

# Werrington Primary Werrington Primary School School

## Maths Policy

### Editions and Revisions

November 2011	Lisa Threadgill
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**WERRINGTON PRIMARY SCHOOL**

**POLICY FOR MATHEMATICS**

**Werrington Primary School is committed to safeguarding and promoting the welfare of children and young people and expects all staff and volunteers to share this commitment. Keeping Children Safe in Education, Safeguarding Policy, the Code of conduct, Equal Opportunities Policy and Health and Safety policy should be read in conjunction with this policy.**

## INTRODUCTION

*‘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.’ (NC 2014)*

Mathematics is important because:

- It is widely used in society, both in everyday situations and the world of work.
- It can be used to represent or communicate ideas, to predict, to explain and to verify.
- It provides intellectual challenge.

The National Curriculum for Mathematics describes what must be taught in each year group. Werrington Primary School follows a blocking approach to Mathematics which ensures depth of learning in each area, thereby enabling the children to remember more, and consequently do more. In the Early Years the curriculum is guided by the Early Learning Goals and Foundation Curriculum.

## INTENT

Our aims in teaching Mathematics are that all children will:

- Enjoy the subject and study it with confidence and a sense of achievement.
- Achieve a high standard in Mathematical calculation and fluency, logical thinking and a range of other mathematical skills, through practical and mental computation and recording, as set out in the National Curriculum.
- Apply these skills with confidence and understanding when solving problems, recognising the operations needed to solve them.
- Calculate accurately and efficiently, both mentally and on paper, drawing on a range of calculation strategies.
- Judge whether their answers are reasonable and have strategies for checking them where necessary.
- Explain their methods and reasoning using correct mathematical vocabulary.

## IMPLEMENTATION

### Planning

Mathematics is a core subject of the National Curriculum and as such, all our pupils are entitled to a broad, balanced and differentiated Mathematics curriculum. The fundamental skills, knowledge and concepts of the subject are categorised into 4 strands:

1. Number
2. Measurement
3. Geometry
4. Statistics

At Werrington Primary School we follow a blocking approach to Mathematics teaching and draw upon White Rose and NCETM materials to support this. These can be found at <https://www.tes.com/teaching-resources/teaching-for-mastery-in-primary-maths/whiterosemaths>

In line with these materials, the Mathematics curriculum is arranged into blocks, with place value and calculation blocks being covered first. The only exception to this is in Year 2 where we have chosen to split the addition and subtraction block into two smaller blocks (one in Autumn term and one in Spring term) in order to allow for the acquisition of knowledge and skills at developmentally appropriate stages.

Our long term plans for Maths show the order of the blocks across each year group within school.

Our medium term plans show the objectives that will be covered within each block, and in which order they will be covered.

Teachers' short term plans are written on a weekly basis and are designed to provoke thought about many of the features of teaching for mastery, e.g. identification of common misconceptions and planning to address these before they occur, use of stem sentences, reasoning activities through captain conjecture, ping-pong style input where pupils are fully involved and breadth and depth for all.

The short term plans are annotated each day to show formative assessment and record the names of those pupils identified for rapid intervention.

### Maths Meetings

We run 'Maths Meetings' in addition to Mathematics lessons, which are used to practise prior learning and keep Mathematics knowledge and skills fluent in the minds of pupils. Daily Maths meetings are used to consolidate key ideas in Mathematics, fill any gaps in understanding of mental arithmetic, and revise 'general knowledge mathematics' that may not be covered explicitly in every unit of work. Children are moved smoothly from their tables to the carpet whilst singing a Maths song. Children are instantly engaged and motivated and aware of the subsequent routine of the mathematics meeting. The session is separated into eight sections, lasting between one minute and six minutes each. Full

sentence responses are insisted on and a range of individual and whole class responses are expected. All children are engaged at all times and the pace is snappy. The questioning is a mixture of open and closed. The latter is to ensure fast pace and accurate knowledge and the more open-ended questions allow for explanatory responses such as possible calculation methods. A variety of resources are used to present mathematical concepts in different ways to aid deep conceptual understanding. The impact of using the same structure and resources each day ensures children learn knowledge partly through repeated experience.

The eight sections consist of key mathematical concepts that children need to know confidently in order to become competent mathematicians. They are:

1. Months of the year;
2. Days of the week;
3. Statistics;
4. Shapes;
5. Patterns and sequences, including times tables;
6. Money;
7. Time and Measures;
8. Place Value.

Number recognition is a section of the Maths meetings in EYFS and other sections of the Maths meeting are introduced as they begin to be taught.

#### Daily Lessons

Daily lessons provide quality first teaching where a variety of visual representations are drawn upon, and fluency activities are deepened through ‘scuba diver’ and ‘deep sea diver’ challenge activities. These challenges are available to any child who is ready to access them.

We promote a concrete, pictorial, abstract (CPA) approach to learning new concepts in daily lessons, which is a highly effective approach to teaching that develops a deep and sustainable understanding of maths. Children and adults can find maths difficult because it is abstract. The CPA approach helps children learn new ideas and build on their existing knowledge by introducing abstract concepts in a more familiar and tangible way. *‘Concrete is the “doing” stage, using concrete objects to model problems....., pictorial is the “seeing” stage, using representations of the objects to model problems....., and abstract is the “symbolic” stage, where children are able to use abstract symbols to model problems’ (Hauser).* A skilled teacher will vary the apparatus the children use in class and go back and forth between each representation to reinforce concepts.

Each classroom has its own concrete Maths apparatus, including: place value counters; Dienes apparatus; bead strings, Cuisenaire rods and Numicon, which should be easily accessible to all children.

#### Working Walls

Maths working walls are split into four sections, each of which support and promote a different element of teaching for mastery. The four sections are:

- Show it
- Draw it
- Explain it
- Connect it

Pupils' own work should be added to the relevant sections of the working wall to demonstrate how the mathematical concept being taught, practised and applied has been learned at the concrete, pictorial and abstract stages.

Correct mathematical vocabulary should be taught and modelled in each unit and displayed on working walls to prompt pupils' continued use of it within their mathematics work.

### Intervention

It is expected that children will be given, whenever possible, daily teacher intervention, as necessary, to allow them to keep up with the pace of learning in the daily Maths lessons. This may be informed by marking or by ongoing teacher assessment during Maths lessons and it is anticipated that the size of the group receiving intervention will not exceed 6 pupils. Intervention may also take the form of pre-teaching. It is important to note that this intervention time is aimed at providing intervention for all and should not always be focused on SEND pupils as this can sometimes be achieved through skilful communication with TAs delivering 1:1 Wave 3 support. Any work, or corrections, completed by pupils during intervention time should be done in blue pen/pencil so the impact of intervention time is clear.

### Homework

Homework each week consists of reading, spellings and times tables practise. These are the three compulsory elements of homework that we believe all children MUST complete regularly in order to be successful, numerate and literate learners. Additional Maths homework may be set by individual teachers – paper based or computer based – although these will be optional.

We run a times tables scheme in school where the children are required to learn the multiplication tables up to  $12 \times 12$ . They each have their own record card which they start in Year 2 and continue working on throughout KS2, until it is complete. They are able to earn a bronze, silver and gold sticker for each times table and the details of what they need to be able to do for each colour sticker are on the back of the card, but can also be found below.

**Bronze** – children need to be able to recite a times table, in order, with no errors or long pauses, e.g. “One times two is two, two times two is four, three times two is six.....”  
Etc.

**Silver** – children need to be able answer questions from a particular times table, in random order, with no errors or long pauses, e.g. “Five times six? Two sixes? Eight sixes? Twelve times six?”

**Gold** – children need to be able to do two things. Firstly, they must be able to say the question from a particular times table when given the product, e.g. if a child is going for gold on their 4 times table and they are presented with 16, the child needs to be able to

identify 4 x 4. Secondly, they need to be able to use their knowledge of times tables facts to answer division questions about that table, e.g.  $20 \div 4$

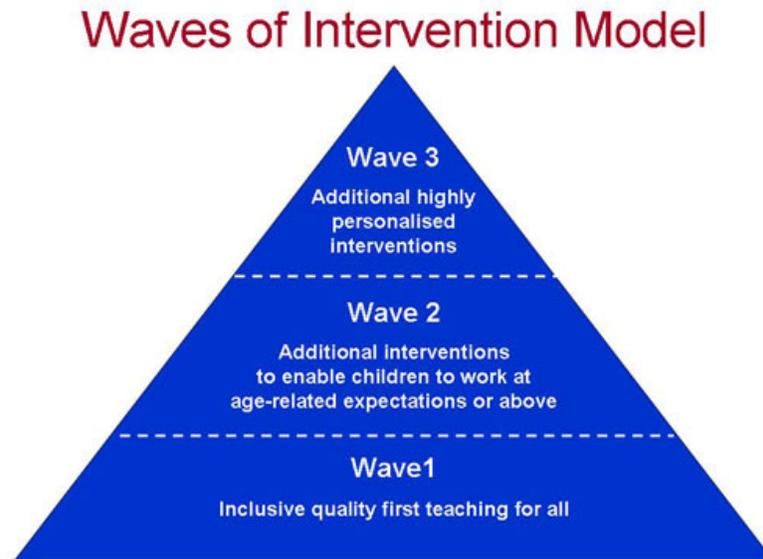
Children may be tested for their stickers in a variety of ways, including orally with a TA during Maths meeting time, using paper tests of 24 questions with a 1 minute time limit, by their class teacher, etc.

Additionally, we have a whole school subscription to Times Tables Rockstars.

### Wave 3 Support

Dedicated TA time is provided for Wave 3 intervention. This is 1:1 support that is provided for identified pupils at least 3 times a week for around 10 minutes per session and focuses on the targets identified on the provision map.

Wave 3 Maths is an ideal opportunity for targeted children to revise and practise rapid mental recall of key number facts, as well as to receive additional teaching of concepts that they are struggling to grasp whilst following a concrete – pictorial- abstract approach to developing understanding.



### Cross Curricular Maths

It is expected that children are given opportunities to apply their mathematics learning in other subjects across the curriculum, for example, data handling in Science. This can be completed in Mathematics books or Kaizen books. Half termly planning documents for each topic detail how these cross curricular links will be made.

Regular themed weeks in school provide further opportunities for purposeful cross-curricular application of Maths skills and these will be detailed in themed weeks planning documents.

### **IMPACT**

#### Assessment

Assessment is regarded as an integral part of teaching and learning and is a continuous process. We strive to make our assessment purposeful, allowing us to match the correct work to the needs of the pupils, thus benefiting the pupils and ensuring progress.

Information for assessment will be gathered in various ways. These will include:

- Talking to the children;
- Observing the children working;
- Marking the children's work;
- Guided group work with the teacher;
- Feedback from TAs;
- Termly PiXL assessments and the associated Question Level Analysis (QLA).

Feedback to pupils about their progress in Mathematics is achieved through the marking of work. Effective marking and setting of targets: aims to be encouraging and supportive; includes pink highlighting to denote skills pupils have performed well (tickled pink) and green highlighting to show them what could be improved in their work (green for growth); clearly indicates errors and provides opportunities for corrections to be made; is often done whilst a task is being carried out through discussion between child and teacher. The following annotation code is in use for the marking of maths books:

I	Independent
S	Supported
V	Verbal feedback given

#### Mathematics Subject Leader

The Mathematics leader is responsible for leading Mathematics throughout the school.

This includes:

- Taking the lead in policy development and the production of schemes of work designed to ensure progression and continuity in Mathematics throughout the school;
- Supporting colleagues in their development of detailed work plans and implementation of the National Curriculum for Mathematics and in assessment and record keeping activities;
- Monitoring progress in Mathematics and advising the Head teacher on actions needed;
- Taking responsibility for the purchase and organisation of Mathematical resources required for the teaching of Mathematics;
- Keeping up to date with developments in Mathematical Education and disseminating information to colleagues as appropriate.

The Mathematics leader is Sarah Abbott.

#### The Role of the Class Teacher

- To ensure progression in the acquisition of mathematical skills with due regard to the National Curriculum for Mathematics.

- To develop and update skills, knowledge and understanding of Mathematics, taking advantage of training opportunities.
- To keep appropriate ongoing assessment records.
- To plan effectively for Mathematics, liaising with subject leader as necessary.
- To inform parents of pupils' progress, achievements and attainment. This is done three times a year through two parent/teacher consultations and an annual written report at the end of each school year.

### **EQUAL OPPORTUNITES**

This policy should be read in conjunction with the school's Equality Policy under the Equality Act 2010.

### **HEALTH AND SAFETY**

Within our Maths teaching the following actions are taken to ensure the health and safety of both staff and pupils, along with any other parties present, whilst teaching is taking place:

- special care of some apparatus such as scissors and compasses;
- use of aprons for messy work;
- close supervision of all cooking activities by an adult;
- risk assessment undertaken for any out of school activities and cooking activities;
- DBS checks and supervision of visitors/volunteers into school;
- regular electrical PAT testing of all electronic equipment and the reporting of any faults found.

Maths teaching may also incur some other health and safety risks and all staff should refer to the Health and Safety policy and the relevant risk assessments.

### **PARENTAL INVOLVEMENT**

At Werrington Primary School we encourage parents to be involved by:

- inviting them into school twice yearly to discuss the progress of their child;
- inviting them into school in the Summer term to discuss their child's annual report;
- circulating information via half termly newsletters when significant changes have been/ are made to the Mathematics curriculum;
- inviting parents of Year 6 pupils to a meeting about supporting their children through SATs;
- encouraging parents to help in classrooms;
- offering parent workshops to demonstrate current calculation methods being taught in school;
- directing parents to a wealth of resources on our school website to assist them in helping pupils with their homework.

**GOVERNING BODY**

At Werrington Primary School we have an Achievement & Standards committee which looks at progress and attainment in Maths.

**POLICY REVIEW**

Due to be reviewed September 2021