INTRODUCTION

The report summarised here is based predominantly on evidence from inspections of mathematics between January 2008 and July 2011 in maintained schools in England. This report builds on the inspection findings and case studies of ‘prime practice’ and ‘weaker factors’ of the 2008 report, Mathematics: understanding the score. It is also informed by the evidence underpinning the report Good practice in primary mathematics, which was published in 2011. Much of the summary below is taken directly from the text of the Ofsted document.

KEY FINDINGS

- Children’s varying pre-school experiences of mathematics mean they start school with different levels of mathematical knowledge. This gap is often not overcome.
- The best schools tackled mathematical disadvantage with expert insight and ambitious determination, with policies and approaches understood and implemented consistently by all staff to the benefit of all pupils.
- Despite the wide variation in outcomes, too many able pupils across the 3–16 age range are underachieving.
- Attainment in GCSE and AS/A-level examinations in mathematics has risen. However, successive changes in GCSE and A-level specifications and structure have reduced the demand of the examinations for many pupils.
- Attainment has improved in national Key Stage 2 mathematics tests and in the Early Years Foundation Stage. At the end of Key Stage 1 attainment has plateaued.
- The most common strategy to improve performance has been better monitoring of pupils’ attainment and progress. Intervention programmes are used more often. In most primary schools, intervention has become more focused and timely in helping pupils overcome difficulties and close gaps. It has, however, remained centred on examination performance in the majority of secondary schools, and has been linked to widespread use of early GCSE entry and repeated sitting of units. This has encouraged short-termism in teaching and learning and has led to underachievement at GCSE, particularly for able pupils, as well as a lack of attention to the attainment of the least able.
- The percentage of pupils not reaching the expected level or grade for their age increases as pupils progress through school. This suggests that attaining a key threshold does not represent adequate mathematical knowledge to prepare pupils for the next stage of mathematics education.
- Pupils nearest to external assessments received better teaching. Less experienced teachers were more likely to teach lower sets or younger pupils.
- Teaching was strongest in the Early Years Foundation Stage and upper Key Stage 2 and markedly weakest in Key Stage 3. Teaching in the sixth form was slightly stronger than at GCSE. Year 1 was the weak spot in primary teaching.
- Too much teaching concentrated on the acquisition of disparate skills that enabled pupils to pass tests and examinations but did not equip them for the next stage of
education, work and life. Teachers’ use of assessment in lessons has improved although it remained a weak aspect of teaching. Monitoring of each pupil’s understanding was not strong enough.

- Very few schools provided curricular guidance for staff, underpinned by professional development that focused on enhancing subject knowledge and expertise.
- Activities to address pupils’ problem-solving and investigative skills were rarely integral to learning. Many teachers continued to struggle to develop skills of using and applying mathematics systematically.

RECOMMENDATIONS

The Department for Education should:

- ensure that external assessments require pupils to solve familiar and unfamiliar problems and demonstrate fluency and accuracy in recalling and using essential knowledge and mathematical methods
- raise ambition for more able pupils, in particular expecting those pupils who attained Level 5 at Key Stage 2 to gain A* or A grades at GCSE
- promote enhancement of subject knowledge and subject-specific teaching skills in all routes through primary initial teacher education
- research the uptake, retention and success rates in AS and A-level mathematics and further mathematics by pupils attending schools with and without sixth-form provision.

Schools should:

- tackle in-school inconsistency of teaching, ensuring that more become good or outstanding, so that every pupil receives a good mathematics education
- increase the emphasis on problem solving across the mathematics curriculum
- develop the expertise of staff:
  - in choosing teaching approaches and activities that foster pupils’ deeper understanding, including through the use of resources (e.g. ICT)
  - in checking and probing pupils’ understanding during the lesson, and adapting teaching accordingly
  - in understanding the progression in strands of mathematics over time, so that they know the key knowledge and skills that underpin each stage of learning
- ensuring that policies and guidance are backed up by professional development for staff to aid consistency and effective implementation
- sharpen the mathematical focus of monitoring and data analysis by senior leaders and use the information gathered to improve teaching and the curriculum

In addition, primary schools should:

- refocus attention on:
  - improving pupils’ progress from the Early Years Foundation Stage through to Year 2 to increase the attainment of the most able
  - acting early to secure the essential knowledge and skills of the least able.

In addition, secondary schools should:

- ensure examination and curricular policies meet all pupils’ best interests, securing good depth and breadth of study at the higher tier GCSE.

Both the full report and the summary report can be downloaded from:

http://www.ofsted.gov.uk/resources/mathematics-made-measure
Alternatively search on the terms ‘Mathematics: made to measure'