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# Glenmere Primary School

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# Core Mathematics Policy



**November 2017**

**Mathematics Policy**

This policy outlines the teaching, organisation and management of mathematics taught and at Glenmere primary school.

At Glenmere primary school we use the new National Curriculum for Mathematics (2014) as the basis of our mathematics programme.

### Developing Mastery

We are committed to ensuring that all pupils achieve mastery in the key concepts of mathematics, appropriate for their age group, in order that they make genuine progress and avoid gaps in their understanding that provide barriers to learning as they move through education. Our Mathematics curriculum reflects a greater emphasis on mastery of the key skills of mathematics to ensure children have adequate time to develop their fluency and understanding before moving onto a new concept. Assessment for Learning, an emphasis on investigation, problem solving and the development of mathematical thinking and a rigorous approach to the development of teacher subject knowledge are considered to be essential.

### AIMS AND PURPOSES OF MATHS

Children should:

- develop basic mathematical concepts and skills according to their ability;
- become fluent mathematicians with a solid understanding of the concepts in mathematics;
- develop an ability to reason and problem solve;
- progress and develop clear and logical thought;
- learn to use and apply mathematical knowledge, skills and vocabulary in different contexts;
- learn that mathematics has meaning and relevance to their own lives.

### PLANNING, TEACHING AND MANAGEMENT

#### The Foundation Stage

Maths is taught as part of the Area of Learning designated as 'Mathematics' in the EYFS Curriculum. The EYFS Curriculum is made up of two strands: Numbers and Shape, space and measure. The children will receive some whole class and adult led maths teaching and they have access to independent child initiated maths activities daily. Children are given opportunities to work on maths activities both indoors and outdoors. These activities are planned based on the main areas as outlined in the EYFS curriculum. As in the rest of the school, the Maths planned builds on previous learning and allows time for children to develop 'mastery' in the key areas of Mathematics without moving onto a new concept too quickly.

Planning is updated daily taking into account previous learning. This ensures the maths activities are appropriate and relevant to the children's learning needs and their interests. Maths activities in Continuous Provision are planned taking into account both the children's interests and curriculum coverage.

## Key Stage 1 and 2

### Planning

The New National Curriculum has several strands

- Number: number and place value, addition and subtraction, multiplication and division, fractions, percentages (Yr 5 & 6 only)
- Measure
- Geometry: properties of shape, position and direction
- Statistics (Year 2 onwards)
- Algebra (Yr 6 only)
- Ratio and Proportion (Yr 6 only)

Short term plans are produced weekly by individual class teachers. These plans include opportunities to review, teach, practise and apply skills in all strands. Additionally short term plans include opportunities to work on non negotiable end of year targets(see appendix).

Planning now also includes purposeful misconceptions for children to solve and teachers to address.

### Teaching

In Key Stage 1 and 2 children have a daily mathematics session of approximately 45- 60 minutes. Teachers in Key Stage 1 and 2 also plan and provide opportunities for children to use and apply maths knowledge and skills in other areas of the curriculum (e.g. science and investigation).

A typical lesson in Key Stage 1 and 2 consists of 3 main components. The timing and organisation of each component within a maths lesson may vary.

- **Oral / mental calculation (5 minutes) - Counting stick**

This will involve whole-class or same ability group work to rehearse, sharpen and develop mental and oral maths skills. Children to develop problem solving skills with missing number cards on the counting stick, fractions and multiples.

- **Main teaching and independent learning**

This will involve both teaching input and pupil activities with a balance between whole class, grouped, paired and individual work.

- **Plenaries and mini plenaries**

These are a vital part of every maths lesson. It involves work with the whole class or small groups to identify and deal with misconceptions, summarise key facts and ideas, make links to other work and evaluate learning and progress and discuss next steps.

## **ASSESSMENT**

Class teachers are responsible for assessing individual children's attainment in maths. Teacher assessments are completed termly along with pupil progress meetings.

Maths assessment happens in 2 forms:

- Formative – the day to day assessment that takes place continually and informs teacher's short term planning e.g. work samples, observation notes.
- Summative – formal assessment that takes place at the end of a strand of learning or a whole year taking into account all evidence gathered through formative assessments e.g. work in books, end of unit reviews, SATS tests (Year 2 and 6). Pupils complete a blue test assessment at the end of each unit of work to test the children's knowledge and for the teacher to see whether the class is ready to move on to a new unit or not.

The data from formative assessments is used to judge children's attainment at the end of each unit, term or year.

### **Assessment records**

Assessment folders are kept by all class teachers and will contain termly pupil progress sheets which identify children by name that are not attaining or making progress and the next steps that will be taken. A summary assessment sheet will be completed at the end of the year that will show a break down of the attainment of different groups such as boys, girls, EAL, PP, SEN and more able.

In the Foundation Stage teachers continually update children's 'Learning Journeys' with observations, photographs and work samples which details the children's progress in maths. Class teachers also keep more formal records directly relating to learning objectives and Early Learning Goals.

In Key Stage 1 and 2 teachers records may include annotated planning, notes on observations, photographs and written work recorded in maths books. In year 2 and year 6, they also use the Teacher Assessment Framework to find evidence of Maths learning objectives.

### **AfL in maths**

Children are also expected to assess their own learning in maths. This can take different forms depending on the age and ability of the children. In the early stages of AfL, children will be expected to talk about their learning by identifying what they are good at and what they find hard and what they need to get better at. As children move through the school they will begin to talk in more detail about their learning and areas for improvement.

### **Targets**

Children are given 2 targets at the start of each unit in Maths, which are stuck in their Maths books. They then self-assess themselves using green, orange and red on how they feel they work on their target. They then assess themselves again against the target after the learning has taken place.

Children also self-assess themselves against all the objectives at the start of each unit and the end (see maths books).

### **NON NEGOTIABLE EXPECTATIONS IN MATHS**

All pupils should be working at age related or above for each year group.

By the end of Foundation Stage, most children, when assessed against the Early Learning Goals for Mathematics, will be judged as 'expected' this means that they have reached the level of development expected at the end of the EYFS.

By the end of Year 1 to 5 children are expected to achieve Age Appropriate Expectations.

#### **NON-NEGOTIABLES**

##### **Reception**

The Early Learning Goal has been broken down into smaller targets. By the end of the year children will be able to:

- Count to 20.
- Count reliably at least 10 objects.
- Use 'more' and 'less' to compare two numbers.
- Estimate a number of objects and check by counting.
- Recognise written numerals 1 to 9.
- Say one more / less (to 10).
- Add and subtract two small groups of objects (to 10).

#### **NON-NEGOTIABLES**

##### **Year 1**

- Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
- Count, read and write numbers to 100 in numerals
- Count in multiples of twos, fives and tens
- Given a number, identify one more and one less
- Read and write numbers from 1 to 20 in numerals and words.
- Represent and use number bonds and related subtraction facts within 20
- Add and subtract one-digit and two-digit numbers to 20, including zero

#### **NON-NEGOTIABLES**

##### **Year 2**

- Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward
- Recognise the place value of each digit in a two-digit number (tens, ones)
- Compare and order numbers from 0 up to 100
- Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables
- Recognise odd and even numbers

- Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:  
a two-digit number and ones  
a two-digit number and tens  
3 one-digit numbers
- Find simple fractions, e.g.  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$ ,  $\frac{1}{5}$ ,  $\frac{1}{10}$  of shapes & amounts.
- Tell and write the time to five minutes

### NON-NEGOTIABLES Year 3

- Count from 0 in multiples of 4, 8, 50 and 100
- Find 10 or 100 more or less than a given number
- Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)
- Compare and order numbers up to 1000
- Read and write numbers up to 1000 in numerals and in words
- Add and subtract numbers mentally, including:  
a three-digit number and ones  
a three-digit number and tens
- Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- Add and subtract fractions with the same denominator within one whole
- Know the number of seconds in a minute and the number of days in each month, year and leap year

### NON-NEGOTIABLES Year 4

- Count in multiples of 6, 7, 9, 25 and 1000
- Find 1000 more or less than a given number
- Count backwards through zero to include negative numbers
- Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)
- Order and compare numbers beyond 1000
- Solve number and practical problems that involve all of the above and with increasingly large positive numbers
- Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
- Recall multiplication and division facts for multiplication tables up to  $12 \times 12$
- Add and subtract fractions with the same denominator
- Read, write and convert time between analogue and digital 12 and 24-hour clocks

## NON-NEGOTIABLES

### Year 5

- Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit
- Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000
- Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero
- Add and subtract whole numbers with 4 or more digits
- Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements  $> 1$  as a mixed number (e.g.  $2/5 + 4/5 = 6/5 = 11/5$ )
- Convert between different units of metric measure including time

## NON-NEGOTIABLES

### Year 6

- Compare and order numbers to 10,000,000.
- Identify common multiples, common prime numbers and common factors.
- Multiply and divide 4 digit numbers by 2 digit numbers.
- Round any number to a required degree of accuracy.
- Add and subtract fractions with different denominators and mixed numbers.
- Multiply simple pairs of proper fractions.
- Divide proper fractions by whole numbers.
- Calculate the percentage of a whole number.

### **More Able pupils and those with Special Educational Needs(SEN)**

Our school provides a fully inclusive maths curriculum where teaching and learning is differentiated appropriately to meet the needs of all learners with challenge for all.

### **SEN Provision**

If a child has a specific difficulty relating to maths that is listed on their IEP, they may be given extra time or additional support with a teacher, LSA or TA to address their specific needs and to support and develop their maths knowledge and skills accordingly.

### **More Able Provision**

Where children are excelling in an area of maths, they will be given further opportunities to deepen their understanding and apply higher order thinking skills through carefully planned problem solving and reasoning tasks.

### **EAL Provision**

Care is taken to diagnose when an error is caused by language proficiency or a mathematical difficulty. When language is the barrier to learning, mathematics is made 'clearer' and opportunities are provided to enable EAL pupils to engage with the learning and convey and develop their mathematical ability.

## **MONITORING AND EVALUATION**

The policy will be monitored and reviewed in line with the school's monitoring and review practices.

The work undertaken will be monitored and evaluated by the curriculum leader with responsibility for Maths. This will be in line with the school's monitoring and evaluation practice e.g. sampling teacher's planning, samples of work (recorded using audio tape, video tape and written), discussion with children and observations.

## **PARENTAL SUPPORT**

At the start of each term parents will be given a letter informing them on how they can support their child during that term and will be given activities they can do to support and websites they may find to be useful.

At the maths afternoon parents are also given the calculation policy and the non-negotiables for each year group.

## **Homework**

All children have been given a log in number for My Maths and are set weekly tasks on this.

Children also receive weekly maths homework in the CPG books:

Year 3, 4 & 5 – 1 piece of maths a week.

Year 6 – 2 pieces of maths a week.

Children in years 3, 4 & 5 also receive weekly times table challenges from their 'famous 5' times table scheme.

## **Information sessions**

Parents will be invited into school annually for a hands on maths afternoon and will be shown a presentation on calculations in the school. The children in the final year at Glenmere will be invited to a calculation evening for all the feeder schools to the Wigston academy trust.