



Hampshire
County Council

Improvement and
Advisory Service

Tackling Educational Disadvantage Maths Project

SEF Questions

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5 Key Areas

Curriculum Knowledge and Ownership	Data, Assessment and Intervention	Checking for understanding	Oracy	Independence and Motivation
<p>In schools with stronger maths outcomes for disadvantaged pupils, leaders and teachers demonstrate deep curriculum knowledge, personalise the curriculum to suit the needs of pupils, ensure consistent teaching methods, and integrate maths learning throughout the school day.</p>	<p>In schools with stronger maths outcomes for disadvantaged pupils, leaders focus on attainment, use pupil progress meetings to address barriers, tailor tasks based on assessment, allocate expert staff to those with significant gaps, provide timely and effective interventions, and ensure interventions are integrated with classroom work.</p>	<p>In schools with stronger maths outcomes for disadvantaged pupils, teachers and teaching assistants actively monitor learning, ensure engagement, involve all pupils in demonstrating knowledge, value misconceptions, create opportunity for collaborative learning, and encourage independent completion of tasks to ensure understanding.</p>	<p>In schools with stronger maths outcomes for disadvantaged pupils, teachers and teaching assistants emphasize precise mathematical vocabulary, engage all pupils in discussions, use sentence stems for clarity, and encourage pupils to use their own visual representations to express mathematical concepts and explain mathematical thinking.</p>	<p>In schools with stronger maths outcomes for disadvantaged pupils, learning is scaffolded to foster independence, supported by knowledgeable adults, flexible grouping, concrete resources, open questions, peer collaboration, and high expectations for all pupils.</p>

Curriculum Knowledge and Ownership

Strength/Priorities
Responses and Reflection

1a	Do leaders and teachers have ownership of the school's curriculum, meaning that teachers are teaching maths rather than simply delivering the scheme of learning?
1b	Is there a consistent and familiar approach to the teaching of mathematics across the school?
1c	Does the long-term overview enable pupils to revisit key concepts, deepening learning and securing mental fluency, ensuring that teachers dedicate time for pupils to learn mathematics throughout the day?
1d	Do teachers have a good understanding of the national curriculum, including pre-requisite knowledge and future applications beyond their year group curriculum?
1e	Are teachers confident to take ownership of the curriculum and make reasonable adaptations to suit the needs of their class?
1f	Do teachers and teaching assistants have the subject knowledge and confidence in mathematical structure and conceptual understanding?
1g	Are teachers planning lessons that are learning focused rather than task led?

Notes:

Curriculum Knowledge and Ownership Audit

EEF Guidance and Recommendation	SEF			
EYFS and KS1 Recommendation 2 <i>Dedicate time for children to learn mathematics and integrate mathematics throughout the day.</i>	1a 1b	Activities such as registration, snack time and tidying up time are not used to support mathematical development.	Occasional opportunities are taken to link everyday activities to mathematics, but this is not done routinely and is not embedded throughout the day.	Educators plan how they will take advantage of everyday activities such as registration, snack time, and tidying up time to support mathematical development and how this will progress throughout the year, and how these might be adapted to be challenging for all children.
KS2 and KS3 Recommendation 4 <i>Enable pupils to develop a rich network of mathematical knowledge.</i>	1c	Pupils struggle to recall basic number facts. This is affecting their progress elsewhere in mathematics.	Teachers plan lessons that utilise pupils retrieving and using their previous learning of arithmetic facts.	Teachers plan lessons that utilise pupils quickly and consistently retrieving and using their previous learning of arithmetic facts. Pupils are confident in their quick retrieval of addition, subtraction, multiplication and division facts.
EYFS and KS1 Recommendation 1 <i>Understanding how children learn mathematics.</i>	1d	Educators' lack of training about progression in mathematics makes it difficult for them to assess a child's level of understanding and to plan for their next steps in learning.	Educators' incomplete understanding of progression in mathematics means that whilst they can sometimes identify gaps in children's knowledge and understanding, this is not always the case.	Due to their in-depth knowledge, staff are able to determine the developmental pre-requisites for a particular skill, assess a child's level of understanding and build on what children already know.
	1e	Educators are not aware of typical developmental progression, making it difficult for them to understand what children need to learn in order to progress.	Educators have some awareness of typical development progressions, but these may not be detailed enough (e.g. the many stages of learning to count) or broad enough (e.g. they may be aware of progression in number, but not in shape).	Educators are aware of typical development progressions in mathematics and use these to inform teaching and personalise learning – for examples recognising the cardinality of numbers. They have a good understanding of what children need to learn to progress in all areas of mathematics, and when they need to learn it, and they attempt to close gaps in knowledge.

Curriculum Knowledge and Ownership Audit

EEF Guidance and Recommendation	SEF			
KS2 and KS3 Recommendation 4 <i>Enable pupils to develop a rich network of mathematical knowledge.</i>	1d 1f	Teachers do not make connections between different aspects of mathematics. They might themselves lack the content knowledge to do this confidently.	Teachers do have sufficient content knowledge to understand the links between aspects of mathematics. However, they do not consistently make these links explicit when teaching pupils.	Teachers are able to emphasis the connections between different aspects of mathematics, and do this consistently.
EYFS and KS1 Recommendation 2 <i>Dedicate time for children to learn mathematics and integrate mathematics throughout the day.</i>	1f 1g	Opportunities are not routinely taken to extend mathematical learning during play.	There are times when educators identify ‘teachable mathematical moments’ during play, but this is not embedded practice across the setting. They sometimes add resources to the environment that build on mathematical moments they have observed.	Educators scaffold opportunities for extending learning during play, by providing play, by providing and enhancing a variety of tools to allow children to explore all areas of mathematics. They identify ‘teachable moments’ in which they can join the play to model approaches, reinforce mathematical vocabulary, and encourage problem-solving through strategies such as Sustained Shared Thinking.
KS2 and KS3 Recommendation 6 <i>Use tasks and resources to challenge and support pupils’ mathematics.</i>	1f 1g	Teachers do not give careful consideration to how they use tasks to develop pupils’ understanding. Tasks are often used without careful consideration of how they can: <ul style="list-style-type: none"> • Provide examples and non-examples of concepts; • Provide opportunities to discuss and compare different solution approaches; • Provide opportunities to investigate mathematical structure; • Build conceptual knowledge in tandem with procedural knowledge. 	Some teachers give careful consideration to how they use tasks, but this practice is inconsistent across the school.	Teachers consistently use tasks to support pupils’ developing understanding. Careful consideration is given to how tasks: <ul style="list-style-type: none"> • Provide examples and non-examples of concepts; • Provide opportunities to discuss and compare different solution approaches; • Provide opportunities to investigate mathematical structure; • Build conceptual knowledge in tandem with procedural knowledge.

Data, Assessment and Intervention

Strength/Priorities
Responses and Reflection

2a	Do leaders ensure a strong focus on attainment outcomes, followed up through pupil progress meetings and regular, informal monitoring.
2b	Do Pupil Progress Meetings focus on strengths and manageable strategies to overcome barriers for disadvantaged pupils?
2c	Does assessment of pupils' strengths and weaknesses inform task design and scaffolding back in the classroom?
2d	Are conversations from pupil progress meetings informing whole school maths priorities?
2e	Do pupils with the most significant gaps have more time with the most expert staff?
2f	To what extent are pupils' maths needs being met through additional intervention? Are these timely and evaluated effectively?
2g	Do interventions link back to the work in the classroom?

Notes:

Data, Assessment and Intervention Audit

EEF Guidance and Recommendation	SEF			
KS2 and KS3 Recommendation 1 <i>Use assessment to build on pupils' existing knowledge and understanding.</i>	2b	Teachers collect summative data but rarely use assessment to collect information about pupils' mathematical strengths and weaknesses. Teaching does not respond to pupils' developing understanding.	Teachers are able to achieve a good understanding of pupils' strengths and weaknesses, using a variety of data sources, but they do not adapt their teaching in response.	Teachers use a variety of types of assessment, as appropriate, to collect information about strengths and weaknesses. They adapt their teaching in response and use assessment information to inform planning.
EYFS and KS1 Recommendation 4 <i>Ensure that teaching builds on what children already know.</i>	2c	Information is collected for assessment and accountability purposes, but this is not routinely used to inform the next steps for teaching—for example, there are lots of observations and next steps recorded in learning journals but these are not used to inform planning and teaching	Assessment is too frequently used for accountability and monitoring, with not enough time given to using assessment to inform the next steps in teaching.	Assessment is seen primarily as a tool to inform the next steps in teaching.
KS2 and KS3 Recommendation 6 <i>Use tasks and resources to challenge and support pupils' mathematics.</i>	2c	Tasks are selected without proper consideration of pupils' strengths and weaknesses. Tasks fail to provide sufficient challenge.	Teachers use appropriately challenging tasks, which address weaknesses in pupils' understanding.	Assessment of pupils' strengths and weaknesses is used to inform the selection of tasks. The selection of tasks is also designed to address common misconceptions.
EYFS and KS1 Recommendation 5 <i>Use high quality targeted support to help all children learn mathematics.</i>	2e	Teaching Assistants are not effectively deployed, and the evidence around the use of teaching assistants is either not known or is ignored	Teaching Assistants may sometimes be used effectively, but this is often by accident rather than by design. Planned deployment informed by evidence-informed recommendations is not in place.	Teaching Assistants are deployed effectively, where possible in line with the recommendations from the EEF's 'Making best use of teaching assistants' guidance report— such as the recommendation to ensure that they are fully prepared for their role in the classroom

Data, Assessment and Intervention Audit

EEF Guidance and Recommendation	SEF			
KS2 and KS3 Recommendation 7 <i>Use structured interventions to provide additional support.</i>	2f	Interventions are restricted to extra classes with an exam focus towards the end of Year 6.	Gaps in pupils' knowledge and understanding may be identified early, but interventions may not happen quickly and effectively.	Interventions happen as soon as weaknesses are identified, and are classroom based where possible. This reduces the risk of children developing negative attitudes and anxiety about mathematics.
	2g	Interventions take place with little or no link to the teaching in the classroom. Intervention deliverers and class teachers do not work together to ensure consistency. It is left largely to pupils to make the links between what is covered in interventions and their learning in general classroom teaching.	Intervention teachers have begun to plan their work around what is happening in the classroom (e.g. by reference to the scheme of learning or brief conversations with classroom teachers) but this is not yet common practice.	Intervention lessons are consistent with, and an extension of, work done in the classroom, and pupils understand (with support from their teachers) the links between them. Intervention and classroom teachers ensure that there is a mutual understanding of each others' work.

Checking for Understanding

Strength/Priorities
Responses and Reflection

3a Do teachers and teaching assistants actively check pupils' learning throughout the lesson so that a lack of understanding or misconception does not go unnoticed? (copying peers, not chanting, etc)

3b Do teachers involve all pupils in showing what they know, including using concrete resources or pictorial representations?

3c Do teachers carefully increase their expectations regarding pupils' independence as they gain competence and fluency?

Notes:

Checking for Understanding Audit

EEF Guidance and Recommendation	SEF			
EYFS and KS1 Recommendation 1 <i>Understanding how children learn mathematics.</i>	3a	Educators often mistake a child’s engagement as understanding – e.g. misinterpreting a reciting of the counting sequence as a full understanding of the meaning of numbers in the count sequence.	Whilst educators are aware that successful engagement is not the same as full understanding, gaps in the educators’ knowledge of how children learn mathematics can lead to some incorrect assumptions – e.g. a child correctly counting a set of objects, but not understanding that the last number in the count sequence is equal to the number of objects.	Educators understand that even if a child appears to be engaging successfully in the mathematical activities – e.g. reciting the count sequence – they may not have a full grasp of the underlying concepts – e.g. the meaning of numbers in the count sequence (asking “how many altogether?” will check that the child knowledge the last number counted is the total for the set).
KS2 and KS3 Recommendation 7 <i>Use structured interventions to provide additional support.</i>	3a	Identification of struggling pupils is often slow and action taken to support them is limited.	When a pupil is identified as struggling with their mathematics they are given extra support, but this may not be effectively matched to their specific needs.	When a pupil is identified as struggling, teachers quickly identify the specific reason(s) why. Teachers use this information to intervene and address the aspect of maths that the pupil/s is struggling with.
KS2 and KS3 Recommendation 2 <i>Use manipulatives and representations.</i>	3b 3c	Pupils often become reliant on manipulatives to do a type of task or question. Teaching can tend to focus on ‘getting them to the right answer’ to a specific problem instead of developing understanding.	Teachers’ use of manipulatives to develop independent understanding is patchy. Some teachers do this consistently, but others do not.	Teachers enable pupils to understand the links between the manipulatives and the mathematical ideas they represent. Teachers use manipulatives to develop pupils’ independent understanding of the mathematics.

Oracy

Strength/Priorities
Responses and Reflection

4a	Do teachers and TAs use precise mathematical language themselves and rephrase pupils' responses that use vague, non-mathematical language with appropriate mathematical language?
4b	Do teachers and TAs encourage pupils to use their own pictures and representations to communicate mathematical thinking?
4c	Do teachers use sentence stems to generalise a key concept and provide a scaffold to enable pupils to communicate mathematical thinking with precision and clarity?
4d	Do teachers orchestrate productive classroom discussions with all pupils actively taking part?

Notes:

Oracy Audit

EEF Guidance and Recommendation	SEF			
EYFS and KS1 Recommendation 2 <i>Dedicate time for children to learn mathematics and integrate mathematics throughout the day.</i>	4a	Opportunities to reinforce mathematical vocabulary are often missed by educators, and vocabulary use is not planned and used consistently.	Some opportunities to reinforce mathematical vocabulary are taken, but these usually occur during mathematical tasks rather than being embedded throughout the day without advance consideration of what vocabulary may need to be taught/learnt before children are asked to apply it.	Educators seize chances to reinforce mathematical vocabulary throughout the day, using informal then formal mathematical terms, and plan a graduated use of vocabulary which is applied consistently. They consider what key vocabulary could be the focus for teaching that week or may need to be pre-taught—for example, the book ‘Rosie’s Walk’ requires positional language.
EYFS and KS1 Recommendation 3 <i>Use manipulatives and representations to develop understanding.</i>	4b	Children are not usually encouraged to represent problems in their own way, and educators are overly prescriptive in the types of representations they expect children to use.	There is some freedom given to the way children represent their mathematical ideas, but educators are too quick to steer representations in their preferred direction.	Educators encourage children to use their own pictures, symbols and more abstract diagrams to represent and communicate ideas and concepts, and are encouraged through dialogue to reflect on the success of their choices.
KS2 and KS3 Recommendation 4 <i>Enable pupils to develop a rich network of mathematical knowledge.</i>	4c	Teachers and pupils often fail to recognise mathematical structure. Teachers might themselves struggle to identify the mathematical structure in a particular context, and might often use vague non-mathematical language themselves.	Teachers are able to recognise mathematical structure, but do not always successfully communicate this to pupils.	Teachers use precise mathematical language themselves. Teachers support pupils to recognise mathematical structure, for example by rephrasing pupils’ responses that use vague, non-mathematical language with appropriate mathematical language.
EYFS and KS1 Recommendation 2 <i>Dedicate time for children to learn mathematics and integrate mathematics throughout the day.</i>	4d	Educators do not routinely create opportunities for extended discussion of mathematics with individuals or small groups of children.	Children are occasionally involved in mathematical discussion with educators, but these may not use modelling of language, open-ended questions, elaboration, recapping and clarifying.	Educators create opportunities for extended discussion of mathematical ideas with individuals or small groups of children in order to extend their thinking, possibly using an established framework for doing so.

Independence and Motivation

Strength/Priorities

Responses and Reflection

5a	Do all staff genuinely believe that all pupils can be successful in mathematics, hence maintaining high expectations for all?
5b	Do teachers use flexible grouping and responsive teaching to enable pupils to be independent?
5c	Are teachers asking open questions and giving opportunity for peer collaboration to build confidence?
5d	Do teachers scaffold learning so that pupils can be successful without the support of an adult?
5e	Are concrete resources readily available and planned into learning to support pupils in all year groups?
5f	Are working walls used by pupils to support their learning? (relevant CPA approaches, sentence stems)

Notes:

Independence and Motivation Audit

EEF Guidance and Recommendation	SEF			
KS2 and KS3 Recommendation 5 <i>Develop pupils' independence and motivation.</i>	5a	There is a general perception among staff and pupils that some people are naturally 'good' at maths, whilst others are not. Staff often complain about their own difficulties with maths.	Maths teachers model confidence and interest in maths, but many other staff do not. Some staff and pupils believe that some people are naturally 'good' at maths, whilst others are not.	All staff, regardless of their subject area specialism or level of responsibilities, model confidence and interest in maths. Staff and pupils believe that everyone can success in maths if they work hard.
KS2 and KS3 Recommendation 8 <i>Support pupils to make a successful transition between primary and secondary school.</i>	5b	Pupils are placed in maths classes according to their prior attainment, and teachers often have different expectations of children according to their assigned set. Disadvantaged pupils are more likely to be assigned to lower sets, which can lead to a widening of the attainment gap between disadvantaged pupils and their peers.	Pupils are set by prior attainment, and the curriculum is designed in such a way as to meet their individual needs. There is still some evidence of teachers having different expectations of children according to their assigned set.	The school is moving away from rigid setting by prior attainment, perhaps adopting mixed attainment or more flexible grouping.
Whilst the guidance above is linked to the transition recommendation, consider how assessment informs groupings, adult support, task design and scaffolding in each classroom across the school.				
KS2 and KS3 Recommendation 5 <i>Develop pupils' independence and motivation.</i>	5c	Teachers struggle to orchestrate productive classroom discussions.	Teachers can sometimes struggle to orchestrate productive class discussions. Some pupils refrain from participating in discussion or actively listening to other pupils' ideas.	Teachers are able to orchestrate productive classroom discussions. Pupils actively take part in discussions.
	5d	Pupils have limited opportunities to practise and develop metacognition.	Teachers provide frequence opportunities to practise and develop metacognition. Pupils are taught to plan monitor and evaluate the approaches they take to mathematics.	Teachers provide extensive opportunities to practise and develop metacognition. This includes regular opportunities for pupils to explain their approaches to mathematical tasks to themselves, the teacher and other pupils. Teachers carefully increase their expectations regarding pupils' independence as the pupils gain competence and fluency.
EYFS and KS1 Recommendation 3 <i>Use manipulatives and representations to develop understanding.</i>	5e 5f	Manipulatives are rarely or never used to teach mathematics.	Manipulatives are often used, but without a clear rationale for how they will develop children's understanding of mathematical ideas.	Educators use manipulatives appropriately, and with a clear rationale for why the manipulatives will support children to understand mathematics, considering carefully how the manipulative will be used to build on existing understanding.