

Report to: **Children's Services Scrutiny Committee**

Date: **7 June 2010**

By: **Chairman of the Review Board**

Title of report: **Scrutiny review of attainment in mathematics at Key Stage 2 – interim report**

Purpose of report: **To present the interim outcomes of the scrutiny review.**

RECOMMENDATION: that the Committee considers the report of the Review Board and makes recommendations to Cabinet for comment and County Council for approval.

1. Financial Appraisal

1.1 There are no specific financial implications arising from the recommendations in the Review Board's interim report.

2. Summary

2.1 The Children's Services Scrutiny Committee meeting in September 2009 was informed that the levels of attainment at Key Stage 2 (KS2) in the County were falling behind the national average. The committee decided to investigate this issue further and set up a Review Board to carry out this piece of work. The Review Board comprised of Councillor Michael Ensor (chairman), Councillor Rosalyn St Pierre, Councillor Francis Whetstone and Nerissa Parker, Parent Governor Representative (Nerissa stood down from the Children's Services Scrutiny Committee towards the end of the review).

2.2 The report attached at appendix 1 contains a summary of progress of the review together with the interim findings and recommendations of the Review Board. The Committee is recommended to receive the Review Board's interim report for submission to Cabinet on 6 July 2010 and County Council on 20 July 2010

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Local Members: All

Background Documents: None

Scrutiny review of attainment in mathematics at Key Stage 2 – interim report of the review board

Background

1. The Children's Services Scrutiny Committee meeting in September 2009 was informed that the levels of attainment at Key Stage 2 (KS2) in the County were falling behind the national average (see figure 1 on page 3 for further information). The committee decided to investigate this issue further and set up a Review Board to carry out this piece of work.
2. The Review Board decided to focus solely on attainment in mathematics at Key Stage 2, as this had been identified by both the former Department for Children, Schools and Families (DCSF) and the East Sussex County Council (ESCC) Children's Services Department as an area that required the greatest level of improvement.
3. To achieve this, the Review Board has considered:
 - The current work being done by the Standards and Learning Effectiveness Service (SLE Service) (0-11)¹ to raise attainment in mathematics at Key Stage 2;
 - National and local initiatives aimed at improving the teaching of mathematics and pupil attainment in mathematics at Key Stage 2;
 - The role of the headteacher, teachers and the governing body in improving attainment in their school; and
 - The role of parents and carers in supporting and encouraging their children during their primary school education.
4. The Review Board took evidence from a range of officers within the Standards and Learning Effectiveness Service (SLE Service) (0-11) and the Personnel Department at East Sussex County Council, as well as headteachers and teachers at schools within the County.
5. The Review Board recognises that within East Sussex there is a particular issue with attainment in mathematics at Key Stage 2 (level 4 and above) and that, as well as being below the national average overall, attainment levels in individual schools vary enormously. As the review progressed the Board realised that a variety of factors could impact upon mathematics attainment and that the picture that was emerging was far more complex than initially envisaged. The Review Board therefore decided that it needed to gather further evidence to enable it complete its task satisfactory. The Review Board will meet again in July and August to undertake further work and then produce a final report to the Children's Services Scrutiny Committee in September 2010. The issues it will cover in more detail are:

¹ The Standards and Learning Effectiveness Service (0-11) - previously the School Improvement Service under the Centre for British Teachers contract – is a team within the Children Services Department that works with primary schools across East Sussex to help them raise standards by improving the quality of learning, teaching, leadership and management (a similar team carries out the same role with secondary schools).

- Further investigation and analysis of those schools within the county which achieved a 100% pass rate at Key Stage 2 (level 4 and above) mathematics in 2009, as well as those that achieved well below the national average. Initial analysis of the 2009 Key Stage 2 results has shown that there is no obvious 'cause' of under or over performance apparent from the statistics, with schools scoring 100% representing a range of school sizes, urban and rural locations and social economic backgrounds (as measured by free school meal takeup).
- What those local authorities who achieve higher than the national average at Key Stage 2 (level 4 and above) mathematics across the majority of their schools are doing differently to East Sussex.
- The work being done by teacher training facilities in terms of increasing trainees' knowledge and confidence of the subject and developing their skills to teach mathematics effectively in the classroom.
- Further investigation of the how pupil progress and attainment data in relation to Key Stage 2 (level 4 and above) mathematics can be used more effectively to bring about improvements in attainment.

Initial findings and recommendations

6. This interim report focuses on those areas where the County Council can:
- work on promoting a positive culture to mathematics across the county; and
 - work with schools and education providers to offer support and training to develop teachers' knowledge of and confidence in mathematics and thereby enhance their teaching skills.
7. The recommendations are intended to enable the County Council to move forward in these two areas of work ahead of more details recommendations from the Review Board on the areas highlighted in paragraph 5.

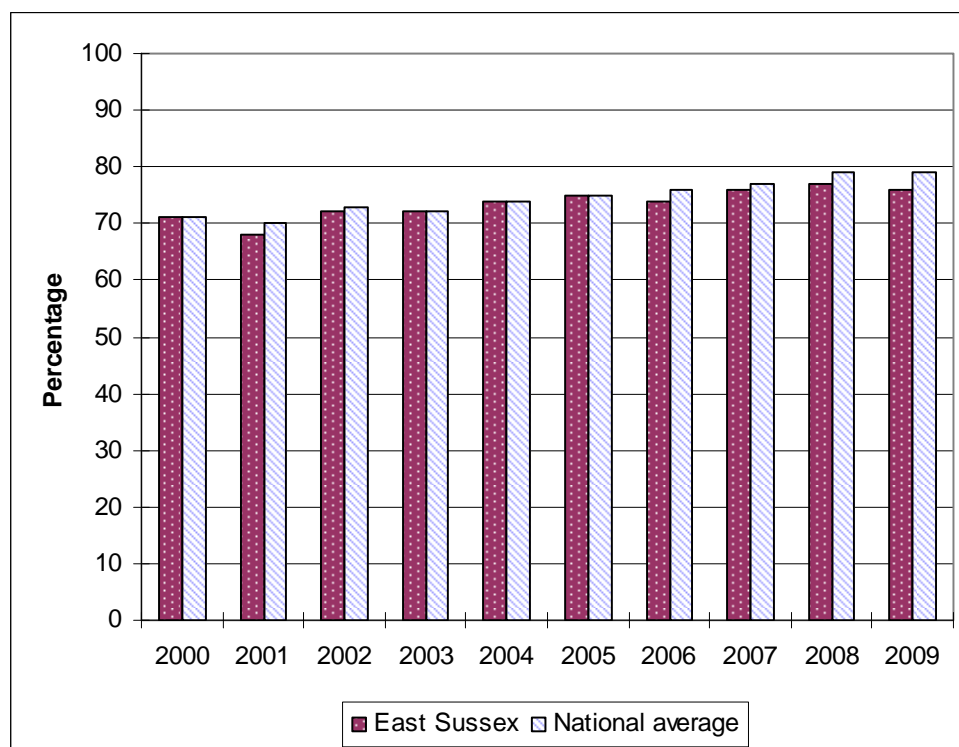
National and local performance

8. The primary indicator used by schools to measure attainment at Key Stage 2 is National Indicator 73 (NI 73). This indicator measures the number of pupils who have achieved level 4 or above in both English and mathematics at Key Stage 2.
9. In 2009 the proportion of East Sussex pupils who attained NI 73 declined by 2% to 69%, compared to 2008. Whereas nationally the decline was 1%, to 72% (see figure 1 on page 3 for further information).
10. The Key Stage 2 (level 4 or above) mathematics result for East Sussex, like the national average, has been rising gradually since 2001. From 2003 until 2005 East Sussex results increased in line with the national average. Since then any increase has remained below the national average (see figure 2 on page 3 for more information).

Figure 1: Key Stage 2 (Level 4 or above) English, mathematics and NI 73 results for East Sussex and Statistical Neighbours, 2007 - 2009

	English			Mathematics			NI 73		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
East Sussex	80	81	79	76	77	76	71	71	69
Devon	81	82	81	79	79	80	73	73	73
Dorset	83	84	82	79	80	79	74	75	73
Essex	80	82	80	77	78	79	72	73	72
Gloucestershire	84	86	83	80	82	81	76	77	75
Kent	77	79	77	73	75	75	67	69	68
North Somerset	83	83	82	80	81	78	75	74	72
Shropshire	82	84	82	79	80	78	73	75	72
Suffolk	79	79	76	75	76	73	68	69	66
West Sussex	82	82	80	77	79	78	72	73	71
Worcestershire	80	80	80	75	77	77	69	71	71
ENGLAND	80	81	80	77	79	79	71	73	72

Figure 2: Key Stage 2 (Level 4 or above) mathematics results for East Sussex and the national average, 2000-2009



Numeracy skills in England

11. In his report, Sir Peter Williams², suggests that the United Kingdom is one of the few advanced nations where it is socially acceptable, and even fashionable, to profess an inability to understand mathematics³. Furthermore, numeracy difficulties are very common amongst the adult population of England, with (in 2003) an estimated 15 million adults in England (30% of the population at that time⁴) having a numeracy skills at or below entry level 3 (equivalent to the skills expected of an 11 year old) and of these, 6.8 million (14% of the population at that time) having skills at or below entry level 2 (the standard expected for a nine year old).⁵ Research goes on to suggest that numeracy difficulties also play a distinctive role in restricting opportunities throughout life and are associated with reduced employment opportunities, and increased health risks.⁶

Support for pupils from parents and carers.

12. The Review Board recognises the positive role that parents and carers can play in ensuring that a child achieves their full educational potential. Evidence gathered during discussions with teachers highlighted to the Review Board that those parents and carers who have had a negative experience of education can often be reluctant to get involved with the education system again when their child starts school, and for those who developed a negative attitude towards mathematics as a child, they can, often inadvertently, pass this on to their children. Even for those parents and carers who are confident in mathematics, the modern teaching methods can be very different from how they were taught, making it difficult for them to support their child with their mathematics homework.

13. The Review Board heard several good examples of where schools have been creative in finding ways to engage with parents and carers to encourage them to get involved in their child's education, particularly around mathematics. These have included breakfast clubs, drop in sessions and workshops aimed at getting parents and carers to engage with the school, as well as sessions for parents and carers to help explain how mathematics is being taught in the classroom and mathematics challenges in school newsletters that encourage the whole family to work together on a mathematics challenge.

Recommendation 1.

Building upon the good practice employed by some schools, the Standards and Learning Effectiveness Service (0-11), in partnership with schools, to develop some low cost / no cost ideas for how a county wide programme can be developed that promotes and encourages a positive culture around mathematics in schools and at home.

² Department for Children, Schools and Families, Independent Review of Mathematics Teaching in Early Years Settings and Primary Schools, Final Report – Sir Peter Williams, 2008

³ *ibid*, p3

⁴ The population of England in 2003 was 49,866,000. Information from Office for National Statistics, Population Trends, summer 2008, p39

⁵ Every Child a Chance Trust, The Long Term Costs of Numeracy Difficulties, 2009, p7

⁶ *ibid*, p4

Promoting and developing mathematics within schools

14. Anecdotal evidence gathered from teachers during the course of the review revealed that not all primary school teachers are confident teaching mathematics. Increasing the confidence amongst primary school teachers in East Sussex to teach mathematics is therefore, for the Review Board, the most important building block in improving mathematics attainment.

15. The Review Board reviewed the national programmes and local courses that have been, or are being developed to support teachers to develop their skills and knowledge around mathematics and to improve the progression of those pupils with poor attainment in mathematics:

- Subject knowledge courses

These are locally developed courses that have been set up by the SLE Service (0-11) to help primary school teachers improve their subject knowledge at Key Stage 2 across a range of areas. Each half day course covers one particular area, such as fractions, decimals and percentages; ratio and proportion and measures.

These courses run once or twice a year and are well attended by teachers at all levels. Feedback has been positive, with 100% of attendees stating that the course will help them make changes and improvements in practice.

- Mathematics subject leaders

The SLE Service (0-11) runs local courses for those mathematics subject leaders who are new to the role, as well as refresher courses for existing subject leaders, to help support these teachers in their role.

Feedback on the courses has been positive, with 100% of attendees on the 'new to mathematics subject leadership' course stating that they will make improvements in their subject leader role as a result of attending the course.

- Every Child Counts teachers

This is a national programme funded through the former DSCF. It works with the lowest attaining Year 2 pupils to ensure that they make sufficient progress to reach the expected levels of attainment at Key Stage 1 and beyond. Twelve schools are involved in this programme which is being rolled out from September 2010.

- Quality Maths Programme

This programme is bespoke to East Sussex and is funded through the National Strategies⁷. It aims to improve the quality and teaching of mathematics and raise the expectations of pupils. Twenty two primary schools took part in the launch in November 2009 (a total of 888 pupils). These schools analysed where each of their pupils was at in terms of their development and highlighted areas for improvement. Consultants are working with the schools to help improve the quality of mathematics teaching and learning to bring these pupils up to the required standard. The success of the programme will be analysed in September 2010 and the SLE Service (0-11) is currently looking at the funding options available for developing this programme for other primary schools.

⁷ The National Strategies are professional development programmes that have been developed at a national level for early years, primary and secondary school teachers, practitioners and managers. They are aimed at improving the quality of learning and teaching in schools and early years settings and raising standards of attainment. The Strategies began in 1998 and are delivered at a national level by Capita Strategic Children's Services on behalf of the former DCSF.

- Mathematics Special Teacher Programme (MaST)

This programme is a two year Masters level course (equivalent to one third of a Masters on completion). It has been developed in partnership with the University of Sussex and three neighbouring local authorities (West Sussex, Surrey and Brighton and Hove), with funding from the former DCSF. The course focuses on progression, the teaching of mathematics (pedagogy) and subject knowledge from Foundation Stage right through to Key Stage 3. Once qualified these teachers will have the ability and knowledge to take on the role of a mathematics specialist teacher (as highlighted in Sir Peter Williams' report⁸). An initial group of 10 teachers in East Sussex began the course in January 2010. The plan is for further cohorts to start in September 2010 and September 2011.

16. The Review Board is keen to ensure that all primary school teachers are equipped with the confidence and competence to teach mathematics. It therefore supports the work being done by the SLE Service (0-11) and schools to improve the knowledge and confidence of mathematics teachers.

17. The Review Board recognises that some of this work, particularly the MaST and Every Child Counts programmes, are at an early stage and will require considerable time and effort for them to have a positive impact across all primary schools. Therefore, it is imperative that schools continue to work together and develop further ways of sharing knowledge, expertise and good practice around teaching mathematics to the benefit of all schools and pupils.

18. The Review Board is concerned that, with the end of the National Strategies in March 2011, future funding for the various programmes listed above is as yet unclear. It would urge the Children's Services Department to explore, as a matter of urgency, how funding can be accessed to ensure the continuation of these programmes.

Recommendation 2.

The Standards and Learning Effectiveness Service (0-11) to:

- a) explore the development of a training course for all newly qualified and recently qualified teachers working in primary schools in East Sussex to help them build their confidence in teaching mathematics; and**
- b) work in partnership with schools to develop and enhance the current training programme so that there is a range of courses available which provide continued professional development in mathematics for primary teachers at all levels in their career.**

Recommendation 3.

East Sussex County Council to work in partnership with education providers and other local authorities to ensure the continuation of the Mathematics Special Teacher programme and the Every Child Counts programme.

⁸ Department for Children, Schools and Families, Independent Review of Mathematics Teaching in Early Years Settings and Primary Schools, Final Report – Sir Peter Williams, 2008