



# POLICY DOCUMENT

## Mathematics and Calculations

|                                   | <b>Name</b>                                           | <b>Date</b>  |
|-----------------------------------|-------------------------------------------------------|--------------|
| Written By                        | SLT                                                   | Dec 2010     |
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| Review Version 1.2                | Bobbie Simpson, Chair of ACC                          | July 2015    |
| Review Version 1.3                | Bobbie Simpson, Chair of ACC                          | January 2016 |
| Review Version 1.4                | Phil le Conte, Carly Mould, Natalie Talbot, Jo Wilcox | January 2020 |

**This policy for Mathematics reflects the current philosophy and agreed practice of all staff at The Spring Partnership Trust member schools. It reflects the statutory requirements of the National Curriculum 2014 and takes into consideration the statutory framework for the Early Years Foundation Stage. The policy has the full agreement of the Governors and Directors and its implementation is the responsibility of all staff.**

### **Purpose of study (taken from the National Curriculum – September 2013)**

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, **an appreciation of the beauty and power of mathematics**, and a sense of enjoyment and curiosity about the subject.

### **Aims**

At The Spring Partnership Trust we:

- promote fluency and number sense
- promote confidence in mathematics by using a range of resources and methods
- develop deeper understanding through using the CPA approach (see appendix)
- use appropriate mathematical vocabulary
- encourage children to develop reasoning, pattern recognition and problem solving skills
- use mathematics in a range of contexts
- appreciate the importance of mathematics in everyday life
- apply mathematical knowledge across the curriculum

### **Equal Opportunities**

Schools in The Spring Partnership Trust want all children to enjoy mathematics and to regard themselves as mathematicians. We ensure that every child no matter what their gender, race, religion, culture or abilities has equal access to the mathematics curriculum.

### **Organisation**

The National Curriculum 2014 is at the centre of our mathematics teaching supported by a number of teaching resources. Daily mathematics lessons are taught in all Key Stage 1 and 2 classes. Year 1 follow an EYFS approach in the autumn term where appropriate (see below).

In The Early Years Foundation Stage we use the statutory framework for The Early Years Foundation Stage as a basis for our teaching. There is a focus on activities that are concrete, pictorial and abstract where mathematical understanding is developed through stories, songs, games and imaginative play. This approach continues in Year 1 in the autumn term. Manipulatives (such as Numicon, Dienes, cubes and place value counter) are used widely in the Foundation Stage to support children's understanding of number and calculation. The use of these manipulatives continues throughout KS1 and into KS2 to support the process of understanding and mastery.

### **Planning**

In order for the children to acquire key mathematical concepts and skills effectively, careful and comprehensive planning is essential. This planning will be completed for each year group, including Early Years Foundation Stage, and is on three connected levels:

- a) Long term plans follow the White Rose Hub yearly overviews. These break down the National Curriculum into Units of teaching based on one key area of learning e.g. Fractions.

- b) Medium term plans follow the White Rose Unit overviews. These outline the key objectives to be taught in each unit and the small steps required to achieve the objectives.
- c) Short term planning, for each unit, are created by each year group utilising the planning ideas provided by White Rose, however teachers also access a number of other sources to inform and resource their planning. The short term plans are broken down into phases addressing linked key objectives within the unit.

Plans created are placed on the shared drive and made accessible to other schools within the trust to utilise and to be used as a starting point for subsequent years.

The key elements of effective planning include:

- Providing significant time to each unit - to enable each phase/objective to be taught in depth, demonstrating that concepts are broadened out, rather than accelerated to next year group objectives
- Having clear objectives and expected outcomes for the end of each unit and identifying the small steps of progression to fine-tune the teaching
- Lessons which are pitched appropriate to the year group and cross referenced against the trust's skills progression map
- Systematic outlining of teaching and learning through a process of Concrete – Pictorial – Abstract
- Clearly identified Reasoning and Problem solving activities and questions which are brought into all lessons and are available to all children
- Outline of modelling and guided teaching, activities, including teacher role, challenge activities and any support given to groups, including manipulatives that might be used
- A range of contexts for learning in which learners are offered a variety of activities, resources and environments appropriate to their age, interests and prior achievements, making it purposeful and challenging
- Clear success criteria and assessment criteria that will enable children to assess their own progress and know how to improve
- Key vocabulary and language structures
- Key questions and opportunities for paired talk
- Outline of activities for lesson starters (where and when appropriate)
- Outline of main teaching input including modelling, resources and teaching techniques that will be used
- Brief details of how the class is to be organised, and where the attention of any support staff will be placed or split teaching might be employed
- Key points for the plenary and mini plenaries
- Evaluation and assessment by exception to inform future planning, particularly where learning objectives have not been achieved

### **Teaching and Learning (see teaching and learning policy)**

Our schools use a range of teaching and learning styles in mathematics to address the needs of all learners and ensure that they experience a broad and balanced mathematics curriculum. This is achieved through a daily mathematics lesson during which children are supported to:

- understand what they are learning, why they are learning it, how they will know when they have been successful and what they need to do to improve (see marking and feedback policy);

- ask as well as answer questions using appropriate mathematical vocabulary;
- use a process of CPA (Concrete-Pictorial-Abstract) to ensure full and deep understanding of mathematical concepts.
- experience a broad range of fluency, reasoning and problem solving questions where they are required to apply knowledge and skills in order to deepen their understanding of a topic;
- revisit topics in a structured manner to encourage retention of skills and knowledge;
- be given opportunities to apply more than one skill at any one time;
- make mathematical links with other curriculum areas and previous learning;

### **Teaching mathematics to children with special educational needs**

At our schools, we teach mathematics to all children whatever their ability by setting suitable learning challenges and responding to children's diverse needs. We provide learning opportunities that enable all children to make progress and overcome potential barriers to learning. The provision for children with special educational needs is detailed in the special educational needs and disability policy.

### **Assessment**

Rigorous assessment of children's learning in mathematics is a continuous process that is used to inform planning to ensure that children make at least good progress and reach their full potential.

Assessment for Learning is an integral part of every lesson to check children's understanding and to inform teachers, enabling them to adapt day-to-day lesson plans. Summative assessments take place at the end of each term in order to assess what children can do against national standards. These inform teachers' understanding of progress against national standards and help teachers to identify key marginal children. They are also used to inform planning and interventions.

Accurate information, including next steps for learning, will then be reported to parents termly and to the child's next teacher at the end of the academic year.

The assessment procedures within our schools include:

- regular marking of children's work to provide feedback on the child's progress/attainment (see Marking and Feedback Policy);
- use of PPR meetings to discuss children's progress and attainment;
- adjusting planning and teaching within units in response to pupils' attainment;
- use of the 'assessment for learning' strategies to check learning against objectives at the end of each unit of work. If necessary, future planning is adapted in response to assessment outcomes;

### **Parents and Homework**

Parents are informed termly of their child's progress, curricular targets and next steps at Parents' Evening. Parents are invited into school so their children can share their learning at their class assembly. We support parents through workshops and explain how they can help at home through meetings and newsletters. This policy is published on the school websites as well as links to useful maths websites.

Mathematics is part of the homework the children are given. Children are set tasks linked with the learning outcomes appropriate to their year group. Children are encouraged to use the homework to revise and consolidate learning done in class. From Year 2 upwards, children are also expected to frequently practice the multiplication tables appropriate to their year group.

### **Roles and Responsibilities**

- The monitoring of standards of children's learning and the quality of teaching in mathematics is carried out by the Subject Leader with the support of the Senior Leadership Team.
- Colleagues will be supported in the teaching of mathematics by the Subject Leader.
- The Subject Leader will keep up to date with new initiatives and ensure that teaching staff receive appropriate professional development.