



Year 4

Mathematics Curriculum 2019 - 2020

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CONTENTS

RATIONALE 2

YEARLY PLAN 3

HEURISTICS TO FOCUS ON DURING THE YEAR: 3

LINKS TO MASTERY MATERIALS 4

TERMLY PLANS 4

 Key for NRich Tasks 4

AUTUMN 5

 AUTUMN SMALL STEPS 7

SPRING 8

 SPRING SMALL STEPS 8

SUMMER 10

 SUMMER SMALL STEPS 12



RATIONALE

This maths curriculum has been designed to support a mastery approach to teaching and learning and have been designed to support the aims and objectives of the new National Curriculum. It has also has been designed to incorporate more time for the children to apply their skills, demonstrate deeper understanding of mathematics and to see mathematics in everything we do, both across the rest of the curriculum in school and in the wider world.

The core principles of this curriculum should help to not only develop confidence in mathematics but should also look to develop children in to mathematicians.

A mathematician...

- Makes connections
- Shows fluency (choosing and using efficient methods, as well as known facts)
- Is able to reason about what they are doing
- Creates
- Checks (in different ways)
- Is resilient
- Explains
- Evaluates
- Models
- Invents
- Applies in a range of contexts
- Is curious
- Has confidence
- Uses mistakes to improve
- Is resourceful
- Is efficient

Lessons are crafted with care and are often perfected over time with input from other teachers, drawing on evidence from observations of pupils in class.

Lesson designs are set out in detail and use well-tested methods to teach a given mathematical topic. They include a variety of representations, which are needed to introduce and explore a concept effectively and set out related teacher explanations and questions to pupils.

All lessons will contain a range of representations; variation; stem sentences; intelligent practice; coherence; fluency; differentiation; careful choices and the opportunity to dive deeper for all (Dong Nao Jin).



YEARLY PLAN

	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11
Autumn	Number: Place Value				Number: Addition and Subtraction			Measurement: Length and Perimeter	Number: Multiplication and Division		
Spring	Number: Multiplication and Division		Measurement: Area	Number: Fractions					Number: Decimals		
Summer	Number: Decimals	Measurement: Money		Measurement: Time	Statistics		Geometry: Properties of Shape			Geometry: Position and Direction	

HEURISTICS TO FOCUS ON DURING THE YEAR:

Draw Something

Act it out

Guess, check, improve

Make a systematic list

Work backwards



LINKS TO MASTERY MATERIALS

[NCETM Teaching for Mastery](#)

[NCETM Mastery PD Materials](#)

[White Rose Materials For Units](#)

TERMLY PLANS

KEY FOR NRICH TASKS

Tasks badged with a * are suitable for the whole class	Tasks badged with a ** are suitable for the majority of the class	Tasks badged with a *** are for those who like a serious challenge
G = game	All NRICH tasks are categorised as problems.	I = investigation



AUTUMN

Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11		
<p>Number: Place Value</p> <p>Count in multiples of 6, 7, 9, 25 and 1000.</p> <p>NRICH: Count Me In *</p> <p>Find 1000 more or less than a given number.</p> <p>NRICH: What Distance? **</p> <p>Recognise the place value of each digit in a four digit number (thousands, hundreds, tens and ones)</p> <p>NRICH: Nice or Nasty * G</p> <p>NRICH: Dicey Operations * G</p> <p>NRICH: The Deca Tree *</p> <p>NRICH: Four-digit Targets *</p> <p>NRICH: Dicey Operations in Line * G</p> <p>Order and compare numbers beyond 1000</p>				<p>Number: Addition and Subtraction</p> <p>Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.</p> <p>Estimate and use inverse operations to check answers to a calculation.</p> <p>Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</p> <p>NRICH: Fifteen Cards * I</p> <p>NRICH: Money Bags **</p> <p>NRICH: Amy's Dominoes **</p> <p>NRICH: Sealed Solution **</p> <p>NRICH: Roll These Dice ** I</p>			<p>Measurement: Length and Perimeter</p> <p>Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres</p> <p>Convert between different units of measure [for example, kilometre to metre]</p>		<p>Number: Multiplication and division</p> <p>Recall and use multiplication and division facts for multiplication tables up to 12×12.</p> <p>NRICH: Multiplication Square Jigsaw * G</p> <p>NRICH: Shape Times Shape *</p> <p>NRICH: Let Us Divide! *</p> <p>NRICH: Carrying Cards *</p> <p>NRICH: Light the Lights Again * G</p> <p>NRICH: Multiples Grid * I</p> <p>NRICH: Zios and Zepts *</p> <p>NRICH: Times Tables Shifts * G</p> <p>NRICH: Table Patterns Go Wild! ** I</p> <p>NRICH: Satisfying Four Statements *</p> <p>NRICH: The Remainders Game * G</p> <p>NRICH: Remainders **</p> <p>Count in multiples of 6, 7, 9, 25 and 1000</p>			



NRICH: Ordering Journeys **

Identify, represent and estimate numbers using different representations.

NRICH: Representing Numbers *

Round any number to the nearest 10, 100 or 1000

NRICH: Reasoned Rounding * G

Solve number and practical problems that involve all of the above and with increasingly large positive numbers.

Count backwards through zero to include negative numbers.

Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.

Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers.

Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.



AUTUMN SMALL STEPS

Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11		
Number: Place Value <ul style="list-style-type: none"> Roman numerals to 100 Round to the nearest 10 Round to the nearest 100 Count 1,000s 1,000s, 100s, 10s and 1s Partitioning Number line to 10,000 1,000 more or less Compare numbers Order numbers Round numbers to the nearest 1,000 Count in 25s Negative numbers 				Number: Addition and Subtraction <ul style="list-style-type: none"> Add and subtract 1s, 10s, 100s and 1000s Add two 4-digit numbers - no exchange Add two 4-digit numbers - one exchange Add two 4-digit numbers - more than one exchange Subtract two 4-digit numbers - no exchange Subtract two 4-digit numbers - one exchange Subtract two 4-digit numbers - more than one exchange Efficient subtraction Estimate answers Checking strategies 			Measurement: Length and Perimeter <ul style="list-style-type: none"> Kilometres Perimeter on a grid Perimeter of a rectangle Perimeter of rectilinear shapes 		Number: Multiplication and division <ul style="list-style-type: none"> Multiply by 10 Multiply by 100 Divide by 10 Divide by 100 Multiply by 1 and 0 Divide by 1 Multiply and divide by 6 6 times-table and division facts Multiply and divide by 9 9 times-table and division facts Multiply and divide by 7 7 times-table and division facts 			



SPRING

Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11		
<p>Number: Multiplication and Division</p> <p>Recall and use multiplication and division facts for multiplication tables up to 12×12.</p> <p>Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers.</p> <p>Recognise and use factor pairs and commutativity in mental calculations.</p> <p>Multiply two digit and three digit numbers by a one digit number using formal written layout.</p> <p>Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.</p>			<p>Measurement: Area</p> <p>Find the area of rectilinear shapes by counting squares.</p> <p>NRICH: Torn Shapes * I</p> <p>NRICH: Twice as Big? *</p>		<p>Number: Fractions</p> <p>Recognise and show, using diagrams, families of common equivalent fractions.</p> <p>NRICH: Fractional Wall *</p> <p>NRICH: Fractional Triangles *</p> <p>NRICH: Bryony's Triangle *</p> <p>Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.</p> <p>Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number.</p> <p>NRICH: Andy's Marbles **</p> <p>NRICH: Fractions in a Box **</p> <p>NRICH: Chocolate ** I</p> <p>Add and subtract fractions with the same denominator.</p>			<p>Number: Decimals</p> <p>Recognise and write decimal equivalents of any number of tenths or hundredths.</p> <p>Find the effect of dividing a one or two digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths</p> <p>Solve simple measure and money problems involving fractions and decimals to two decimal places.</p> <p>Convert between different units of measure [for example, kilometre to metre]</p>				

SPRING SMALL STEPS



Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11	
Number: Multiplication and Division <ul style="list-style-type: none"> • 11 and 12 times-table • Multiply 3 numbers • Factor pairs • Efficient multiplication • Written methods • Multiply 2-digits by 1-digit • Multiply 3-digits by 1-digit • Divide 2-digits by 1-digit • Correspondence problems 			Measurement: Area <ul style="list-style-type: none"> • What is area? • Counting squares • Making shapes • Comparing area 		Number: Fractions <ul style="list-style-type: none"> • What is a fraction? • Equivalent fractions • Fractions greater than 1 • Count in fractions • Add 2 or more fractions • Subtract 2 fractions • Subtract from whole amounts • Calculate fractions of a quantity • Problem solving - calculate quantities 			Number: Decimals <ul style="list-style-type: none"> • Recognise tenths and hundredths • Tenths as decimals • Tenths on a place value grid • Tenths on a number line • Divide 1 digit by 10 • Divide 2 digits by 10 • Hundredths • Hundredths as decimals • Hundredths on a place value grid • Divide 1 or 2 digits by 100 			



SUMMER

Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11
<p>Number: Decimals</p> <p>Compare numbers with the same number of decimal places up to two decimal places.</p> <p>Round decimals with one decimal place to the nearest whole number.</p> <p>NRICH: Round the Dice Decimals 1 * I</p> <p>Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$</p> <p>Find the effect of dividing a one or two digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths</p>	<p>Measurement: Money</p> <p>Estimate, compare and calculate different measures, including money in pounds and pence.</p> <p>NRICH: Discuss and Choose *</p> <p>Solve simple measure and money problems involving fractions and decimals to two decimal places.</p>	<p>Measurement: Time</p> <p>Convert between different units of measure [for example, kilometre to metre; hour to minute]</p> <p>Read, write and convert time between analogue and digital 12- and 24-hour clocks.</p> <p>Solve problems involving converting from hours to minutes; minutes to seconds; years to months; Wks to days.</p>	<p>Statistics</p> <p>Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</p> <p>Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</p> <p>NRICH: Venn Diagrams *</p> <p>NRICH: More Carroll Diagrams *</p> <p>NRICH: Plants ** I</p>	<p>Geometry: Properties of Shape</p> <p>Identify acute and obtuse angles and compare and order angles up to two right angles by size.</p> <p>Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</p> <p>NRICH: Sorting Logic Blocks * G</p> <p>NRICH: What Shape? * G</p> <p>NRICH: Shapes on the Playground **</p> <p>NRICH: Nine-pin Triangles *** I</p> <p>NRICH: Cut it Out ***</p> <p>NRICH: Quad Match **</p> <p>NRICH: Four Triangles Puzzle * I</p> <p>Identify lines of symmetry in 2-D shapes</p>	<p>Geometry: Position and Direction</p> <p>Describe positions on a 2-D grid as coordinates in the first quadrant.</p> <p>NRICH: Coordinate Challenge *</p> <p>NRICH: Eight Hidden Squares **</p> <p>Plot specified points and draw sides to complete a given polygon.</p> <p>NRICH: A Cartesian Puzzle *</p> <p>Describe movements between positions as translations of a given unit to the left/ right and up/ down.</p>					



				<p>presented in different orientations.</p> <p>NRICH: Let Us Reflect *</p> <p>NRICH: Stringy Quads **</p> <p>NRICH: Counters in the Middle * G</p> <p>Complete a simple symmetric figure with respect to a specific line of symmetry.</p> <p>NRICH: School Fair Necklaces ** I</p> <p>NRICH: Symmetry Challenge *** I</p> <p>NRICH: Reflector ! Rotcelfer ***</p>	
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SUMMER SMALL STEPS

Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11
Number: Decimals <ul style="list-style-type: none"> • Make a whole • Write decimals • Compare decimals • Order decimals • Round decimals • Halves and quarters 	Measurement: Money <ul style="list-style-type: none"> • Pounds and pence • Ordering amounts of money • Using rounding to estimate money • Four operations 		Measurement: Time <ul style="list-style-type: none"> • Hours, minutes and seconds • Years, months, Wks and days • Analogue to digital - 12 hour • Analogue to digital - 24 hour 		Statistics <ul style="list-style-type: none"> • Interpret charts • Comparison, sum and difference • Introducing line graphs • Line graphs 		Geometry: Properties of Shape <ul style="list-style-type: none"> • Identify angles • Compare and order angles • Triangles • Quadrilaterals • Lines of symmetry • Complete a symmetric figure 		Geometry: Position and Direction <ul style="list-style-type: none"> • Describe a position • Draw on a grid • Move on a grid • Describe a movement on a grid 	