Curriculum Improvement Cycle

Summary of Sciences Collaboration Group Event

Education Scotland has begun to lead the review and update the 3-18 Sciences Curriculum as part of its wider Curriculum Improvement Cycle (CIC) activity. To support this work, a Sciences Collaboration Group has been established. This met for the first time on 28 November 2024. The group has been set up to be fully representative of Scottish education including different sectors, local authorities, different sciences disciplines etc. There were over 110 attendees at the initial Collaboration Group event, with 70% of attendees being active practitioners, and the remainder comprising science and STEM partner organisations and academics.

Discussions included:

- What is working/ not working in the current sciences curriculum?
- How do the sciences support the four capacities?
- What might a future-oriented sciences curriculum look like?

The event summary report can be accessed here: https://bit.ly/ScienceCIC2

This three-page version has been created to update networks on the work that is underway. It has been co-created by Education Scotland and a sub-group of the Collaboration Group, known as the Sciences CIC Core Group. The Core Group will meet regularly through to March 2025 to develop thinking and ideas on behalf of the Collaboration Group.

Main Themes

The following section is a high-level summary of the themes that emerged from the Sciences Collaboration Group discussions.

Decluttering and clarifying

There is a need to reduce and simplify content being covered to allow for deeper learning. There is also a need for real clarity about the curriculum and what is to be taught. Identifying the big ideas of science can help with this and alignment to four capacities is important.

Role of knowledge

Establishing a shared understanding of the role of knowledge and clearly defining core knowledge is central to ensuring a cohesive sciences curriculum.

For more information on the CIC please visit Education Scotland's dedicated website or get in touch:

Science@educationscotland.gov.scot https://blogs.glowscotland.org.uk/glowblogs/cices/

Skills

The development of skills, especially practical, hands-on, critical thinking, scientific literacy and meta skills, needs to be clearly defined and fully integrated within the sciences curriculum. Learners must be able to think critically, assess risk, evaluate information and apply scientific methods to solve real world problems. Connections with industry will be key.

Transitions and progression

Clarity on essential knowledge and skills should show clear alignment between phases of learning and support effective progression in learning.

Relevance

The sciences curriculum must be learner-centred, fit for the 21st century and support curiosity and wonder. It should be linked to motivating real world contexts, to other curricular areas, to local priorities, society, and to the world of work. Families should be closely involved to build science capital.

Inclusion, equity and equality

The new sciences curriculum must be accessible, promote gender balance, and lead to appropriate and personalised pathways for all learners. It must provide ongoing opportunities for learners to develop a strong sense of identity and self-belief so all learners feel they are valued and can achieve their goals in relation to science.

Learning for Sustainability (including global citizenship) and climate education

These should feature strongly in the new curriculum, as should other opportunities for interdisciplinary learning, embedding of important cross-cutting themes, and ethics. Outdoor and place-based learning should be a key feature.

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Assessment

Consideration needs to be given to the assessment tools and methods used at all levels and stages so that all learners can access, enjoy and attain in science. This includes clarity on future direction of senior phase assessment to support the new curriculum.

Resourcing

The curriculum needs to be fully resourced in terms of teaching materials, digital tools and equipment for practical investigations. This should also include for ASN, early learning and childcare and Gaelic.

Professional learning and initial teacher education

Practitioners at all levels need to be supported and upskilled to ensure the new curriculum is implemented effectively.

Pedagogy

A range of pedagogical approaches (such as outdoor learning, experiential, exploratory, project-based, direct instruction, play and play-based learning) should be employed to support a future-oriented sciences curriculum to ensure learners are engaged and motivated and learn successfully.

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- Visit the CIC blog and subscribe to the newsletter: https://blogs.glowscotland.org.uk/glowblogs/cices/

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Email the Education Scotland Sciences Team at: science@educationscotland.gov.scot

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