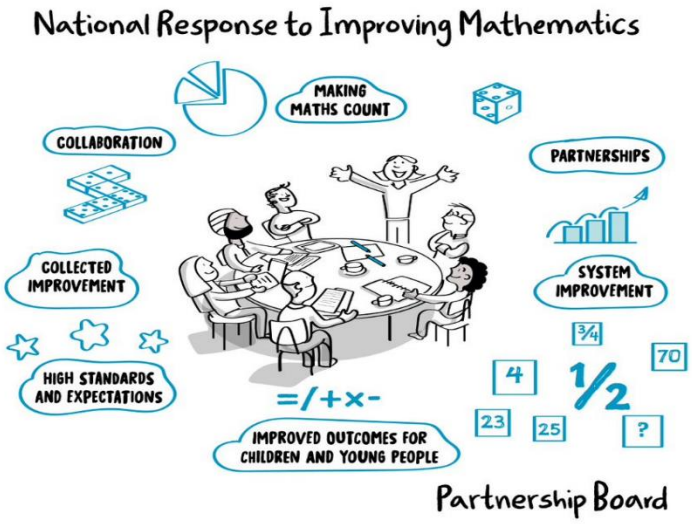
# A National Response to Improving Mathematics (NRIM) in Scotland

## Summary report of initial consultation discussions completed with NRIM Partnership Board stakeholders March 2022

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## Introduction

Following the establishment of the NRIM Partnership Board on 10th May 2021, a series of one-to-one consultation meetings were arranged by the NRIM board, to engage in reflective dialogue with Regional Improvement Collaborative (RIC) representatives, Initial Teacher Education (ITE) and the National Parent Forum for Scotland (NPFS) partnership board members. During the key leadership stakeholder consultations, colleagues were asked four reflective questions linked to the aspirational aims of the NRIM, as outlined within the boards agreed Terms of Reference. These questions and summary of responses are detailed below. This report captures the main themes and common threads of improvement ideas that were explored as a result of these discussions.

The recommendations captured through this consultation process and contained within this summary report, are intended to feed into future NRIM partnership board meetings for consideration. Moreover, combined with emerging themes and recommendations from the NRIM's associated short life working groups (SLWGs), these responses intend to play an integral part in the final NRIM recommendations that will be submitted to Scottish Government to inform national improvement direction.

## Context

As stated within the NRIM Terms of Reference, the **aspirational aims** of the NRIM Partnership Board are as follows:

- to transform Scotland to be a greater maths-positive nation (achieved partly by promoting the joy of mathematics),
- to support and promote the belief that everyone has the capability to become proficient at mathematics, regardless of their circumstances in life,
- to ensure that 21st Century Skills are embedded within teaching and learning,
- to ensure consistently high standards of professional learning in numeracy and mathematics across Scotland,
- to improve levels of mathematical literacy,
- to improve attainment in numeracy and mathematics in Scotland.

Furthermore, the NRIM Partnership Board are committed to developing an action plan which will include:

- One national numeracy and mathematics improvement strategy which provides a route map for contextualised local strategy development and school level improvement response that addresses:
  - improvements in learning, teaching and assessment in mathematics for learning, life and work
  - the findings of OECD reviews into implementation of CfE and the National Qualifications.

- employability, particularly in the post-Covid economy.

- A robust programme of bespoke professional learning for both practitioners and leaders. This will include leadership for improvement, training, advice and support for schools, teachers and practitioners. This robust programme will aim to develop consistency and improve standards across Scotland and ultimately accelerate pupil achievement in the subject.
- The launch of a renewed focus on building capacity in numeracy and mathematics through existing teacher and leadership programmes.
- The resources necessary to support this offer.
- A self-evaluation framework specifically for numeracy and mathematics which local authorities and school leaders can use to evaluate the effectiveness of curriculum, learning and teaching, and identify opportunities to enhance and strengthen curriculum design and delivery.

The four questions which framed the consultation exercise and were based on the aspirational aims of the board (as noted above) included:

1. *What do you see as the essential elements that require to feature within the one national Numeracy & mathematics strategy?*
2. *How can we design this strategy, so the system interacts with it as an improvement route map?*
3. *Question 3: Do we know what Professional Learning and Leadership is currently being offered nationally, regionally and locally in relation to Numeracy & Mathematics? How do we approach an audit of this space to then inform a collective robust programme?*
4. *Question 4: Where is Self-Evaluation for Continuous Improvement in Numeracy & Mathematics strongest within our Local Authorities? How can we draw this into a collective SE framework?*

Each consultation meeting lasted approximately one hour and was facilitated by two/three of the following leads from the NRIM partnership board:

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| John Neeson | Senior Education Officer, Numeracy & Mathematics (interim), Education Scotland |
| Pamela Di Nardo | Senior Regional Advisor (interim)/ Senior Responsible Officer Numeracy & Mathematics, Education Scotland |
| Laura Ross | Numeracy and Mathematics Policy Leader, Curriculum Unit, Learning Directorate, Scottish Government. |

Each consultation meeting was minuted and records were agreed by those interviewed.

## Consultation Summary

## Question 1: What do you see as the essential elements that require to feature within the one national Numeracy & Mathematics strategy?

There were a number of essential elements featured in colleagues' responses, but none more than **pedagogy, transition** and the necessity for a **national strategy and framework.** During the one-to-one discussions colleagues welcomed the idea of a **national route map/strategy** and felt that it was not only essential, but vital in the development of a **'one-system response' to implementing improvement change action**. It was also felt that a **national/regional map** to capture and share the wide range of improvement work going on across the country was fundamentally important too. It was noted that such mechanisms would develop and drive 'an over-arching consistent approach' across the country and possibly **reduce variation in standards**. Furthermore, such approaches had the opportunity to capture, signpost and pinpoint the delivery of high quality CLPL linked to learning, teaching and assessment, principles and approaches.

Colleagues noted that a better understanding and strengthened partnership working with **ITE** colleagues was necessary. It was felt that NQTs were not always prepared well enough nor 'ready' for teaching numeracy and mathematics at a satisfactory level. It was also noted that the disruption caused by COVID-19 had exasperated such issues. One colleague indicated a strong belief in the ability to teach maths as having equal importance as a qualification. They key point being building trusting relationships, inspiring and motivating was of huge importance.

Colleagues indicated that in their view, experiences and standards of university training and preparation varied, as did the experience of practical school placements. It was felt that an increased portion of time should be spent in university on a weekly basis, **learning how to teach the basics** of numeracy and mathematics. Furthermore, **improved school-university links** should be established to develop a mutual understanding and appreciation of **practical skills to support teachers** at all stages in their development.

Almost all colleagues spoke of the importance of **pedagogy** and the necessity for a consistency of approach. It was felt that 'sound' pedagogical approaches need to be embedded into practice and clearly understood by all e.g., metacognition and maximising the use of IT. Colleagues also felt that there should be a focus on streamlining the curriculum with shared pedagogies and subject knowledge from early years through to senior phase. Colleagues also expressed their views that problem solving needs to be at the core of all numeracy and mathematic experiences. Colleagues acknowledged the important role that digital N&M resources play in learning and teaching and the recent efforts (driven by the pandemic) to maximise engagement and increase access and availability for all.

Moreover, colleagues expressed the importance of ensuring flexibility and local circumstances and context be taken into account. This would provide a balanced approach and should lead to 'getting in right for every learner'.

Colleagues noted the importance of **transition**, across stages, but particularly at vital stages including early years to primary and primary to secondary. It was felt that there is a large degree of variability in the planning and application of effective approaches to support transition across the country, and indeed within local authorities. It was felt that further guidance is required to ensure that the standards linked with transition experiences are maintained, are consistently well applied, are adequate and personalised to ensure they meet the individual needs of learners.

Most colleagues felt that **skills development** should be an essential underpinning feature within the proposed national N&M strategy. It was noted that the fundamental principles outlined within Curriculum for Excellence, Building the Curriculum 4: Skills for learning, skills for life and skills for work (and the key messages noted below and featured within page 2 of the document), should be carefully and explicitly woven through the new national strategy narrative.

*'(This document) aims to help all those who are involved in planning and delivering young people's learning across all sectors and settings to reflect on and develop their current practice, so as to bring about the transformational changes needed to improve the life chances of young people in Scotland.'*
*(Scottish Government, 2009)*

Colleagues noted that these principles should include ensuring, context, real-life skills experience, progression and partnership, to name a few, are at the heart of the mathematics curriculum offer and experience. Colleagues also felt that the existing Curriculum for Excellence: Mathematics and Numeracy Across Learning Principles and Practice papers remain as foundation/ core guidance and have a strengthened role in the national narrative. It was indicated that all new documents and guidance papers associated with the national strategy should be concise and clearly focused.

Most colleagues interviewed also felt that **assessment** principles need to be refocused and aligned to ensure a better connected system is in place with smoother links right through early years to college destinations. During discussions, key assessment issues were raised which included considerations on how children and young people are assessed, how practitioners effectively gather evidence of progress, and how and when assessment is delivered and then used responsively to target gaps in learning.

Again, most colleagues made important reference to **learning and teaching** and **moderation** being at the heart of a national strategy. They noted the crucial part that quality professional learning plays in establishing, developing and ensuring that learning and teaching approaches result in quality outcomes for all learners. References were made by a few colleagues regarding the importance of application, pace, and challenge. Moreover, intertwined within these conversations was the importance and role of **quality assurance** procedures and **quality improvement** processes that support and ensure the highest standards of learning and teaching.

Wider conversations regarding **professional learning**, from NQT to leadership, were discussed, but the central theme remained consistent. Quality professional learning needs to be available to everyone and needs to be focused. Examples shared included, developing the craft of practitioners, SEAL, Maths Recovery and number/procedural fluency.

It was acknowledged that there is a wide range of CLPL on offer across the country, but availability and access can be limited. A more joined up map and framework to accelerate **collaboration between local authorities and associated RICs** was suggested as a way to help improve such issues and **reduce variability in standards**. Strengthened and increased collaboration and partnership working, was suggested as an approach to accelerate improvement through the sharing of emerging thinking and practice. Whilst it was noted that such approaches had a wide range of benefits, in particular these were indicated as ways of improving knowledge and understanding of how others utilise **PEF funding and interventions to enhance numeracy outcomes**, approach **universal and targeted support**, use video on situation analysis/ Video Enhanced Practice (VERP) and plan for **improvement using VSE** models.

A few individuals highlighted that whilst they welcomed the establishment of the **NRIM SLWGs**, a more joined-up approach towards their creation and aligned themes, would have been welcomed. These individuals indicated that they were disappointed to see themes siloed into sectors e.g. ELC, primary, secondary etc. It was suggested that moving forward these SLWG aligned themes would benefit from merging to reinforce the progressive nature of CfE and support the linkage of common themes as they emerge.

It was also suggested that a specific **parental NRIM SLW sub group** would be beneficial in providing parents with a forum and opportunity to actively contribute to policy consideration, the evaluation and improvement planning linked to home learning and accelerate ongoing work linked to Making Maths Count recommendations.

It was noted that an essential element for improvement was the need to build **knowledge and understanding of numeracy and mathematics within ELC settings**. It was widely agreed that urgent professional learning was necessary to upskill EY practitioners and help establish a better N&M foundation and subsequent platform for our youngest learners.

Finally, colleagues highlighted the need to ensure we take account of **other countries** and learning from research. Learning from the **Stoddart Report** and the possibility of introducing a system wide approach to promoting **young people as ambassadors, champions and leaders for curriculum areas such as numeracy and mathematics,** were also suggested.

## Question 2: How can we design this strategy, so the system interacts with it as an improvement route map?

Most colleagues expressed a desire that the designing of a one nation strategy must take account of **local circumstances and context**. Furthermore, colleagues expressed their view that an improvement route map must be **engaging and visual**. Most colleagues stated that a National Route Map, which incorporated a **landing site** would be welcomed. It was felt that quality time should be invested in creating such a resource/tool and then targeted school level support could be provided to

support schools with individualising it for their particular context/ need. It was also expressed that any route map/tool/landing site needs to be **relatable for educators working at all** levels of the system to **ensure a collective drive for improvement** within numeracy and mathematics.

One particular colleague expressed their view that national support is more often focussed and delivered within the central belt of Scotland. They indicated that at times they felt the need for support, beyond the central belt was not equally responded to, or was as accessible.

As mentioned previously, the need for **professional learning at all levels**, including leadership and core numeracy and mathematics professional learning of practitioners needs to be developed and incorporated into the design of a national strategy. Colleagues highlighted that the benefits of a national strategy could be 'huge' however felt that in order to have maximum impact, a clear and effective approach to the coordination of implementation would be required.
Colleagues noted the important role that LAs could play in the co-creation and steering of a national strategy and associated professional learning suite. However, it was agreed that a joint commitment would be important to secure in order to ensure an impactful collective endeavour.

As mentioned previously, colleagues noted that pedagogy/methodology should play an important role in the improvement route map and national strategy. It was suggested by some colleagues that this could even include guidance surrounding a set of agreed signposting to national pedagogies. Various suggestions regarding pedagogy were tabled. Most prominent suggestions included - conceptual understanding, procedural application, an emphasis on problem-solving skills, the Froebelian approach, play-based pedagogy, the universal, targeted and intense intervention approach and use of 'Maths Recovery', 'Tools, Task, and Talk' – in every single maths lesson, and the use of specific manipulatives. It was also felt that such guidance would help to support the issue of 'mutation theory' e.g., in Number Talks.

Colleagues also referred to various recovery work that is being undertaken across Scotland to respond to learning loss and gaps in numeracy as a result of Covid-19. They noted the significant focus of such work and its importance for the foreseeable future, to address interrupted learning and ensure stabilisation and maximum process of children and young people. Colleagues raised the concern that the fidelity, efficacy, and self-efficacy of various recovery programmes can be undermined if not applied accurately. As such it was indicated that further national guidance on approaches to recover learning in numeracy would be welcomed.

Most colleagues indicated the necessity for strong leadership to assist in building capacity and develop expertise in numeracy and mathematics at all levels of the system. It was noted that such strong leadership would also play a vital role in leading quality assurance and self-evaluation. Colleagues spoke about leaders

helping to ensure what needs to be in place in individual settings, local authorities and across RICs. Examples of 'Leaders of Learning/ Maths Champions/ Lead Teachers' stated by colleagues included, leaders playing key roles in the development of moderation, using challenge questions effectively, utilising data to support approaches and effectively using version 2 of SAC monies.

Finally, some colleagues spoke about the importance of the GTCS standards being utilised to encourage all practitioners to research, read and reflect. It was felt that this should be an expectation, not a consideration e.g. read thematic reviews.
Colleagues also spoke about looking 'outwards' whilst designing a national route map and a few highlighted interest in activity in England where maths and numeracy hubs and networks such as the NCETM model, have leadership/ capacity building within its design infrastructure. It was noted that other leading countries consistently look outwards for key learning from other models and it was suggested that Scotland should be encouraged (as a collective system) to do more of this when designing policy and action

## Question 3: Do we know what Professional Learning and Leadership is currently being offered nationally, regionally and locally in relation to Numeracy & Mathematics? How do we approach an audit of this space to then inform a collective robust programme?

The main theme raised by colleagues in response to this question was the need to continue to improve networks, both locally and nationally. A good example of an emerging network was the Higher Applications of Maths Network. It was noted that other responsive networks and mechanisms, like this, to reflect and refine practice as a collaborative, had potential to provide both strategic and operational support to the system. Colleagues expressed that everyone needs to be better aware and more informed of local, regional, and national professional learning (PL) and leadership opportunities shared through avenues such as the ES National Numeracy Lead Network and various secondary Principal Teacher Networks.
With the development of digital technology, it was agreed that opportunities to 'link and join up' professional learning across the system were ripe. It was suggested that joining up staff in any LA to any session in another LA should be further mapped and explored. It was noted that whilst this was happening at present, it is ad hoc and dependent on the networking of strategic leads. It was agreed that this needs to improve and be more consistent.

Colleagues further stated that as the PL needs of staff vary, there are often various layers of PL required. As such there was a noted need for a national PL map to be created. It was suggested that this would include what PL is being offered in each LA. It was highlighted that currently LAs share an overview of PL being offered at local level with all schools, however this could and should be developed to include

an invitation to PL available across all LAs/RICs. Colleagues indicated that they have no doubt that overlap exists in the PL offer across Scotland.

Colleagues used the example of the vital role that RIC/LA numeracy champions could play in ensuring a 'joined-up' system approach to improving numeracy. They indicated that such champions could potentially lead developments in schools to improve consistency. Furthermore, focussed leadership and alignment of such champions could help identify 'expert people' to deliver improvement approaches in clusters and/or individual settings. It was noted that there are already examples of such cluster/ school level improvement work captured through the GTCS 'Excellence in Professional Learning Community' awards. It was felt that such 'partnerships' could also be used to help improve local and national communication channels i.e., sharing monthly numeracy and maths newsletter with authority staff through e.g., education bulletin and continually promote the national standards. Moreover, it could help minimise inconsistency across LAs and RICs. Finally, notwithstanding its benefits, some colleagues expressed their view that one shared collective robust programme of PL may be unrealistic and too ambitious.

However, of vital importance too is the need for equity in capacity within each LA/RIC if tasked with co-leadership and the delivery of a national strategy. It was noted that there needs to be flexibility in expectations as all LAs/ RICs are different. Nevertheless, certain processes would need to be established to ensure proportionate support to drive improvement. Some colleagues also felt a particular focus on self-evaluation and quality assurance processes in addition to providing help with school improvement planning was required and could potentially provide quick gains.

Furthermore, it was noted that already some RICs have initiated discussions surrounding the appointment of 'Lead Teachers' as defined by the SNCT to help drive improvement across their area. Such appointments could play a vital role in supporting national, regional, local and school level improvement connectivity.

Other themes suggested through this question included the review of backtracked data being used effectively in some LAs.

Finally, colleagues asked why we are not doing better if one of the four national priorities include maths?

## Question 4: Where is Self-Evaluation for Continuous Improvement in Numeracy & Mathematics strongest within our Local Authorities? How can we draw this into a collective SE framework?

There was a strong feeling amongst colleagues that a positive culture of self-evaluation and moderation is already in place in Scotland. Nevertheless, it was agreed that this needs to be further established and embedded. Colleagues noted

that all self-evaluation activity across the country needs to be robust, reliable and ensure improvement action.

It was the opinion of those consulted that local authorities would welcome additional support with the development and leadership of validated self-evaluation processes. In addition, support for head teachers to use data more effectively to identify support needs and inform developments would be welcomed. Colleagues highlighted that self-evaluation should be used as a tool for reflection and planning a way forward, but in light of the pandemic it was acknowledged that this may have slipped under the radar of schools recently as recent circumstances have prevented routine classroom interaction and LA visits. Colleagues also noted that in recent months, most interactions have been reactive and responsive and as such bits of improvement and operational work of the system, has unfortunately temporarily been paused.

Colleagues noted that some LA self-evaluation frameworks are based on the recent 'Multiplying Skills, Adding Value' thematic inspection model. Colleagues noted that the thematic report provides class teachers with examples of good practice and schools can use it as a reflection tool. Colleagues noted other really positive examples of self-evaluation tools such as the use of HGIOURS 'and recognising the work of UNCRC through capturing learners' views.

Colleagues underlined the importance of the effective use of data, both qualitative and quantitative. This is something that needs to be addressed, improved and part of any national strategy.

Moreover, it was also suggested that supporting staff PL participation beyond the input is necessary to embed change and ensure sustainability. Furthermore, Toolkits developed from 'HGIOS 4 Features of Highly Effective Practice' and Challenge Questions from the Thematic Inspection – 'What is Working well? and What is Improving?' were useful to challenge thinking and identify areas for improvement . Lastly, it was felt that leadership of learning is strongest where there are opportunities for teacher leadership/collaboration. Overall colleagues noted that conversations and collaboration continue to be well received when they take consideration of local contexts and needs into account.

It was also felt that all LA programmes for NQTs and RQTs should be consistent and appropriate to help further develop skills and knowledge within the profession. Moreover, colleagues felt that the amount of time spent on maths in the phase of Initial Teacher Education (ITE) needs to urgently be reviewed and dramatically increased.

Colleagues also underlined the importance of strong assessment models and the need for guidance specifically in numeracy and mathematics to support a shared understanding of the why?, what? where? and how? of assessment. They felt that considerable support and PL was required around assessment, including

understanding pedagogies. Colleagues noted the current work being undertaken by Professor Ken Muir and noted that a revisit of Curriculum for Excellence Experiences and Outcomes and possibly benchmarks may be beneficial.

Finally, colleagues noted that they very much welcomed the establishment of the NRIM and stated that they see it as a massive development in national direction. However, some noted that following establishment of the NRIM board, they were disappointed that they were not consulted on the themes and focus of identified short-life NRIM working groups and as a result were activated as being sector specific. Colleagues noted that they felt that the actions from these groups need to transcend all sectors and highlighted that improvement themes often permeate through all parts of the curriculum. Nonetheless, NRIM was noted as an exciting development and welcomed by all.