

Maths Curriculum

Maths Curriculum Statement

Intent – What do we want for our children as Mathematicians?

At Crossdale, we believe that mathematics is an essential part of everyday life and that we have a responsibility to ensure that all children leave Crossdale being confident users of mathematics. We recognise that confidence in mathematics will allow children to subsequently become confident students in many other subjects, including science, technology and engineering, in addition to its fundamental importance in most forms of employment.

We use [White Rose Education](#) as our curriculum and are part of the [EME Maths Hub](#) coordinated by the NCTEM.

At Crossdale, we aim to:

- Enable all children to develop fully as independent mathematicians who select the best tools for them to solve mathematical problems – from our Crossdale Maths Toolkit.
- Offer a range of mathematical experiences that allow children to maximise their potential.
- Promote a positive self - image; self - motivation and flexibility, and to show initiative in the learning of mathematical principles.
- Arouse children's curiosity in mathematics and to encourage risk - taking.
- Promote a fascination with and enjoyment of mathematics through purposeful learning experiences which are related to real life.
- Recognise that mathematics is a powerful means of communication with a language of its own.
- Recognise that patterns and relationships can help us to make predictions and generalisations.

Implementation – How will we carry out our vision?

We will implement our vision by teaching through a 'mathematical lens' and asking questions like a mathematician.

- **Fluency:** Quick, efficient recall of facts and procedures and the flexibility to move between different contexts and representations in mathematics.
- **Reasoning:** Why? How do you know? What do you notice? The anchor task within our mastery lesson structure gives the children time for free reasoning as children are freely looking for and talking about maths.
- **Problem Solving:** Opportunities to apply our fluency to a context. We use RUCSAC as a procedure to break down the stages of problem solving – Read, Underline, Choose the operation, Solve it, Answer, Check it.

[Problems solving and reasoning skills are embedded throughout the maths lesson design in order to structure and support mathematical thinking, progressively moving towards independence and readiness for the KS3 curriculum.](#)

- **Different representations:** Children are exposed to a variety of representations in each lesson. They are encouraged to show their answers in different ways and use alternative representations to prove their answer.
- **Vocabulary:** Relevant vocabulary is introduced at a point at which a concept is first explored and stays with the children on their journey throughout school. New vocabulary is introduced to the children as

part of the lesson structure and this vocabulary is applied using stem sentences to allow the children to see the clear link to their learning.

- **Spaced retrieval:** Children are given a daily opportunity to revisit previous learning using White Rose Flashback 4 slides. The pre-load section of the mastery lesson will also require children to draw on previous learning and therefore be ready to apply it to new learning.

Planning:

- All planning should either be recorded on detailed slides or on the maths planning document. Skills, knowledge and vocabulary are clearly identified, and lesson planning is supported by the use of key mathematical questions with opportunities for spaced retrieval practice.
- Planning is driven by a 'mastery approach':
 - Preload – a quick starter to rehearse a known skill which will support the new learning for the lesson.
 - Anchor Task – an activity or question to reveal the day's learning.
 - Guided practice – the teacher models the new learning. Children are given chances to apply this new skill. The teacher will change the context, introduce misconceptions, identify small steps and how they will be built (**I, we you**). Different models and representations are used to consolidate learning.
 - Independent practice – Children apply the new learning independently.
 - Opportunities to return to guided practice are taken up when necessary.
- All planning should be uploaded onto All Staff at the start of every week.
- Weekly arithmetic lessons are planned in to focus on the key number skills for the year group.
- Cold tasks (end of unit assessments from the previous year group) are used to assess prior knowledge at the start of a new unit and hot tasks (end of at the end to assess learning).

Inclusion:

Teachers set high expectations for all pupils. They will use appropriate assessment to set ambitious targets and plan challenging work for all groups, including:

- More able pupils
- Pupils with low prior attainment
- Pupils from disadvantaged backgrounds
- Pupils with SEND
- Pupils with English as an additional language (EAL)

(Further information can be found in our statement of equality information and objectives, and in our SEND policy and information report.)

Impact – How will we assess what the children know, remember and understand?

Teachers will monitor the impact of their teaching using:

- AFL during lessons
- Spaced retrieval activities embedded into planning and practise
- Cold and hot tasks at the start and end of each unit to assess what knowledge has been remembered and what skills have been mastered.

The Subject Leaders monitor the way their subject is taught throughout the school by looking at the intent, implementation and impact using:

- Planning scrutiny & book dips (work scrutiny)
- Pupil Interviews & Learning Walks
- External & internal moderation
- SIL & Governor visits
- Planning and delivering CPD

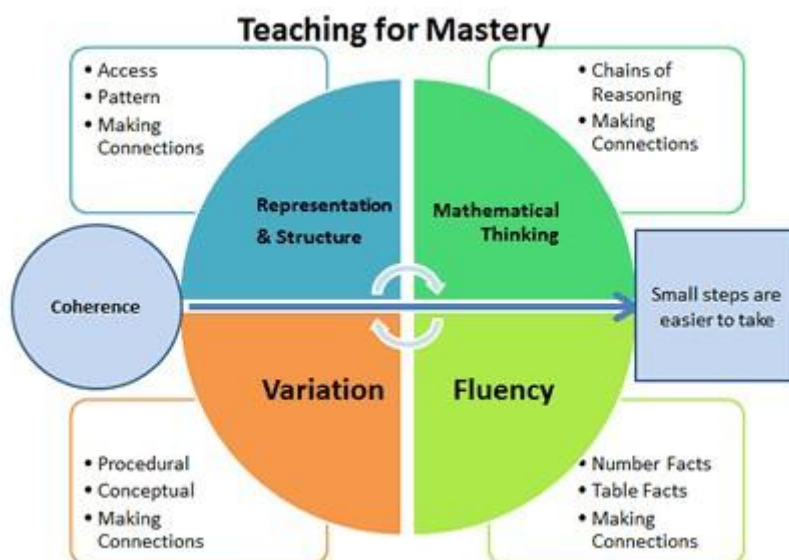
The Subject Leaders also have responsibility for monitoring the way in which resources are stored and managed. All the monitoring information is used by the Subject Leaders to ensure our provision and pupil outcomes are the very best they can be. Any next steps to move the subject and the children's learning forward are fed into the Subject Leader's monitoring and action plans, which form part of the whole school improvement plan.

Governors monitor whether the school is complying with its funding agreement and teaching a "broad and balanced curriculum" which includes the required subjects, through:

- Governor monitoring visits
- Head Teacher reports
- The School Development Plan

Mastery in Maths

Drawn from research evidence, there are 5 big ideas which underpin our teaching of Maths.



Coherence

Lessons are broken down into small connected steps that gradually unfold the concept, providing access for all children and leading to a generalisation of the concept and the ability to apply the concept to a range of situations.

Representation and Structure

Representations used in lessons expose the mathematical structure being taught, the aim being that students can do the maths without recourse to the representations.

Mathematical Thinking

If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the student: thought about, reasoned with and discussed with others.

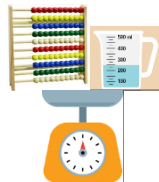
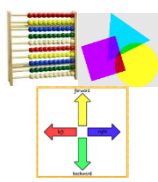
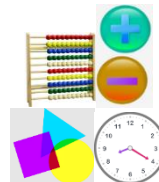

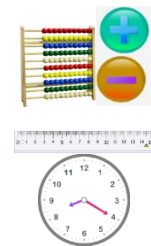
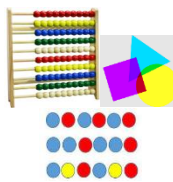


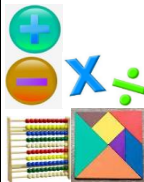
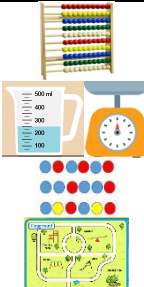
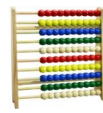


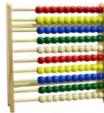

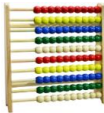







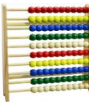





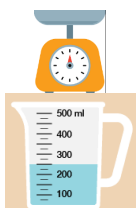


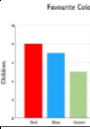


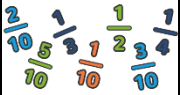
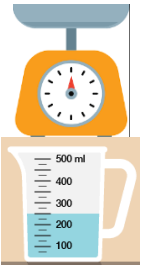








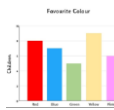
Fluency

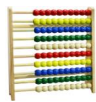

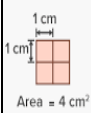








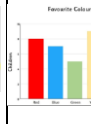
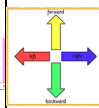



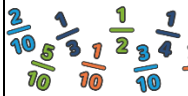




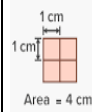

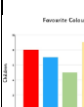





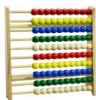
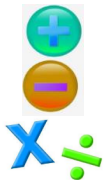
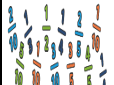




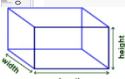
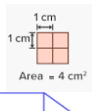



Quick, efficient recall of facts and procedures and the flexibility to move between different contexts and representations in mathematics.

Variation

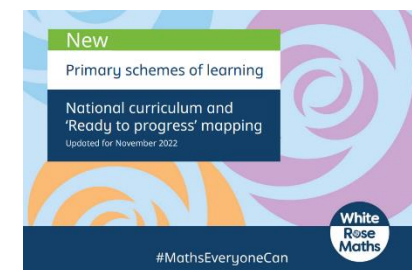
Variation is twofold. It is firstly about how the teacher represents the concept being taught, often in more than one way, to draw attention to critical aspects, and to develop holistic understanding. It is also about the sequencing of the episodes, activities and exercises used within a lesson and follow up practice, paying attention to what is kept the same and what changes, to connect the mathematics and draw attention to mathematical relationships and structure.

Maths Overview

	Autumn Term			Spring Term			Summer Term						
EYFS													
Year 1													
Year 2													
Year 3													

	Autumn Term				Spring Term				Summer Term					
Year 4														
Year 5							 	 					 <p>100g = 1 kilogram 1000ml = 1 litre 100cm = 1 metre</p>	
Year 6				<p>1000g = 1 kilogram 1000ml = 1 litre</p>		<p>5x = 10</p>	 	 	 					

National Curriculum coverage and progression within topics is all detailed in White Rose Math's document: Primary Schemes of Learning – National Curriculum and 'Ready to Progress' mapping (updated for November 2022)



Calculation Policies: [click on the icons to link to the documents.](#)

Year 1 - 6


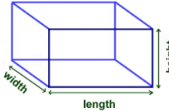
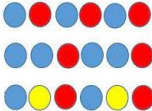






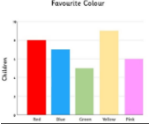

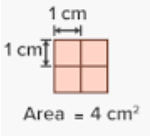


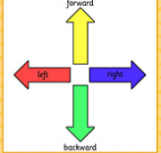

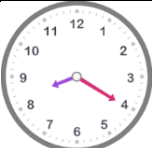




Calculation Policy
Addition and Subtraction

#MathsEveryoneCan

Year 1 - 6

Calculation Policy
Multiplication and Division

#MathsEveryoneCan

Key to symbols for each area			
	Mapping		Volume
	Exploring pattern		Multiplication and division
	Spatial reasoning		Fractions
	Place value		Money
	Capacity		Statistics
	Mass		Area
	Properties of shape		Decimals
	Position and Direction		Percentages
	Time	<p>1000g = 1 kilogram 1000ml = 1 litre 100cm = 1 metre</p>	Converting units of measurement
	Addition and subtraction		Algebra
	Length/height/perimeter		Ratio

Vocabulary

New vocabulary is introduced when the following topics are covered. The vocabulary builds each academic year but vocabulary from previous year groups will be reviewed and consolidated.

	Addition	Subtraction	Multiplication	Division
EYFS	add, more, altogether, total, makes, count on	take away, fewer, less than, count back	groups of, lots of	sort, group
Year 1	plus, and, make, altogether, total, equal to, equals, double, most, count on, number line	equal to, take, less, minus, leaves, distance between, how many more, how many fewer/less than, most, least, count back, how many left, how much less is_?	times, array, altogether, multiply, count	share, share equally, one each, two each..., groups of, lots of, array
Year 2	sum, tens, units, partition, addition, column, tens boundary	difference, count on, strategy, partition, tens, units	multiplied by, repeated addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times...	divide, divided by, divided into, division, grouping, number line, left, left over
Year 3	hundreds boundary, increase, vertical, carry, expanded, compact	exchange, decrease, hundreds, value, digit	partition, grid method, multiple, product, tens, units, value	inverse, short division, carry, remainder, multiple
Year 4	thousands, hundreds, digits, inverse	inverse	inverse	divisible by, factor
Year 5	decimal places, decimal point, tenths, hundredths, thousandths	tenths, hundredths, decimal point, decimal	square, factor, integer, decimal, short/long multiplication, carry	quotient, prime number, prime factors, composite number (non-prime)
Year 6	Review and consolidate all previous vocabulary		Review and consolidate all previous vocabulary tenths, hundredths, decimal	Review and consolidate all previous vocabulary common factor

Maths Tools

	Addition	Subtraction	Multiplication	Division
EYFS				
Year 1	Part-whole models, bar models, tens frames, number tracks, bead strings, number lines, straws, number shapes (Numicon)		Bar model, number shapes, counters, tens frames, bead strings, number lines	Bar models, real life objects, arrays, counters, number shapes, bead strings, tens frames, number lines
Year 2	Part-whole models, bar models, tens frames, number lines, straws, hundred square, base 10, place value counters, column addition and subtraction		Bar models, number shapes, counters, money, tens frames, bead strings, number lines, everyday objects, hundred square, base 10	
Year 3	Part-whole models, bar models, base 10, place value counters, column addition and subtraction		Hundred square, counters, number shapes, bead strings, number lines, everyday objects, number tracks, place value counters, base 10, short and expanded written methods	Straws, base 10, bar models, place value counters, part-whole models
Year 4			Hundred square, number shapes, bead strings, number tracks, everyday objects, number lines, base 10, place value counters, short and expanded written methods	Base 10, bar models, place value counters, part-whole models, place value grid, written short method
Year 5	Part-whole models, bar models, place value counters, column addition and subtraction		Place value counters, short written method, base 10, grid method, formal written method	Place value counters, counters, place value grid, written short division
Year 6	Column addition	Column subtraction	Formal written method for multiplication	Written long division, list of multiples