

# Great Bardfield Primary School



## Mathematics Policy SEPTEMBER 2019

*'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.'*

**National Curriculum 2014**

**Date of re - issue:                      2019**

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## **INTENT**

At Great Bardfield Primary School we believe that mathematics is a vital tool for everyday life and economic prosperity. We believe that **everyone** can do Maths, irrespective of their starting point and that the vast majority of children can succeed in learning mathematics in line with national expectations. By the time children leave our school we want them to be confident, competent mathematicians and be able to use their skills to tackle a wide range of questions, practical tasks and real life problems. Through our carefully planned and sequenced curriculum it is our aim that children develop:

- a positive attitude towards mathematics;
- fluency in basic maths skills;
- an ability to reason mathematically;
- an ability to solve problems and to work systematically and accurately;
- an ability to work both independently and in co-operation with others;
- an ability to communicate mathematical knowledge and reasoning clearly, both verbally and in writing;
- an ability to use and apply mathematics across the curriculum and in real life situations;
- an understanding of mathematics through a process of enquiry and experiment.

## **IMPLEMENTATION**

Our staff have high expectations of all children, irrespective of ability, and encourage them to be successful and achieve their full potential. Through careful planning and preparation, we aim to ensure that our children are given opportunities for:

- practical activities and mathematical games;
- using both concrete and pictorial resources;
- problem solving investigations;
- individual, group and whole class discussions and activities;
- a variety of both open and closed tasks;
- using a range of methods of calculating eg. mental, pencil and paper, formal written methods and using a calculator;
- working with computers as a mathematical tool.

The national curriculum states that 'The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace'. A *typical* maths session will include all children working towards the same learning objective. How they meet the learning objective will look different for the individual child as they may:

- choose to use either a concrete, pictorial or abstract method (CPA) to demonstrate their understanding;
- select preferred resources to support their learning (concrete apparatus, models or images, etc.);
- produce different outcomes from open ended investigations.

## **PLANNING**

### **Long term planning**

The National Curriculum for Mathematics 2014, Development Matters and the Early Learning Goals (Number, Shape Space & Measure) provide the long term planning for mathematics taught in the school. These are organised into topics which are then broken down into smaller blocks which are taught in sequence. Our curriculum is cumulative and once a skill has been taught, it will be revisited in other contexts within the curriculum.

### **Medium term planning**

All teachers use the White Rose Maths Hub schemes of learning as their medium term planning documents. These are used flexibly (with regard to time spent on each block) and adapted to their learners.

### **Short term planning**

Lessons are planned using small steps progression documents. There is no expectation for teachers to generate a lengthy written short term plan. Adaptations to the planning will be marked on medium term plans. Teaching in EYFS is delivered as appropriate to individual children with thought to where the children are now and what steps they need to take next.

### **MATHS TALK**

Precise mathematical language, often couched in full sentences, is used by teachers so that mathematical ideas are conveyed with clarity and precision. We value 'mathematical talk' and children get lots of opportunity to talk about and evaluate their mathematics during lessons.

### **VARIATION**

Conceptual variation and procedural variation are used extensively throughout teaching. This helps to present the mathematics in ways that promote deep, sustainable learning.

a. Conceptual variation is where the concept is varied and there is intelligent practice. Positive variation is showing what the concept is, and negative variation is showing what the concept isn't. This clears away misconceptions at the very start. Within positive variation, both standard and non-standard representations are shown.

b. Procedural variation is where different procedures and/or representations are used to bring about understanding. For example, teachers may collect several solutions for a problem (some right, some wrong) before guiding the class towards the most efficient method. It also involves highlighting the essential features of a concept or idea through varying the non-essential features. Variation is not the same as variety – careful attention needs to be paid to what aspects are being varied (and what is not being varied) and for what purpose.

### **INCLUSION**

The whole class is taught mathematics together, with no differentiation by acceleration to new content. We do not group children by ability. The learning needs of individuals are addressed through careful scaffolding, questioning and appropriate rapid intervention where necessary, to provide the appropriate support and challenge. LSAs are used to support individuals or groups of children, either within the class or by withdrawing them for intervention strategies, as necessary.

Children with SEND are usually taught within the mathematics lesson where support is given as required. Additional support staff may withdraw small groups or individuals to pre-teach, allow more practice or consolidation of fundamental skills or to use intervention materials where appropriate.

Within the mathematics lesson, teachers not only provide activities to support children who find mathematics difficult, but also activities that provide appropriate 'dive deeper' challenges for children who are high achievers in mathematics. Pupils who master concepts rapidly are challenged through being offered complex and diverse problems before any acceleration through new content.

### **CROSS CURRICULAR LINKS**

Throughout the curriculum, opportunities exist to extend and promote mathematics. Where possible, children are given these opportunities to apply their mathematical knowledge to other subject, for example, handling statistics in Science. The whole school takes part in NSPCC Number Day every year which raises the profile of Mathematics with both our children and their parents.

### **RESOURCES**

Whole school resources are organised into themes and are stored in the resource shed in clearly labelled boxes. All classrooms have a regularly updated working wall dedicated to Mathematics and classroom resources are clearly labelled and easily accessible to children. Teachers encourage children to choose their own resources wherever possible. Children are encouraged to use concrete and pictorial (models and images) resources to support and demonstrate their learning throughout the school.

### **COMPUTING**

From Year 1 onwards all children are given access to two programs to enhance their learning.

1. **RMEasimaths** is designed to help them improve their maths skills and capabilities in an engaging and effective way. The carefully structured activities allow children to progress at a pace appropriate to their own individual abilities. This program is used in school. The reporting tools designed within RM Easimaths allow the subject leader to analyse progress by individual, groups or class, and disseminate this information to staff accordingly.
2. **TTRockstars** is a times tables app which assists the children in achieving fluency in recalling their times tables. Children are encouraged to access this regularly both in school and at home.

Each classroom has a PC connected to an interactive whiteboard and a 'visualiser'. All teachers are provided with a laptop to support their planning and provision and are encouraged to use ICT to enhance teaching and learning in mathematics where appropriate. The school is equipped with a set of i-pads that can be used by all children on a rota system.

### **IMPACT**

We measure the impact of our curriculum by considering to what extent our children have:

- a positive attitude towards mathematics;
- achieved fluency in basic maths skills;

- an ability to reason mathematically;
- an ability to solve problems and to work systematically and accurately;
- an ability to work both independently and in co-operation with others;
- an ability to communicate mathematical knowledge and reasoning clearly, both verbally and in writing;
- an ability to use and apply mathematics across the curriculum and in real life situations;
- an understanding of mathematics through a process of enquiry and experiment.

We do this by:

- Regular pupil - teacher reflections and discussions about their attainment and next steps.
- The use of 'before' and 'after' assessments for each block of learning to pinpoint starting points, attainment and next steps.
- Summative termly assessments (WRM) which enable us to record and track progress and attainment.
- Termly progress and attainment meetings with subject leaders and class teachers to track individual children and groups (e.g. SEND, PP, etc.); identifying any children who may need an intervention.
- Formal testing (SATs) at the end of year 2 and Year 6 to benchmark attainment against national averages.

### **ROLE OF THE MATHS LEADER**

- To take the lead in policy development.
- To support colleagues in the delivery of the Maths curriculum
- To monitor progress in Mathematics – eg leading staff CPD, scrutiny of work, analysis of formal assessment data.
- To take responsibility for the choice, purchase and organisation of central resources for Mathematics, in consultation with colleagues.
- To be familiar with current thinking concerning the teaching of Mathematics, and to disseminate information to colleagues.
- The leader will be responsible to the Headteacher and will liaise with the named link Governor.

### **MONITORING AND EVALUATION**

The subject leader monitors and evaluates the quality and standard of mathematics throughout the school and supports teachers to develop their practice within the classroom. In practice this includes learning walks, dropping in to maths sessions, book looks and discussions with both pupils and staff. Opportunities for teachers to review the scheme, policies and other support materials are given during staff meetings.

Other relevant documents:

- Calculation Policy
- Maths Progression Document

## GREAT BARDFIELD PRIMARY SCHOOL MATHEMATICS POLICY

- Maths Curriculum Map
- SEND Policy
- Educational Visits Policy
- Health & Safety Policy
- Marking and feedback policy
- Homework policy
- Curriculum and Planning policy
- Early Years Foundation Stage policy
- Assessment policy