



Curriculum Statement for Mathematics

'Be yourself, but be it very well'

UNCRC Article 28: Every child has the right to an education

Please see also our overall curriculum statement.

"Go down deep enough into anything and you will find mathematics."

Dean Schlicter

Intent

At St. Cuthbert's Catholic Primary school, our Mathematics curriculum aims to ensure that all pupils can become confident mathematicians who are excited by mathematical challenges and have the motivation and resilience to solve these problems. They will do this by:

- Becoming fluent in the fundamentals of mathematics so that they can recall and apply knowledge rapidly and accurately
- Reasoning mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- Solving problems by applying their mathematics to a variety of problems
- Moving fluently between different representations of mathematical ideas
- Making rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems
- Applying mathematical knowledge to other areas of the curriculum, particularly Science
- Using mathematical vocabulary confidently and accurately to explain their reasoning
- Being inquisitive learners who are excited by the opportunities offered by working in mathematics
- Understanding that mathematics is essential to everyday life and necessary for financial literacy

Implementation

At St. Cuthbert's, we have high aspirations for all learners and believe that all children can succeed in Mathematics. We are a member of the Archimedes Maths Hub, where staff work in collaboration with other schools to develop excellent practice in the teaching of mathematics for the benefit of all our pupils.

We use the mastery approach to mathematics, where the focus is on all pupils working together on the same objective. This ensures that all pupils can master concepts before moving onto the next step within the learning sequence. Pupils who grasp concepts rapidly are challenged through rich and sophisticated problems that encourage them to reason about their learning and explore a concept in greater depth. When pupils

struggle to grasp a new concept, interventions will be implemented to ensure that any learning gaps can be closed.

From Reception to Year 6, pupils study Mathematics daily. In Reception, lessons are based upon the NCETM 'Mastering Number' scheme of work; from Year 1 onwards, the White Rose scheme of work is used to guide lesson planning. Transition from Early Years into Key Stage 1 is supported by the continuation of the 'Mastering Number' programme through short, daily sessions in Years 1 and Year 2.

Teachers place great emphasis on mathematical language and questioning so pupils can discuss the mathematics they are doing within lessons and support them to take ideas further.

In addition to daily lessons, pupils in Key Stage 2 have a daily 'Basic Maths' session, in which they revise basic number facts and strategies for solving calculations involving the four rules of number.

The objectives for each year group are taught in blocks so that pupils can spend time on exploring the key threshold concepts and deepening understanding. The overview for each year group is as follows:

Year Group	Autumn	Spring	Summer
Reception	<p>Number</p> <ul style="list-style-type: none"> * Develop subitising and counting skills * Composition of numbers within 5 * Explore ways to represent numbers on fingers * Understand one-to-one correspondence and cardinality * Compare sets of objects * Use the language of comparison <p>Shape, space and measure</p> <ul style="list-style-type: none"> * Positional language, sequencing, comparing size, pattern, circles and triangles 	<p>Number</p> <ul style="list-style-type: none"> * Explore the composition of the numbers 6 and 7 * Identify equal and unequal groups * Link equal groups to doubling * Sort odd and even numbers according to their shapes Count verbally beyond 20 <p>Shape, space and measure</p> <ul style="list-style-type: none"> * Measuring and comparing, exploring pattern, measuring time 	<p>Number</p> <ul style="list-style-type: none"> * Explore the structure of the numbers 8 and 9 * Explore a range of representations of numbers, including the tens frame * Compare quantities and numbers * Generalise about 'one more than' and 'one less than' within 10 <p>Shape, space and measure</p> <ul style="list-style-type: none"> * Estimating, 3D shape and spatial reasoning, further patterns
Year 1	<ul style="list-style-type: none"> * Place Value (within 10) * Addition and Subtraction (within 10) * Shape (2D and 3D shapes) * Place Value (within 20) 	<ul style="list-style-type: none"> * Addition and Subtraction (within 20) * Place Value (within 50) * Length and Height * Weight and Volume 	<ul style="list-style-type: none"> * Multiplication and Division * Fractions (halves and quarters) * Position and Direction * Place Value (within 100) * Money and Time
Year 2	<ul style="list-style-type: none"> * Place Value (up to and including 100) * Addition and Subtraction (up to two 2-digit numbers) * Shape (2D and 3D shapes) 	<ul style="list-style-type: none"> * Money * Multiplication and Division * Length and Height * Mass, Capacity and Temperature 	<ul style="list-style-type: none"> * Fractions (halves, quarters and thirds) * Time * Statistics (tally charts, pictograms and block diagrams) * Position and Direction
Year 3	<ul style="list-style-type: none"> * Place Value (up to 1000) * Addition and Subtraction (column method) * Multiplication and Division (mental methods) 	<ul style="list-style-type: none"> * Multiplication and Division (written methods) * Length and Perimeter * Fractions * Mass and Capacity 	<ul style="list-style-type: none"> * Fractions * Money * Time * Shape (angles, lines, 2D and 3D shapes) * Statistics (bar charts, pictograms and tables)
Year 4	<ul style="list-style-type: none"> * Place Value (up to 10,000) * Addition and Subtraction (up to 4-digits) * Area * Multiplication and Division (mental methods) 	<ul style="list-style-type: none"> * Multiplication and Division (written methods) * Length and Perimeter * Fractions * Decimals 	<ul style="list-style-type: none"> * Decimals * Money * Time * Properties of Shapes * Statistics * Position and Direction
Year 5	<ul style="list-style-type: none"> * Place Value * Addition and Subtraction * Multiplication and Division * Fractions 	<ul style="list-style-type: none"> * Multiplication and Division * Fractions * Decimals and Percentages * Perimeter and Area * Statistics 	<ul style="list-style-type: none"> * Properties of Shapes * Position and Direction * Decimals * Negative Numbers * Converting Units * Volume
Year 6	<ul style="list-style-type: none"> * Place Value * Addition, Subtraction, Multiplication and Division * Fractions * Converting Units 	<ul style="list-style-type: none"> * Ratio * Algebra * Fractions, Decimals and Percentages * Area, Perimeter and Volume * Statistics 	<ul style="list-style-type: none"> * Properties of Shapes * Position and Direction * Preparing for Key Stage 3

We stress the importance of knowing multiplication tables. By the end of Year 4, pupils should have memorised their multiplication tables up to and including the 12 times table.

Early Years

In Early Years, the 'Mastering Number' scheme of work is used to guide planning so that pupils can achieve their 'Number' and 'Numerical Patterns' Early Learning Goals. Activities from the 'White Rose Maths' scheme have been carefully selected and sequenced to ensure that pupils have experience of the following objectives:

- Positional language
- Sequence events
- Spatial reasoning of 2D and 3D shapes
- Continue, copy and create repeating patterns

- Compare length, weight and capacity
- Measure time

Threshold Concepts

There are nine threshold concepts for this subject:

Know and use number: this concept involves understanding the number system and numbers they are used in a wide variety of mathematical ways.

Add and subtract: this concept involves understanding both the concepts and processes of addition and subtraction.

Multiply and divide: this concept involves understanding both the concepts and processes of multiplication and division.

Use fractions: this concept involves understanding the concept of part and whole and ways of calculating with this.

Understand the properties of shapes: this concept involves recognising the names and properties of geometry shapes and angles.

Describe position, direction and movement: this concept involves recognising various types of mathematical movements.

Use measures: this concept involves becoming familiar with a range of measures, devices used for measuring and calculations.

Use statistics: this concept involves interpreting, manipulating and presenting data in various ways.

Use algebra: this concept involves recognising mathematical properties and relationships using symbolic representation.

SEND

When a pupil has been identified with additional needs, they will be given individual targets by their class teacher. These targets will be set according to their area of need and teachers will plan targeted interventions to help pupils achieve these targets. These interventions will be delivered by the class teacher or teaching assistant (under guidance of the class teacher) and may be part of a small group session or one-to-one tuition. We use the 'Plus 1' and 'Power of 2' intervention programmes, alongside other resources determined by the class teacher to match the individual needs of each pupil.

Links to other subjects

Mathematics underpins many curriculum areas and pupils are required to apply their mathematical knowledge in many different situations. This list below contains some examples, but is not exhaustive:

English

- Mathematical reasoning can help to improve speaking and listening skills

RE

- Pupils need to draw accurate lines and tables

Science

- Mathematical skills are essential for reading and presenting data

- **Geography and History**
- Pupils need to apply knowledge of coordinates to read maps
- Measurement skills are essential for collecting and presenting data in fieldwork
- Pupils need to apply their knowledge of time and dates in History (including Roman Numerals)

Computing

- Pupils will use numbers during computer programming activities

Art and Design

- Pupils need to apply the ideas of ratio and proportion when producing artwork
- Pupils will produce artwork linked to the tessellation of shapes

Music

- Pupils need to apply their knowledge of counting, time and speed to follow rhythmic patterns

Physical Education

- Gymnastics and Dance build upon the concepts of pattern, movement and symmetry

Impact

An effective Mathematics curriculum will ensure that pupils are excited and motivated in lessons. They will be able to recall facts and carry out procedures accurately and efficiently. A mathematical concept or skill has been *mastered* when a child can show it in multiple ways, using mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations.

Monitoring

The monitoring of the impact of Mathematics in school is done through:

- Lesson visits
- Work scrutiny
- Planning scrutiny
- Reports to Governors
- Discussion with pupils (Learning Council)

Assessment

Teachers will assess the impact of teaching informally during each lesson by using questioning during discussions and by assessing work produced by pupils in books (see Policy for Marking).

Impact will be measured formally in Years 1 to 6 using White Rose End of Term Assessments. The results enable teachers to track long-term progress and assess pupils against age related expectations. End of term assessments are recorded on our whole school tracking system, with pupils being assessed as working at one of the following standards:

Pre-emerging, Emerging, Developing, Expected or Greater Depth.

Each term, the Maths lead works with the Leadership Team to analyse the data for achievement across the school. This enables Leadership Team to identify groups of pupils who are at risk of underachieving, in which case, intervention strategies, programmes and support will be put in place to support learning.

In Early Years, pupils are assessed against the Early Learning Goals and will be assessed as 'expected' or 'emerging' within the Mathematics strand.

At the end of Key Stages 1 and 2, SATs will be used to measure pupil progress throughout the school.

Subject Leader: Miss R. Anthony

Link Governor: Mr P. Dodds

Date: March 2023

To be reviewed: March 2024