims and priorities of this strategy.
- Inclusion in CPD programme
- Raising awareness of school leaders through the work of our Council
- Supporting national strategy and working groups.

Question 20.

What could employers do to attract and retain more diverse STEM talent?
- Direct investment into and sponsorship of education
- Student bursaries
- Writing off student debt
- Ensure , when engaging with schools that under- represented groups are visible within their presentation strategies
- Sponsor research within the education community in relation to STEM learning

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