Education Scotland
Foghlam Alba

Sciences Curriculum Improvement Cycle (CIC)

ASN and ELC Focus Group Report

Session 1 – 30 January 2026

Introduction

On 30 January 2026, an in-person event took place which brought two Sciences Curriculum Improvement Cycle (CIC) Focus Groups together. These focus groups contained participants from the following sectors: Additional Support Needs (ASN) and Early Learning and Childcare (ELC). The focus groups are an integral part of a coherent 3-18 approach to reviewing the sciences curriculum and was established to support the work being taken forward by the Sciences CIC Collaboration, Core and Critical Friends Groups. These focus groups were established in recognition of the fact that these groups can often be under-represented. While care has been taken to ensure representatives from these sectors are on the Core and Collaboration Groups, more detailed thinking is required and further discussion time was felt to be helpful to seek the views of a wider range of practitioners in these areas. The thinking, ideas and output from the focus group will be shared with Collaboration, Core Group and Critical Friends Groups to ensure a coordinated and coherent 3-18 approach to curriculum review. This report has been produced to support this process.

Focus group participants were selected via open recruitment, advertised on a range of networks specific to these sectors. Members of the wider Collaboration Group who represent these sectors were also invited. These focus groups are in addition to the national reference groups who are looking more broadly at the statutory requirements for protected groups (of which ASN and ELC are included). There were seven ELC practitioners attendees on the day, and eleven attendees representing the views of the ASN sector, of which ten were practitioners, and the other an academic partner with extensive experience in this area. For all activities detailed within the report, participants worked in sector groupings.

The day involved discussions to:

- Provide feedback on the emerging big ideas and overarching concepts for science
- Consider research on cognitive development to aid thinking
- Review work which emerged from the Core Group workshop in January 2026 around two areas of the sciences curriculum
- Consider whether it would be useful for levels to sub-divided, showing which order learners should progress through knowledge within each level
- Suggest experiences[1] linked to the core group output, and consider the skills developed through these experiences.

This document is intended to give a summary of the activities undertaken by the focus group on 30 January 2026, and to provide an overview of the ideas and suggestions that emerged. All of the materials used, such as the presentations and stimulus materials, are available to view on the session Padlet, alongside photographs of the notes made by participants on flipcharts and post its during each activity. **In trying to summarise, please appreciate that some of the nuance will be lost**.

If you have any questions or feedback about the content of this report please contact our team on email: science@educationscotland.gov.scot

[1] Please note the term 'experiences' is used here in response to feedback from the ELC and ASN sectors that this is their preferred way of framing learning.

Session 1 – Feedback on emerging big ideas and overarching concepts

Purpose

To discuss and provide feedback on the emerging big ideas and overarching concepts for the sciences curriculum.

Activity

The emerging big ideas and overarching concepts for the sciences curriculum were shared with participants in advance of the meeting via an online session. These are shown in the table below for reference.

Big ideas	**Being scientific:** building our skills toolkit	**Our scientific knowledge:** what we understand so far	**Science in action:** be the change
Big idea statement	We learn how to use scientific skills to answer questions about our world.	Our scientific understanding is built on knowledge and evidence which develops over time.	Applying our scientific knowledge and skills empowers us to make informed, ethical choices and take action.
Big idea narrative	Being scientific is about developing the skills to help us question, explore and understand the world. We begin to see ourselves in science and understand how it connects to our lives. We do this through experiences that encourage curiosity, practical enquiry, collaboration and critical thinking. We develop confidence in scientific thinking and practices by looking at evidence, testing ideas, and improving explanations.	Scientific knowledge helps us to make sense of the world around us and to discover our place within it. Our understanding of the sciences is refined over time as new evidence emerges. We can all contribute to the development of scientific knowledge.	Science is not only about understanding the world – it is about improving it. Our science knowledge and skills help us come up with creative solutions to real-world problems. Evidence helps us to make informed, ethical decisions. We also recognise that scientific discoveries can bring both benefits and risks. The sciences empower us to take action to help both people and the planet.
Overarching concepts	**Energy**	Energy helps us to describe and understand change. It can be stored and transferred. Energy is an indication that change can happen.	
	Ethics	Ethics in the sciences are the principles that guide us to make informed and responsible decisions based on evidence, reasoning and values.	
	Patterns and trends	Patterns and trends help us to notice what stays the same and what changes, so we can compare, explain and make predictions.	
	Relationships and interactions	Relationships and interactions help us make connections and explain the causes and effects we observe.	
	Scale, proportion and quantity	The sciences help us measure and compare the properties of the world, from the smallest of particles to the vastness of the Universe. 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.	

	Sustainability	Sustainability is about using Earth's resources responsibly so that people and nature can thrive now and in the future. Sustainability helps us to address local and global challenges.
	Systems and cycles	Many natural and human-made processes can be understood in terms of systems and cycles. Some operate in repeatable and predictable ways which helps us make sense of ourselves and the world around us.

After a brief reminder of these, participants were asked to provide feedback under the headings 'plus', 'minus' and 'interesting' – detailing what they liked about the big ideas and concepts, what the potential drawbacks could be, and any other thoughts or reflections.

Summary of output

A summary of the most common themes from the reflections for each sector are given in the tables below.

Feedback on the big ideas for the sciences			
	Plus	**Minus**	**Interesting**
ELC	Clarity, simplicity, and accessibility of the language used. Inclusivity for children and staff. Relevance to real-life, community, and children's lived experiences. Empowerment and agency for young learners. A strong fit with ELC pedagogy, especially play, inquiry, and experiential learning. Support for practitioner confidence and making science more visible in the curriculum.	ELC practitioners are broadly positive about the big ideas but emphasise the need for clear guidance, appropriate and realistic knowledge expectations, support for practitioner confidence, and careful handling of abstract or ethically sensitive content.	Three big ideas feel much better than the original six that were shared previously. The order they are presented in feels appropriate – children need skills before developing knowledge.
ASN	Big idea 1 focus on practical, real-life, sensory experiences is essential for ASN learners. Clear, simple language supports both practitioners and learners. Application-focused science offers the greatest opportunities for engagement and success. The big ideas help learners feel included, capable, and part of the scientific process.	Accessibility and flexibility must be built in, especially around critical thinking and knowledge retention.	The evolved sciences curriculum will need to be effectively resourced and accompanied by support and time for teachers to know how to do this effectively, particularly with ASN learners.

Feedback on the overarching concepts for science			
	Plus	**Minus**	**Interesting**
ELC	Clear links to other curricular areas such as maths, and to other wider priorities such as Learning for Sustainability. The language is clear and accessible, supporting confidence across the workforce.	Some of the concepts are quite abstract and would require exemplification to ensure practitioners can easily understand what is meant by each.	Some concepts would definitely be covered in ELC, where others might not be developed until later.

	The concepts are broad enough to allow for rich, varied, child-led experiences. They help make science more visible and intentional in ELC settings. The descriptors make expectations easy to understand and support planning. The wording feels developmentally appropriate and aligned with early years pedagogy.		
ASN	Positive to have threads running across science disciplines as these connections help ensure relevance for learners.	Concepts are abstract and language feels quite inaccessible for ASN sector.	Potential to include milestones for science as well as for literacy and numeracy.

Session 2 – Reviewing Core Group knowledge output

Purpose

To review and provide feedback on the initial output from the CIC Core Group on possible knowledge to be covered at each level for the areas of *Forces* and *Body Systems* in the sciences curriculum. To consider whether sub-divisions of levels, showing the progression learners should make through knowledge within a level, would be useful for ASN and ELC practitioners.

Activity

Participants considered a stimulus looking at research on cognitive development. Participants then worked in sector groups and reviewed the knowledge suggested by participants from the Core Group workshop in January 2026. They were asked to reflect on what knowledge they would keep, what should be removed, and any gaps using their own experience and the considering the cognitive development research. The specific feedback given by each group can be viewed via the Padlet.

Participants were then asked to vote on whether levels should be divided into sub-levels.

Summary of output

ASN feedback

ASN participants pointed out that the inclusion of 'child-led play' within the output at early level was not inclusive of learners accessing early level learning out with an ELC setting. Participants also shared their experience of learners who are accessing the same level for multiple years of their school life and therefore emphasised the need for the curricular statements to give scope for creative ways to deliver the same content multiple times, and be able to track progress **within** a level.

ELC feedback

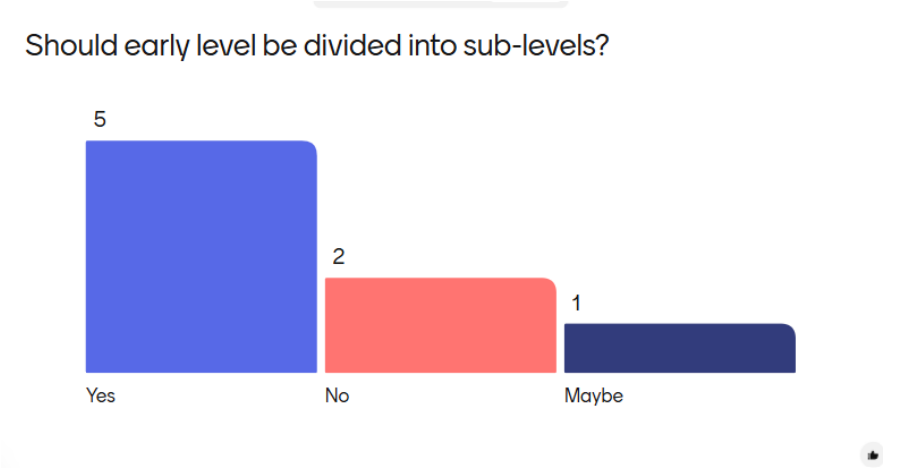
ELC participants pointed out instances where early and first level could be more closely linked in terms of content to avoid repetition and improve transitions. The group discussed how certain words might be ***heard*** by children at early level but not necessarily ***used*** by children until first level. Some of the feedback also highlighted that being too specific might actually limit where a child or practitioner may take the learning (for example only specifying pushing/pulling and floating/sinking could limit what's covered). The group also recognised where content from Realising the Ambition (RtA) had been used to generate the output at this level.

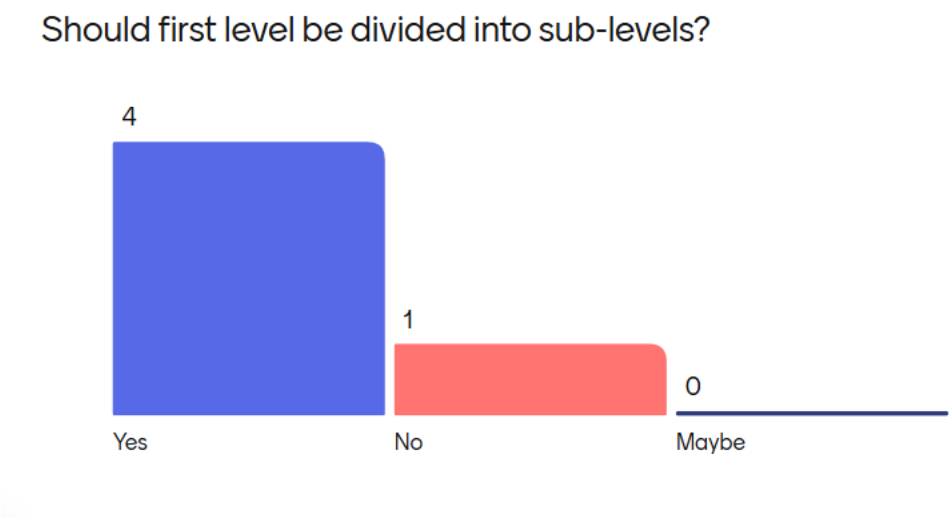
Common themes across both sectors

Both groups highlighted that often experiences, or 'do', comes before knowledge, recognising that their learners build knowledge by doing. Both groups also identified various pieces of knowledge which felt too abstract (for example use of the term 'mass' at first level in the forces output), and therefore developmentally inappropriate, and made recommendations to move some knowledge to another level based on this. There was also some discussion around pre-early and what this might look like. Finally, participants reflected on who these documents were for as there was a mixture of practice guidance and knowledge statement (for example 'carefully consider the resources on offer to me and how it will provoke my senses and encourage curiosity and creativity' is from RtA practice guidance whereas 'senses keep us alive' is a knowledge statement).

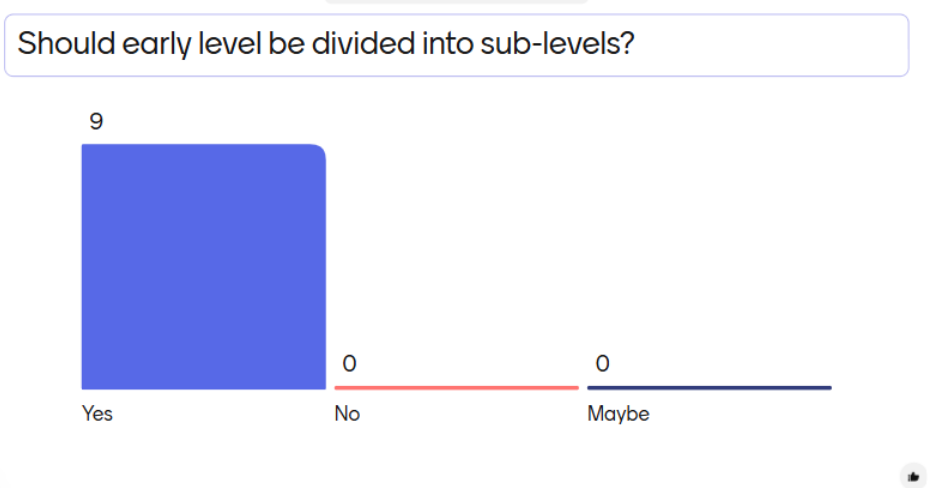
These recommendations will be considered by the ES team as the framework for these areas is developed, and further feedback will be sought to ensure the comments above have been addressed.

Voting results: ELC

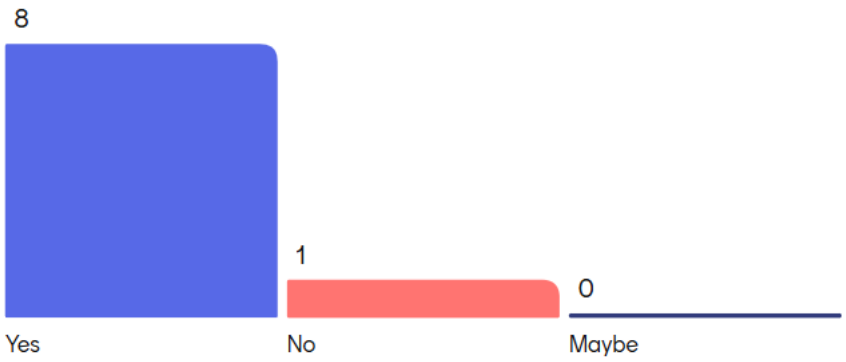




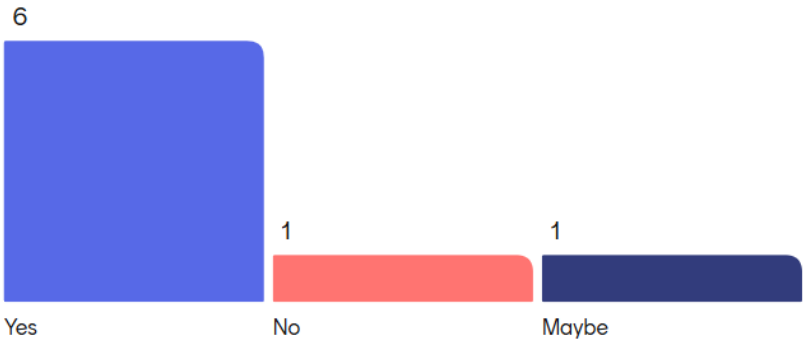
Voting results: ASN



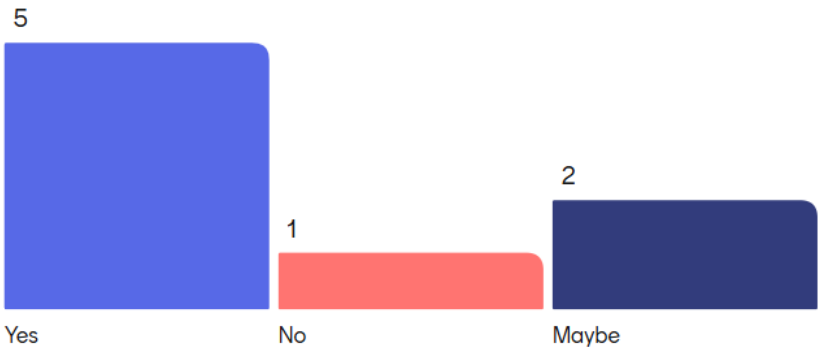
Should first level be divided into sub-levels?



Should second level be divided into sub-levels?



Should third level be divided into sub-levels?



Session 3 – Experiences and skills development

Purpose

To suggest experiences that would help learners develop the knowledge drafted by the core group on the areas of *Forces* and *Body Systems*. Participants were asked to clearly articulate the skills that would be developed alongside these to support creation of the 'do' statements.

Activity

Using stimulus materials for current curricular frameworks from various local authorities (these can be found on the padlet), participants were first asked to consider experiences that would sit alongside the knowledge explored in session 2. This then allowed participants to reflect upon the skills that would be developed through their suggested experiences, using the root verbs previously shared with the Core Group to support discussion around skills. The ideas generated in this activity can also be viewed on the session Padlet.

Summary of output

The following table shows a count of the number of times each root skills verb was identified per level. Please note that both ELC and ASN practitioners completed this activity for early level, while only ASN participants looked at first to third level.

Root skill verb	Tally at early (ELC and ASN combined)	Tally at first	Tally at second	Tally at third	Total mentions throughout early - third
Analyse	1	4	2	1	8
Apply	-	2	-	2	4
Ask	-	2	-	-	2
Buil	2	2	3	2	9
Calculate	-	-	-	2	2
Classify	2	1	-	-	3
Collect	-	-	-	-	0
Collaborate	2	1	-	2	5
Communicate	6	-	1	-	7
Conduct	1	4	1	-	6
Conclude	-	-	1	-	1
Describe	-	2	2	3	7
Design	1	1	2	-	4
Discover	8	1	2	4	15
Evaluate	-	1	1	1	3
Explain	-	2	6	1	9
Experiment	8	3	5	3	19
Formulate		1		2	3
Identify	1	5	1	5	12
Investigate	8	6	4	4	22
Justify	-	1	2	-	3
Manage	-	-	-	-	0
Measure	-	-	-	1	1
Model	-	1	-	2	3
Observe	9	8	6	7	30
Plan	-		1	2	3
Predict	-	2	-	2	4
Present	1	-	-	3	4
Record	1	-	1	5	7
Reflect	2	4	1	1	8
Relate	-	2	-	4	6
Solve	1	2	-	-	3
Suggest	-	-	1	-	1
Total number of skills highlighted	17	24	19	22	

Key findings:

- First level showed the highest number of skills highlighted, while early showed the lowest.
- Some root skills show far more repetition, which could come at the expense of other skills coverage. This is particularly acute at early and second level.
- Those most commonly referred to skills across all levels include: Observe (30), Investigate (22), Experiment (19), Discover (15), Identify (12).
- Those not referred to at all include: Manage, Collect. It might be that these would be covered in other areas of the curriculum not yet explored, or it might be that these are not well understood/ more obscure skills to fit into experiences.
- Those receiving the fewest mentions: Ask (2), Calculate (2), Conclude (1), Measure (1), Suggest (1).
- It should also be noted that the terms 'investigate' and 'experiment' were often used interchangeably.

This data will be shared as a stimulus at the next Core Group workshop in March 2026 as they further reflect on the nature of the 'do' statements within the evolved technical framework.

Session 4 – Plenary

At the end of the day participants were asked to reflect on what went well and what could be done differently as part of an informal evaluation. Output from this is available on request.

Next steps

The Sciences CIC Core Group will meet for a two-day workshop on 05 and 06 March. They will review the output from activity 3 in particular when giving consideration to the 'do' aspect of the evolved technical framework in relation to skills. All of the feedback given will be drawn upon by the ES team as they begin to develop the evolved technical framework for the sciences curriculum. This iterative process will involve multiple opportunities for the CIC Collaboration Group, Core Group and Critical Friends to provide feedback to support the refinement of this work as it develops.
Updates on the work of the Sciences CIC will continue to be given through online webinars, the next of which is scheduled to take place on Thursday 19 March.

Across March and April, the ES team will be working to refine and develop the draft technical framework for the sciences curriculum in line with the Scottish Government's timeline for the CIC process, which sets a timeline for sharing emerging thinking for the technical framework by summer 2026. Further meetings of the Core Group, Development Group, Collaboration Group or Critical Friends may take place during this time, subject to budgets and specific needs as the framework is evolved. The team will also continue to work closely with the reference groups for ELC and ASN to ensure that statutory requirements are being met for these areas and that feedback is shared between the focus group and the reference groups.

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