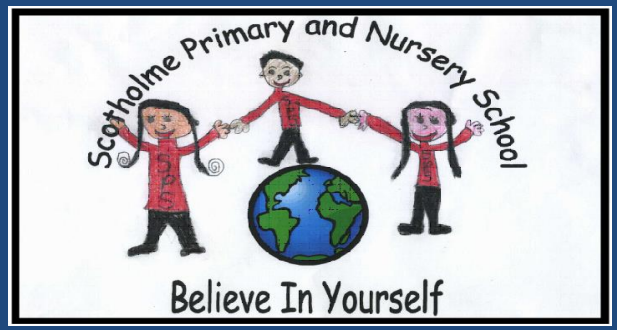

Year 3

Mathematics Curriculum

Adam Newton

CONTENTS

RATIONALE

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

The core principles of this curriculum will help to pupils and teachers to develop even greater confidence in mathematics and will enable our children to become 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 perfected over time with input from other teachers, drawing on evidence from careful observations of all pupils in each class.

Lesson designs are set out in detail and use well-tested methods to teach each mathematical topic. They include a variety of representations, which are essential to introduce and explore concepts 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	Wk 12
Autumn	Number: Place Value			Number: Addition and Subtraction					Number: Multiplication and Division			
Spring	Number: Multiplication and Division			Measurement: Money		Statistics		Measurement: Length and Perimeter			Number: Fractions	
Summer	Number: Fractions			Measurement: Time			Geometry: Properties of Shape		Measurement: Mass and Capacity			

HEURISTICS TO FOCUS ON DURING THE YEAR:

Draw Something

Act it out

Guess, check, improve

Make a systematic list

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
Number: Place Value Identify, represent and estimate numbers using different representations. 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). NRICH: **Coded Hundred Square** * NRICH: **Which Scripts?** * Compare and order numbers up to 1000 Read and write numbers up to 1000 in numerals and in words. Solve number problems and practical problems involving			**Number: Addition and Subtraction** Add and subtract numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three-digit number and hundreds. Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. Estimate the answer to a calculation and use inverse operations to check answers. Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. NRICH: **Buying a Balloon** * NRICH: **Super Shapes** * NRICH: **Strike it Out** * G NRICH: **Dicey Addition** * G NRICH: **Half Time** * NRICH: **Play to 37** * G				**Number: Multiplication and Division** Count from 0 in multiples of 4, 8, 50 and 100 Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. NRICH: **Ordering Cards** * G NRICH: **Music to My Ears** * I Write and calculate mathematical statements for multiplication and division using the multiplication tables they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling		

these ideas. NRICH: Take Three Numbers * I NRICH: Planning a School Trip * NRICH: Number Differences * G NRICH: Sitting Round the Party Tables * NRICH: Number Match * G NRICH: A Mixed-up Clock * NRICH: That Number Square! * I NRICH: Three Neighbours ** I NRICH: Magic Vs ** NRICH: Square Subtraction *** Count from 0 in multiples of 4, 8, 50 and 100 NRICH: How Would We Count? *	NRICH: Build it Up * I NRICH: Finding Fifteen ** NRICH: Domino Square ** NRICH: Got It ** G NRICH: Make 37 ** NRICH: Consecutive Numbers ** I NRICH: Dice in a Corner *** I NRICH: 4 Dom ***	problems and correspondence problems in which *n* objects are connected to *m* objectives. NRICH: A Square of Numbers * G NRICH: What Do You Need? * NRICH: Follow the Numbers * I NRICH: What's in the Box? * NRICH: How Do You Do It? * NRICH: Ip Dip * I NRICH: Journeys in Numberland * I NRICH: This Pied Piper of Hamelin **

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 • Hundreds • Represent numbers to 1,000 • 100s, 10s and 1s • Number line to 1,000 • Find 1, 10, 100 more or less than a given number • Compare objects to 1,000 • Compare numbers to 1,000 • Order numbers • Count in 50s			**Number: Addition and Subtraction** • Add and subtract multiples of 100 • Add and subtract 3-digit numbers and ones – not crossing 10 • Add 3-digit and 1-digit numbers - crossing 10 • Subtract 1-digit number from 3-digit number - crossing 10 • Add and subtract 3-digit numbers and tens – not crossing 100 • Add a 3-digit number and tens – crossing 100 • Subtract tens from a 3-digit number – crossing 100 • Add and subtract 100s • Spot the pattern – making it explicit • Add and subtract a 2-digit and 3-digit number - not crossing 10 or 100 • Add a 2-digit and 3-digit number - crossing 10 or 100 • Subtract a 2-digit number from a 3-digit number – cross the 10 or 100 • Add two 3-digit numbers – not crossing 10 or 100 • Add two 3-digit numbers – crossing 10 or 100 • Subtract a 3-digit number from a 3-digit number – no exchange • Subtract a 3-digit number from a 3-digit number - exchange • Estimate answers to calculations • Check				**Number: Multiplication and Division** • Multiplication – equal groups • Multiplying by 3 • Dividing by 3 • The 3 times-table • Multiplying by 4 • Dividing by 4 • The 4 times-table • Multiplying by 8 • Dividing by 8 • The 8 times-table		

SPRING

Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11	Wk 12
Number: Multiplication and Division Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. Write and calculate mathematical statements for multiplication and division using the multiplication tables they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which *n* objects are connected to *m* objectives.			**Measurement: Money** Add and subtract amounts of money to give change, using both £ and p in practical contexts. NRICH: How Much Did it Cost? **		**Statistics** Interpret and present data using bar charts, pictograms and tables. NRICH: How Big Are Classes 5, 6 and 7? * NRICH: Our Sports * I NRICH: Class 5's Names * NRICH: Going for Gold * I NRICH: The Domesday Project * I NRICH: The Car That Passes * I NRICH: If the World Were a Village * NRICH: Now and Then ** NRICH: It's a Tie ** I NRICH: Real Statistics *** Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.		**Measurement: Length and Perimeter** Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). NRICH: Olympic Starters * I NRICH: Car Journey * I NRICH: Oh! Harry! ** Measure the perimeter of simple 2D shapes.			**Number: Fractions** Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. NRICH: Fraction Match * G Solve problems that involve all of the above.	

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	Wk 12
Number: Multiplication and Division • Comparing statements • Related calculations • Multiply 2-digits by 1-digit • Divide 2-digits by 1-digit • Scaling • How many ways?			**Measurement: Money** • Pounds and pence • Converting pounds and pence • Adding money • Subtracting money • Giving change		**Statistics** • Pictograms • Bar charts • Tables		**Measurement: Length and Perimeter** • Measure length • Equivalent lengths – m & cm • Equivalent lengths – mm & cm • Compare lengths • Add lengths • Subtract lengths • Measure perimeter • Calculate perimeter			**Number: Fractions** • Unit and non-unit fractions • Making the whole • Tenths • Count in tenths • Tenths as decimals • Fractions of a number line • Fractions of a set of objects	

SUMMER

Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11
Number: Fractions Recognise and show, using diagrams, equivalent fractions with small denominators. NRICH: **Matching Fractions * G** Compare and order unit fractions, and fractions with the same denominators. Add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$] Solve problems that involve all of the above.			**Measurement: Time** Tell and write the time from an analogue clock, including using Roman numerals from I to XII and 12-hour and 24-hour clocks. NRICH: **What Is the Time? *** NRICH: **Clocks *** NRICH: **Two Clocks **** NRICH: **The Time Is … **** NRICH: **5 on the Clock ***** **I** NRICH: **Approaching Midnight G** Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours. Use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight. NRICH: **Wonky Watches **** NRICH: **Watch the Clock ***			**Geometry: Properties of Shape** Recognise angles as a property of shape or a description of a turn. Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. NRICH: **Seeing Squares * G** Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. NRICH: **National Flags *** Draw 2-D shapes and make 3-D shapes using modeling materials; recognise 3-D shapes in different orientations and describe them.		**Measurement: Mass and Capacity** Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).		

	Know the number of seconds in a minute and the number of days in each month, year and leap year. Compare durations of events [for example to calculate the time taken by particular events or tasks].	NRICH: Building Blocks * NRICH: Triple Cubes * I NRICH: Stick Images * G NRICH: Rolling That Cube * NRICH: A Puzzling Cube * NRICH: Arranging Cubes * G NRICH: Sponge Sections ** NRICH: Square Corners ** NRICH: Overlapping Again ** NRICH: Move Those Halves ** I NRICH: The Third Dimension *** I NRICH: Board Block Challenge *** G NRICH: Inky Cube ***	

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: Fractions • Equivalent fractions • Compare fractions • Order fractions • Add fractions • Subtract fractions			**Measurement: Time** • Months and years • Hours in a day • Telling the time to 5 minutes • Telling the time to the minute • AM and PM • 24 hour clock • Finding the duration • Comparing the duration • Start and end times • Measuring time in seconds			**Geometry: Properties of Shape** • Turns and angles • Right angles in shapes • Compare angles • Draw accurately • Horizontal and vertical • Parallel and perpendicular • Recognise and describe 2D shapes • Recognise and describe 3D shapes • Make 3D shapes		**Measurement: Mass and Capacity** • Measure mass • Compare mass • Add and subtract mass • Measure capacity • Compare capacity • Add and subtract capacity		