Sciences Curriculum Improvement Cycle (CIC)

Collaboration Group Day 3

03 December 2025

Summary report

Education Scotland
Foghlam Alba

Executive summary

This summary report captures the output from the third in-person Sciences Curriculum Improvement Cycle (CIC) Collaboration Group meeting which was held on 03 December 2025 in Glasgow. **The detailed output and analysis from Collaboration Day 2 can be accessed via the event Padlet.**

The Collaboration Day 3 event included 65 participants, representing 23 local authorities and key national partner organisations.

This event built on the second Sciences CIC Collaboration Day which was held on 12 June 2025, and also the work of the Sciences CIC Core Group which met for workshop sessions on 28 and 29 August, and then again on 20 and 21 November 2025.

The aims of Collaboration Day 3 were to:

- Agree the sciences big idea titles and supporting narratives
- Agree the overarching concepts titles and supporting narratives
- Further refine the sciences curriculum rationale and draft an overall purpose statement
- Consider the support required for practitioners to engage with the above when published in early 2026.

Summary of output:

Emerging big ideas for sciences were endorsed by the Collaboration Group. Suggestions regarding the wording were made.

Emerging overarching concepts for the sciences were presented and considered. The collaboration group were in support of these and made some suggestions regarding the wording.

A short purpose statement was reviewed and amendments to wording were suggested.

Participants made many helpful suggestions around the content needed to frame the publication of materials in early 2026. These suggestions included things like using colour coding, having supporting materials like PowerPoints that can be used in settings as well as keeping language clear and accessible. Explanations about the journey so far and decisions made were also suggested for inclusion.

The Collaboration Group is designed to be representative of Scottish education with 80% of participants being practitioners and 20% representing partner organisations. The involvement of practitioners ensures that the revised curriculum is grounded in classroom reality, is inclusive of diverse learners, and provides clarity for practitioners.

A two-day workshop of the Sciences CIC Core Group has been planned for the 22 and 23 January to build on the output from Collaboration Day 3 and to begin to develop more detailed layers of the technical framework.

Summary of activities and outputs

The day was built around four sessions as outlined below.

Session	Focus	Table groupings	Key outputs
Session 1	Big ideas	Cross-sector	Each of the 11 groups discussed the draft big idea titles and narratives (the output form Core Group Workshop 3, November 2025). Each group made a maximum of four requests for amendments.
Session 2	Overarching concepts	Sector specific	Each of the 12 groups familiarised themselves with the overarching concepts developed by the Core Group in Workshop 3 (November 2025). They generated ideas about science learning relevant to their sector under each heading. Each table then gave their reflections on the concept titles and narratives.
Session 3	Curriculum rationale and purpose statement	Cross-sector	The groups reviewed a purpose statement which came from the sciences network webinar on 26th November to ensure it suitably captured the purpose of science education outlined in the draft curriculum rationale. The groups then gave feedback on a number of refinements to the curriculum rationale suggested by the wider network.
Session 4	Publication materials	Sector-specific	The groups reviewed the proposed materials for publication in early 2026 and gave feedback on how best to support colleagues who have not been involved in the process to engage with it.
Evaluation	Event review	Cross-sector	Participant feedback was captured on an online evaluation form to inform next steps.

Emerging consensus

The day's collaborative outputs indicate emerging consensus around:

- Three sciences big ideas that capture the essence of what it means to learn science in Scotland, providing a clear, coherent structure that helps learners build understanding and connect their learning across the sciences disciplines.
- Eight overarching concepts which help to make connections within and across the three big ideas from 3-18.

- A sciences curriculum rationale and purpose statement which emphasises accessibility, empowerment and relevance to real-world contexts.

Next steps

Collaboration Day 3 was positively evaluated with the headlines as follows:

- 57 out of 57 respondents (100%) *rated the event as **very good** or **good*** – with ***very good*** (89%) and ***good*** (11%).
- 57 out of the 57 respondents (100%) stated that *they felt their opinions and suggestions are being heard and included in the Sciences CIC process* – with ***strongly agree*** (82%) and ***agree*** (18%).
- 57 out of the 57 respondents (100%) stated that they *trust the Sciences CIC to deliver better outcomes for learners in Scotland* – with ***strongly agree*** (72%) and ***agree*** (28%).
- 57 out of the 57 respondents (100%) stated that they *believe that the Sciences Collaboration group are making progress with the new Sciences curriculum* – with ***strongly agree*** (70%) and ***agree*** (30%).

The output from Collaboration Day 3 will be processed and shared with the wider system as part of a publication due in early 2026. Feedback will be invited, and will be considered at future sessions. The Core Group (a sub-set of the Collaboration Group comprised of approximately 30 members) will meet on 22 and 23 January and will use this time to develop more detail around the ‘know’ and ‘do’ statements. This will build on output from previous Collaboration, Core and Critical Friends sessions.

A fourth Sciences CIC Collaboration Group meeting is planned for March 2026.

Contents

1. Introduction

The Sciences Curriculum Improvement Cycle (CIC) is a collaborative process based on the Scottish approach to service design. The involvement of key stakeholders is designed to ensure Scotland's 3-18 sciences curriculum is coherent, inclusive, future-oriented and meets the needs of learners, educators and parents.

Day 3 of the Collaboration Group, held in Glasgow on 03 December 2025, built on the output from the second Collaboration Group event held on 12 June 2025 and also the Core Group Workshops held on 28 and 29 August, and on 20 and 21 November 2025.

The event structure involved a mix of sector-specific and cross-sector exchanges. This allowed for insights into how different education stages interpret and prioritise curriculum aims.

1.1 Participant overview

The Sciences Collaboration Group now contains 105 members, representing all 32 local authorities in Scotland. The group contains a blend of practitioners (80%) and partner organisations (20%)

A total of 65 participants attended, including 49 practitioners and 16 representatives from STEM partner organisations. Representation covered 23 of Scotland's 32 local authorities, ensuring geographical diversity and a spread of perspectives. Practitioners comprised 75% of participants on the day, with the remainder representing local authority leads, policy makers, and other strategic stakeholders and partners.

The practitioners involved represent a range of sectors including additional support needs (ASN), early learning and childcare (ELC), primary, secondary and community learning and development sectors. On the recommendations of the Curriculum and Assessment Board, membership of the Collaboration Group has been renewed by approximately 25% since the last meeting, to bring new voices into the process as we progress. (See page 27, Working Together to Make Change Happen; Education Scotland, 2025).

The balance of practitioners and strategic leaders created an environment where discussion was rooted in **classroom reality** while also addressing **policy and system-level concerns**. The strong local authority spread ensures the group's output is better aligned to the needs of all learners in Scotland.

2. Session 1 – Sciences big ideas

The first session focused on reviewing the **draft sciences big ideas**. These had been developed by Core Group members at their two-day workshop in November 2025 and had been shared with participants at an online session, and as pre-reading for the in-person event.

Participants were asked to work in cross-sector groups to discuss the 'plus', 'minus' and 'interesting' features of these draft big idea titles and supporting narratives. As a group, they were then asked to prioritise a maximum of four recommended changes for consideration. There were many comments made by individual tables which can be found on the event Padlet: Plus, minus, interesting typed. Below is a high level summary of the common discussion themes.

Big idea	Points of discussion
Title: *Being scientific: building our skills toolkit* **Sentence**: *We learn how the sciences work and use scientific skills to answer questions about our world.* ***Narrative summary**: Being scientific means developing the skills, behaviours and ways of thinking that help us explore and understand the world.* *Through curiosity, practical enquiry, collaboration and critical thinking, we build our scientific identity.* *By engaging with evidence, testing ideas and improving explanations, we develop confidence in using scientific practices.*	There was discussion around the word 'toolkit' with some tables seeing this as a good word to use and others suggested it should be removed. The word 'curiosity' was liked by many. A suggestion was made to change 'we learn' to 'we experience' to be more inclusive. Some tables suggested the word toolkit could be removed from the title, while others highlighted this as a strength.
Title: *Scientific knowledge: what we understand so far* **Sentence**: *Scientific knowledge and understanding builds over time as increasing evidence helps us to explain the world, and how things work.*	It was generally felt the concept of scientific knowledge changing and developing as new evidence emerges was important and should be kept. Further personalising the narrative was also suggested e.g. '**Our** scientific knowledge…'; '**We all** have a part to play in pushing boundaries of scientific knowledge.'

Narrative summary: *Scientific knowledge helps us make sense of the world around us and to find our place within it.* *Our understanding develops as new evidence emerges and this strengthens our explanations and thinking over time.* *All of us have a part to play in pushing the boundaries of scientific knowledge.*	
Title: *Be the Change: Applying our science learning* **Sentence**: *Application of our scientific knowledge and skills empowers us to make informed and ethical choices, and to take action to build a better world for all.* **Narrative summary**: *Science is not only about understanding the world – it is about improving it.* *Application of our sciences knowledge and skills helps us address real-life challenges.* *We use evidence to make informed, ethical decisions, recognising that scientific discoveries can bring both benefits and risks.* *The sciences empower us to take action to help both people and the planet.*	There was a discussion around whether the title was clear enough and suggestion for it to reflect 'science' in the title. Suggestions included: Be the change: Science in action (or versions of this). Curiosity was highlighted by a few tables as important here as well as in big idea 'Being scientific'. Overall this was considered a positive and aspirational big idea.

Lastly, the use of 'we'/'our' versus 'I'/ 'my' was commonly discussed in reference to all the narratives to illustrate ownership of skills/ knowledge/ learning.

The three big ideas were strongly endorsed by Collaboration Group members. It was agreed that the three big ideas work for all sectors from 3-18 and the language was simple and inclusive. It was felt that the big ideas for sciences had a strong focus on collaboration, highlighting that science is not done only by individuals but multidisciplinary teams.

The suggestions will now be considered carefully by the team at Education Scotland, who will refine the titles, sentences and narratives prior to publication of these big ideas in early 2026.

3. Session 2 – Sciences overarching concepts

In this session, participants worked with **eight overarching concept titles** that had been developed by the Core Group at their workshop in November 2025. As these could be considered quite abstract in nature, participants firstly familiarised themselves with them by conducting a brainstorm activity, whereby they listed current science learning they deliver under the overarching concepts provided. Participants did this in sector groupings to allow for meaningful discussions and to allow each sector to identify with the overarching concepts and their relevance to them.

Following this activity, participants were then provided with a short narrative for each concept, which again had been devised by the Core Group during their November workshop. They were asked to consider:

- Whether the narrative aligned with their own understanding of the overarching concept
- Their groups overall reflections on the overarching concept names and narratives.

A summary of the common themes from these reflections is detailed below, and the raw typed data can be found on the event Padlet

Concept and narrative	Reflections
Energy and change *Energy is an indication that change can happen. We can use the concept of energy to describe and understand change. Energy can be stored and transferred but not created or destroyed.*	6 of the 12 groups were keen to remove (at least) the phrase 'but not created or destroyed' from the final sentence. 3 of the groups suggested the removal of the first sentence.
Ethics *Ethics are the principles that guide our behaviour and help us make decisions about right and wrong. Ethics in the sciences helps us make informed and responsible decisions based on evidence, reasoning, and shared values to contribute to the common good of all.*	9 of the 12 groups highlighted the phrase 'right and wrong' as being problematic. 3 groups highlighted issues with 'shared values' and 1 suggested removal of the term 'shared' from this. 4 of 12 groups highlighted issues with the phrase 'common good of all'
Patterns and trends *Patterns and trends help us to notice what stays the same and what changes, so we can explain, compare and predict what happens next.*	5 groups suggested this concept overlapped with others (4 of the 5 specifically identified relationships and interactions).
Relationships and interactions *Connections and interactions between things help us explain the causes and effects we observe.*	3 of 12 groups suggested 'connection' should be replaced with 'relationships' in line with the other narratives 3 groups flagged that the term 'things' was not very scientific.
Scale, proportion and quantity *The sciences help us measure and compare the properties of the world around us, from the smallest of*	7 of 12 groups raised issues with the phrase 'vastness of the sky' (or the entire first sentence)

particles to the vastness of the sky. Understanding scale, proportion and quantity helps us describe numerical relationships and undertake scientific calculations.	
Shape, structure and function *The way something is shaped and structured determines its properties, how it works, and what it can be used for.*	5 of the 12 groups were keen that the narrative remained as stated here. Where other groups suggested minor changes, there were no common themes.
Sustainability *Sustainability means using Earth's resources responsibly so that people and nature can thrive now and in the future. The sciences helps us address pressing global challenges such as climate change and loss of biodiversity, as well as poverty, inequality, peace, and justice.*	2 groups felt this was too wordy and did not require the exemplification at the end.
Systems and cycles *Many natural and human-made processes can be understood as a series of systems and cycles. They operate in repeatable and predictable ways which help us make sense of our ourselves and the world around us.*	7 of 12 groups raised issue with the phrase 'repeatable and predictable', pointing out that it these are not ALWAYS repeatable and predictable. It was suggested that some sort of qualifying word or statement would need to be inserted to address this.

The suggestions will now be considered by the team at Education Scotland, who will use the feedback combined with research and evidence to refine the overarching concept titles and narratives prior to publication in early 2026.

4. Session 3 – Curriculum rationale and purpose statement

Part 1: Purpose statement

In mixed sector groupings, participants were provided with the following draft **two sentence purpose statement:**

Science is for everyone and empowers us to explore the world through curiosity, creativity and discovery. Through scientific enquiry we develop the knowledge and skills needed to make informed, ethical choices and apply learning thoughtfully to real-life contexts, including those related to sustainability

This draft emerged through the work of the Education Scotland Sciences team, using feedback gathered from the wider system at a network webinar held on 26 November. They were also provided with the full curriculum rationale (refined through a series of sessions with Collaboration Group, Core Group and Network events), and feedback from children and young people as stimulus materials. Participants were asked to consider the following questions:

Is the purpose statement a suitable summary of the rationale statement?

2 of 10 tables gave no response to this question.

Remaining 8 agreed it did, 3 tables with caveats.

- Relatively high-level language – participants questioned the intended audience for this statement.
- It is important to include the word 'engaging' in the purpose statement.
- It misses the partnership approach (included in the full draft rationale).
- The phrase 'science capital' can be considered jargon as it would need further explanation.

Does the purpose statement reflect the views of children and young people?

8 tables agreed it was a fair reflection of the views (some with caveats – listed below).

Most contentious issue was the inclusion of 'fun'. Even those agreeing it did reflect the view, still raised the response of 'fun', raising the following points:

- Are we being realistic to sell children that science is always fun?
- Does curiosity cover 'fun'?
- Fun – engaging and satisfying? / Addition of engaging reflect fun? (2 tables similar response).
- Fun isn't the starting point for the curriculum.

Participants were then asked to refine the statement by:

- Highlighting statements that should stay
- Crossing out statements that could be removed
- Annotating any requested changes to wording
- Adding anything missing.

Groups were asked to prioritise feedback within their group to three main recommendations. A summary of the findings of this activity is shown below:

- All 10 groups highlighted most of the first sentence, making only minor changes to either remove a single word, or add one word.
- 2 of the 10 groups suggested the removal of the word 'thoughtfully' from the final sentence.
- All 10 groups suggested 'including those relating to sustainability' could be removed from the final sentence.

The full typed output can be viewed on the event Padlet.

This feedback will be actioned by the Education Scotland Sciences team to produce a final draft of the purpose statement for publication in early 2026.

Part 2: Curriculum rationale

The group were then asked to consider some feedback gained from a recent network webinar regarding suggested changes to the previously drafted curriculum rationale. Feedback on this activity was gathered via a Menti poll. The issues raised, as well as the response from the Collaboration Group, are summarised below.

Suggested amendment (from webinar feedback)	**Agree (no. of participants)**	**Disagree (no. of participants)**
Remove Gaelic translation of the phrase 'Science is for everyone' in the rationale.	34	24
Reword the phrase 'use scientific language, **formulae and equations** accurately…' to be less specific and, therefore, more inclusive.	38	20
Weave the messages from the 'Partnership Approach' section throughout the rest of the text, instead of having it as a section on its own.	17	35
Remove the term 'scientific capital' which could be considered jargon and replace with a definition of this term.	42	16
Replace the term 'families' with a more inclusive term.	32	19
Rephrase the sentence 'learners will have opportunity to have fun, discover exciting new things, and feel a sense of connection and belonging ' to state 'an enduring sense of connection to the sciences.'	25	25

This feedback will be actioned by the Education Scotland Sciences team to produce a final draft of the curriculum rationale for publication in early 2026.

5. Session 4 – Draft publication materials

In session 4, participants were invited to work in their sectors to give recommendations around the publication materials that are due for release in early 2026. In groups, they reviewed the following stimulus materials:

- Curriculum improvement Cycle (CIC) explainer
- Draft science consultation package (purpose statement, rationale, big ideas and concepts)
- Mathematics emerging thinking materials (published November 2025).

The purpose of this activity was to gather sector-specific views on the three specific questions.

A summary of feedback on each of the questions above is collated below and raw typed output can be found on the event Padlet.

Please note that a large amount of feedback, in particular around additional information needed, will be considered in due course but is unlikely to appear in the publications in early 2026 due to the short timescales involved.

Question 1: How will this land with colleagues who haven't been involved?

Positive tone: clear, concise, and exciting

Multiple sectors (ELC, primary/partner, secondary) describe the science materials as straightforward, clear, and concise, with primary participants adding that it feels exciting.

Secondary participants noted the layout and colour coding is helpful. Primary participants highlighted that it feels less cluttered and has the potential to offer IDL opportunities.

Remaining concerns: gaps and framing

For the science publication to land well it needs to be properly framed.

Missing references to senior phase content was raised as a concern.

Primary and secondary participants both flagged risk that busy colleagues may not be interested or will be overwhelmed if the document ends up too big or complex.

Question 2: What additional information is needed?

Timeline and next steps

Multiple sectors (primary, partner and secondary) ask for a definitive timeline, clarity on what is still to come, and phased rollout details.

Exemplification and progression clarity

Requests for examples of progression, exemplification of levels 1–4, and course outlines were repeatedly requested

Assessment and resources

Several tables mention assessment expectations and resource availability, including the need for moderated examples and national assessment banks when the new curriculum goes live.

Question 3: How can we best support engagement with the materials?

Champions, mentors, and existing networks

All sectors suggested using existing curriculum champions, mentor programmes/working groups, LA networks, collaboration group members, student teachers, ITE providers, and subject associations to share information. There were also suggestions to create CIC focused champions.

Ready to use presentations, videos, and webinars

There were repeated asks from all sectors for short slide decks, voice-over versions, 5–10 minute videos, and webinar launches (ideally with exemplars and someone talking through start-to-finish).

Protect time and offer flexible scheduling for professional learning

All sectors called for time to read and digest via allocated/mandated time.

Consider webinar timings (especially for technicians and ELC colleagues), and flexible, face-to-face option.

The following feedback, specifically about format and suggested content to aid the framing of the documents, will be considered by Education Scotland for the publication of the materials in early 2026:

Format

- Colour coding is helpful.
- Tables can be intimidating, text heavy and hard to read on devices.
- Language should be simple, easy and accessible.
- Overarching concepts could be presented as a diagram to show there's no hierarchy/ order.
- A 5/10 minute video - perhaps in the format of a narrated PowerPoint.
- A short PowerPoint that can be used in settings.
- Visual/ infographic versions of the materials (similar to those used in our presentations at Sciences CIC events −much more accessible and engaging and would 'land' better).

Suggested content to aid framing

- An explanation of what is still to come and what happens next, the process so far and why decisions have been taken as well as a definitive timeline (perhaps exploring a story narrative).
- Suggested questions to stimulate discussion generated by Education Scotland.
- Exemplification of layers 1-4.
- Clarification about levels and stage.
- Caveat about senior phase.
- How to provide feedback.
- Offer of support to local authorities and settings from Education Scotland.
- A frequently asked questions page would be helpful.

6. Evaluation overview

Of the **65** participants (practitioners and partner representatives) that attended the event, there were **57** completed evaluation forms (**88%** response rate). The following highlights the key aspects from the evaluation form:

- **Overall how would you rate the quality of the Collaboration Group Day 3 event?**
  Of the 57 people who completed the evaluation, 57 **(100%)** rated the event as ***very good*** or ***good*** – with ***very good*** **(89%)** and ***good*** **(11%).**
- **I feel that my opinions and suggestions are being heard and included in the Sciences Curriculum Improvement Cycle**
  57 out of the 57 respondents **(100%)** stated they felt their opinions and suggestions are being heard in the CIC process – with ***strongly agree*** **(82%)** and ***agree*** **(18%).**
- **I trust the Sciences Curriculum Improvement Cycle process to deliver better outcomes for learners in Scotland?**
  57 out of the 57 respondents **(100%)** stated they trust the sciences CIC process – with ***strongly agree*** **(72%)** and ***agree*** **(28%).**
- **Do you believe that the Sciences Core group are making progress with a new sciences curriculum?**
  57 out of the 57 respondents **(100%)** stated that they believe that the Sciences Core group are making progress with a new sciences curriculum – with ***strongly agree*** **(70%)** and ***agree*** **(30%).**

Sector insights

Early learning and childcare (ELC)

- Valued early involvement in shaping the sciences curriculum.
- Emphasised the need for clear, accessible language and ideas.

Primary

- Most valued structured time for professional discussion.
- Highlighted the importance of coherence and manageability for classroom use.

Secondary

- Valued opportunities to challenge and refine ideas in depth.
- Stressed the need for clear conceptual structure.

Additional support needs (ASN)

- Welcomed inclusive participation in curriculum discussions.
- Emphasised flexibility to meet diverse learner needs.

Community learning and development (CLD)

- Valued links between sciences and real-world/community contexts.
- Sought clearer positioning of CLD within the framework.

Trust remains high, suggesting broad endorsement of the direction and structure of the Sciences CIC process.

Comments from Day 3:

“Really pleased to see the progression which has been made and the direction of travel, I feel that the big ideas have evolved nicely and am excited to take them back to school.”

“I feel that the change to the 3 big ideas is huge progress.”

“Really starting to see how this can come together. Brilliant to see the reception from the larger group for the work done so far and what needs further refinement.”

7. Next steps

On collaboration Group Day 3, members of the group provided feedback and endorsement to guide the next steps of the Sciences CIC process. The findings from this event will form the basis of the sciences emerging thinking publication which is due to be released in early 2026. Feedback on this will be sought from practitioners and partners from across Scotland to inform next steps.

The Core Group is scheduled to meet in January 2026, and again in early March 2026, before the Collaboration Group reconvene on 26th March 2026. In addition to this, the Education Scotland Sciences Team will convene an additional two days of work with 30 other members from the Collaboration Group and Critical Friends network during February 2026. All Collaboration Group members had the opportunity to express interest in supporting this work following the event. These groups, in tandem with our various critical friends focus groups, will work on developing the more detailed 'know' and 'do' statements. Taken with the big ideas and concepts outlined above, these will give shape to the draft technical framework for sciences. In June 2025, Scottish Government published a timeline for the CIC process setting out key dates and milestones. This document sets a timeline for the draft evolved curriculum technical framework for the sciences curriculum to be published in June 2026.

If you have any questions about the Sciences CIC process, then please contact Education Scotland's Sciences Team on email: science@educationscotland.gov.scot