

## IMPROVING MATHEMATICS IN THE EARLY YEARS AND KEY STAGE 1

### Guidance Report

Five recommendations (3-7 year-olds), January 2020

## IMPROVING MATHEMATICS IN KEY STAGES TWO AND THREE

### Guidance Report

Eight recommendations (7-14 year olds), November 2017

# SUPPORT FOR MATHEMATICS SUBJECT LEADERSHIP

Department for Education

### Mathematics programmes of study: key stages 1 and 2

National curriculum in England

### Mathematics guidance: key stages 1 and 2

Non-statutory guidance for the national curriculum in England

DfE/NCETM, June 2020

TEN ASPECTS OF A 'DEEP DIVE' IN MATHEMATICS

ASPECT	OFSTED: THE TEACHING OF MATHEMATICS (SECTION 5 HANDBOOK, PARA 346) INSPECTORS WILL CONSIDER WHAT STEPS THE SCHOOL HAS TAKEN TO ENSURE THAT:	PROMPTS/QUESTIONS FOR REFLECTION AND SELF-EVALUATION*	NEXT STEPS
Teaching that builds on pupils' prior learning	<i>'Pupils understand and remember the mathematical knowledge, concepts and procedures appropriate for their starting points, including knowledge of efficient algorithms. This should also ensure that pupils are ready for the next stage, whether that is the next lesson, unit of work, year or key stage, including post-16 mathematics.'</i>	<ul style="list-style-type: none"> <li>A high priority is given to all pupils developing secure and deep understanding of each key learning point.</li> </ul>	
Curriculum progression and 'connectedness' of learning	<i>'The school's curriculum planning for mathematics carefully sequences knowledge, concepts and procedures to build mathematical knowledge and skills systematically and, over time, the curriculum draws connections across different ways of looking at mathematical ideas.'</i>	<ul style="list-style-type: none"> <li>What are the key ideas and building blocks in learning?</li> <li>The curriculum is mapped clearly to support transition and ensure pupils acquire knowledge and skills relevant to their year group.</li> <li>Over time, pupils recognise a concept, idea or technique with increasing independence in new situations and contexts.</li> </ul>	
Coherence: lessons characterised by key learning points	<i>'The curriculum divides new material into manageable steps lesson by lesson.'</i>	<ul style="list-style-type: none"> <li>Carefully crafted lesson design provides a step-by-step, conceptual journey through the mathematics, engaging pupils in reasoning and the development of their mathematical thinking.</li> </ul>	
Mathematical thinking	<i>'The school's curriculum identifies opportunities when mathematical reasoning and solving problems will allow pupils to make useful connections between identified mathematical ideas or to anticipate practical problems they are likely to encounter in adult life. Pupils have sufficient understanding of, and unconscious competence in, pre-requisite mathematical knowledge, concepts and procedures that are necessary to succeed in the specific tasks set.'</i>	<ul style="list-style-type: none"> <li>Teachers design: lessons that incorporate variation (ie <i>What it is</i> and <i>What it's not</i>); and tasks that enable pupils to solve problems (routine/non-routine), applying to different contexts.</li> <li>Pupils suggest their own examples (and non-examples) of a concept, idea or technique.</li> </ul>	
Mathematical fluency	<i>'Within the curriculum, there are sufficient opportunities planned to revisit previously learned knowledge, concepts and procedures; this is ensure that, once learned, mathematical knowledge becomes deeply embedded in pupils' memories. This then allows rapid and accurate recall and frees pupils' attention so they can work with increasing independence, apply their mathematical knowledge to more complex concepts and procedures, and gain enjoyment through a growing self-confidence in their ability.'</i>	<ul style="list-style-type: none"> <li>Fluency comes from deep knowledge and regular practice (ie <i>'practice makes skilled'</i>).</li> <li>The principles of a 'growth mindset' support pupils' confidence of themselves as mathematicians.</li> </ul>	

Department for Education

### Mathematics programmes of study: key stages 1 and 2

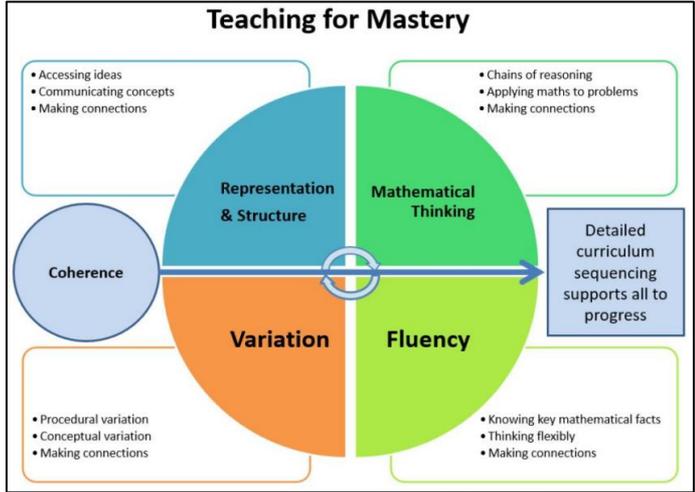
National curriculum in England

### Statutory framework for the early years foundation stage

Setting the standards for learning, development and care for children from birth to five



## SUPPORT FOR PRIMARY TEACHERS



### Research and analysis

## Research review series: mathematics

Ofsted, May 2021