

Question 1. What is your name?

Question 2. What is your email address?

Question 3. What is the name of your organisation?

Early Childhood Mathematics Group

Question 4. In what capacity are you responding to this consultation?
Please select one option from the list below:

Early years sector representative body

Question 5. If you answered "Other" please specify in what capacity you are responding to this consultation.

N/A

Question 6. Please give us your views on whether the activities described in each of the proposed educational programme summaries support children's learning and development throughout the EYFS.

Please provide your view below, being specific about which educational programme this applies to where appropriate.

These comments relate to the Mathematics programme.

We are assuming that the proposed 'programme' is the curriculum and therefore should reflect the full birth to five age range. As the curriculum, the focus needs broadening to include more detail on shape, space and measure. This should include, as Number does, something on what shape, space and measure (SS&M) is, in order to support children's mathematical learning and development throughout the EYFS. Furthermore, if SS&M is included in the educational programme then it should be included in the assessment of this programme, the ELGs. Without the status of being an ELG, time and resources for SS&M are likely to be reduced as the ELG areas are prioritised, particularly in the Reception year. This was shown in the EEF pilot evaluation report, which found that teachers sidelined the teaching of SS&M (EEF 2019, p.17, p.22). Pattern should also be included in the mathematics programme.

As the mathematics programme is a curriculum statement and not a statement about assessment then the first line is appropriate but the word 'excel' should be removed. This should say 'succeed'. Not everyone can excel. The word 'mastery' is contested and should be replaced with 'understanding'. This is in line with the National Curriculum for KS1/2 (DfE 2013) where 'mastery' is not used. The last sentence (children's curiosity) should come first to set the scene for supporting children's learning and development throughout the EYFS.

As experts in early childhood mathematics, we are unsure what the "mathematical world" is and find this unclear. We also advocate a reference to enjoyment, as with the programme for Literacy. We recommend this alternative paragraph as the mathematics programme:

'Children's enjoyment and curiosity about number, shape, space and measure should be fostered through their interactions with people and the world around them. Developing a strong grounding in number and spatial reasoning is essential for all children to develop life-long confidence and competence in mathematics. Over time, children should have frequent and varied opportunities to investigate mathematically in everyday and play contexts using a range of manipulatives. As they develop, they should engage in construction and pattern-making activities and learn about position and direction. Children should begin to make comparisons about size, length, weight, capacity and time. Children's mathematical understanding, like all effective learning, depends upon playing and exploring, active learning, and creating and thinking critically.'

Question 7. Please give us your views on whether the proposed ELGs are clear, specific and easy to understand.

Please provide your views below, being specific about which ELGs they apply to where appropriate.

The proposed ELG for **number** is unclear in three places: '*deep understanding*', '*automatically recall*' and '*number bonds*'.

What constitutes '*deep understanding*' is very open to significant variation in interpretation. It would be very difficult for practitioners and moderators to apply this term consistently. This should be removed

and replaced with a description of what indicates '*deep understanding*' of numbers to 10. We suggest: 'With numbers to 10, children count out a number of items from a larger group, match numerals to amounts, compare and estimate numbers and predict adding or taking one.'

The pilot evaluation found that '*automatically recall*' was non-specific and difficult for practitioners to understand. The addition of 'without references to rhymes counting or other aides' does not sufficiently address the questions raised by the practitioners in the pilot schools. One, for example, asked how many seconds qualifies as '*automatic*'. This wording leads to confusion and varied application. It leads practitioners to use quickfire questioning style assessment which is pedagogically unsuitable and does not build understanding. We do not advocate teaching for verbal repetition without understanding in this way. For this reason, '*automatically recall*' is not an appropriate learning goal for all children at this age.

The bracketed '*including subtraction facts*' in the number bonds statement is unclear and suggests a misunderstanding of number bonds learning at this age. For children five and under, number bonds are typically understood as composition of number (partitioning groups of objects to find the numbers which make up that number). This partitioning supports children's understanding of both addition and subtraction. Addition and subtraction facts are abstract and are a more appropriate goal for older children where the necessary addition and subtraction understanding has been developed. We recommend 'number combinations' (composition) instead of 'number bonds' is used for wording the ELG to avoid recitation of abstract facts (in line with the year 1 programme of study 'represent and use number bonds', DfE 2013, p.103). 'Double facts' is similarly unclear as it could lead to children saying doubles (numbers) without understanding of doubling. If doubling is to be retained, we suggest adding the wording 'with groups of objects', although we recommend removal of doubling altogether. Doubling is not a priority for mathematical development at this age. While children might recognise associated visual patterns, we are unaware of evidence that five year olds will typically understand either doubling or 'odds and evens' or indeed that it is important for them to do so at this age so both of these should be removed.

The proposed ELG for **numerical patterns** is unclear in three places: '*count confidently beyond 20*', '*difference*' and '*explore*'.

In the statement, '*count confidently beyond 20*', it is unclear how practitioners will interpret the words 'confidently', 'count' or 'beyond'. Count in this statement refers to a verbal counting string (saying the number names in order) and not accurate counting of items but this is ambiguous in the statement wording. The statement does not specify what number the children should count to ('beyond 20') but children would need to count verbally to approximately 50 (at least three repeats 21,22...31,32...41,42...) to begin to recognise the patterns in the counting system (which do not occur in verbal counting until after the teens numbers). Additionally, the ELG does not state which pattern or patterns the children are to spot. The statement 'the pattern' assumes one pattern that is obvious to practitioners but there are many patterns within the counting system. Most importantly, research suggests that counting beyond 20 is not a realistic expectation for most reception children (Johnson et al. 2019). We therefore advise that counting to 20 and beyond is included in the mathematics programme, so that children gain valuable experiences with these numbers, but not as a learning goal for all children.

The '*considering size and difference*' aspect of the second statement in the numerical patterns ELG is unclear. In the pilot evaluation, practitioners found 'size' confusing, wanting to know if this referred to counting objects of differing sizes or comparing numbers of different sizes. We suggest removing '*considering size and difference*' from a statement about comparison.

'*Explore and represent*' in the third statement of the numerical patterns ELG is open to interpretation although we welcome the addition of 'represent' in the revised goal as this suggests visual and spatial understanding of pattern. If this statement is to be retained, we suggest rephrasing it as '*practically explore and represent*' to make this more precise and clear, although it would be better to revise the ELG so that patterning is included as regularity rather than specific number patterns.

Question 8. Please give us your views on whether the proposed ELGs contribute a well-rounded assessment of a child's development at the end of the reception year.

Please provide your views below, being specific about which ELGs they apply to where appropriate.

The proposed ELGs for mathematics do not contribute a well-rounded assessment of a child's mathematical development at the end of the reception year. Shape, space and measure are omitted but are crucial within mathematical development. Shape, space and measure attainment is crucial for indicating preparedness for measurement and geometry in year 1 (3 of the 7 areas of mathematics in the National Curriculum, DfE 2013). Spatial reasoning is a strong predictor of later achievement in mathematics (Young, Levine & Mix 2018) and it is therefore essential that this is assessed at the end of the reception year to ensure it is afforded sufficient status (contributing to GLD) in order to focus teaching and resources. Measure must be included because it broadens and deepens understandings of comparisons of amounts of things, distinguishing between continuous quantity and discontinuous items and developing fundamental ideas such as equivalence.

The proposed ELGs for mathematics provide a narrow version of a child's mathematical development within only a small range of number learning. The two proposed ELGs for mathematics are too closely related and overlapping and will skew the EYFSP data by a narrow number focus counting twice (two ELGs) to the child's data (and counting double towards GLD).

Mathematical problem solving supports both the development of executive functions and mathematical learning (Clements, Sarama & Garramoth 2016) and is therefore important to include in a well-rounded assessment of a child's mathematical development. Problem solving supports the application of children's mathematical learning so that they recall, select and use mathematical understanding in a way that is meaningful to the child.

Patterning is an important predictor of later attainment and has been shown to supporting closing of the attainment gap (EIF 2018; Paptic 2013; Kidd et al. 2014). However, this is visual and spatial and is not exclusively number focussed at this age. It includes repeating patterns, for example, which children continue to develop with objects and shapes in the year 1 programme of study (National Curriculum, non-statutory guidance, DfE 2013).

Pattern is fundamental to mathematics as it involves generalising from specific instances, which is key in mathematics. As such, it involves early algebraic thinking rather than the limiting and narrow view of pattern that is provided by the **numerical patterns** goal. We suggest that pattern be included within both a **number** ELG and a **shape, space and measure** ELG.

If the proposed ELGs for mathematics are to fulfil the intention of contributing a well-rounded assessment of a child's mathematical development at the end of the reception year then they should include:

- Shape and geometric thinking to support future geometry learning
- Space as spatial reasoning (spatial awareness and visualising) is an important predictor of later mathematics achievement
- Measure as this involves comparison, equivalence and early unitising (a precursor of later multiplication and division)
- Zero as children need to understand numbers to 10 in terms of their relationship to 0 as well as the null effect of adding or taking 0 items
- Estimation as a key aspect of number sense
- Ordinality of number is important alongside cardinality of number (Lyons et al. 2014) and was included in the **number** ELG which was piloted (for numbers to 10, 'their position in the counting order') but has been removed from the proposed number ELG with no justification
- Mathematical problem solving to support the application of mathematical learning and also development of executive function processes (Clements, Sarama & Garramoth 2016)
- Communication of mathematical thinking so that children are encouraged to represent mathematical relationships pictorially, using manipulatives and gesture, as well as verbally, using mathematical and everyday language. This supports children to connect different representations of number relations and concepts and supports practitioners to assess the child's mathematical thinking.

To contribute a well-rounded assessment of a child's mathematical development at the end of the reception year, the ELGs should not include the following:

- Number bonds (as addition and subtraction facts). This should instead be composition (partitioning a group of objects to find numbers it is made up of).
- Double facts
- Counting to 20 and beyond
- Odds and evens
- Automatic recall

In order to ensure that the two ELGs for mathematics contribute a well-rounded assessment of a child's mathematical development at the end of the reception year, we suggest:

Number ELG

Children:

- With numbers to 12: count out a number of items from a larger group, match numerals to amounts, compare and estimate numbers, predict adding or taking one.
- Subitise (recognise a number of items without counting) up to 5 and recognise how numbers are made up of other numbers.
- notice, copy, continue and create patterns.
- solve practical problems including: adding, subtracting and sharing.
- communicate their mathematical thinking in a range of ways.

Shape, space and measure ELG

Children:

- make comparisons of length, weight and capacity
- begin to identify the rule in a pattern
- select and combine shapes for a purpose and talk about their properties using mathematical and everyday language
- follow directions and describe positions and routes

Question 9. What are your views on removing the LA statutory element of EYFSP moderation?

It is stated that 'the primary purpose of the EYFSP assessment is to support individual children's successful transition from the EYFS to year 1, providing teachers with the information they need to assess which children will need further support to be able to catch up and keep up with their peers.' We believe that this aim of the moderation process is fundamentally flawed, particularly because the EYFSP and

Year 1 curriculum do not align. In our experience, the EYFSP has little to no impact on a child's start to Year 1. It is unusual for year 1 teachers to have expertise in both Key Stages and with the EYFSP and the EYFSP assessment is not well and widely used by year 1 teachers.

LA moderation is well known for being a rigorous process. When it is done by a knowledgeable and experienced individual, it can have a positive impact and provide genuine support and challenge for practitioners. In our experience, LA moderators, as trained Early Years advisors, have had a good effect on the workforce overall. These moderation experiences work best when the process is a sustained dialogue over a period of an academic year, rather than a one-off event. These lead to professional development opportunities and more medium and long term positive effects.

With the removal of LA involvement, we fear the responsibility for moderation will be unclear and the quality assurance it is designed to uphold will be flawed. With individual schools being responsible for the moderation process, we believe it will be less robust and it is likely that workload will increase due to a lack of continuity, clarity and competence. Expertise in local authorities could be lost, and instead moderation could be in the hands of less experienced individuals with less clarity over how to interpret the ELGs correctly. Ultimately, data will be less reliable and comparable across the country.

Question 10. What are your views on whether removing the LA statutory element of the EYFSP moderation will help to reduce teacher workload?

In our opinion, it is not the Local Authority's role in moderation that has increased teacher workload. Instead, we believe it is down to how individual school leaders interpret and respond to the process. We do not believe that removing the LA's role will have a direct correlation to reducing workload. School leaders will have to replace this process with something that will be much more difficult to moderate and quality assure. The quality of moderation will be negatively impacted. There will be considerably more scope for leaders and schools to invent their own processes, therefore increasing workload. The process will be less consistent from school cluster to school cluster, than if the LA managed the process across a large area of schools, as is the process now.

Question 11. What alternatives to LA statutory moderation do you think could help to ensure consistency of EYFSP judgements across the ELGs?

We do not think it will be in the interests of national standards to remove the role of the Local Authority in the moderation process. It can only lead to less consistency in our opinion.

Question 12. What are your views on the proposal to remove the 'exceeded' judgement from the EYFSP?

There is significant anecdotal evidence that practitioners are pressured into meeting a quota of children achieving the exceeding judgement. Despite these pressures, there is no research evidence to substantiate the claim that these labels have a positive impact on transition into Year 1 or the future outcomes of any children. We agree that the 'exceeded' judgement should be removed from the EYFSP.

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