



Spring Vale Primary School – Mathematics Medium Term Plan

Year 5 – Autumn Term

Unit:	National Curriculum:	Small Steps:
Number: Place Value	Pupils should be taught to: • 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 • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • solve number problems and practical problems that involve all of the above • read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	• Roman numerals to 1,000 • Numbers to 10,000 • Numbers to 100,000 • Numbers to 1,000,000 • Read and write numbers to 1,000,000 • Powers of 10 • 10/100/1000/10,000/100,000 more or less • Partition numbers to 1,000,000 • Number line to 1,000,000 • Compare and order numbers to 100,000 • Compare and order numbers to 1,000,000 • Round to the nearest 10, 100 or 1,000 • Round within 100,000 • Round within 1,000,000
Number: Addition and Subtraction	Pupils should be taught to: • add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • add and subtract numbers mentally with increasingly large numbers • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	• Mental strategies • Add whole numbers with more than four digits • Subtract whole numbers with more than four digits • Round to check answers • Inverse operations (addition and subtraction) • Multi-step addition and subtraction problems • Compare calculations • Find missing numbers

	• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	
Number: Multiplication and Division	Pupils should be taught to: • identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. • solve problems involving multiplication and division where larger numbers are used by decomposing them into their factors • know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers • establish whether a number up to 100 is prime and recall prime numbers up to 19 • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 • recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)	• Multiples • Common multiples • Factors • Common factors • Prime numbers • Square numbers • Cube numbers • Multiply by 10, 100 and 1,000 • Divide by 10, 100 and 1,000 • Multiples of 10, 100 and 1,000
Number: Fractions	Pupils should be taught to: • compare and order fractions whose denominators are all multiples of the same number • identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • 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. $2 \frac{1}{5} + 4 \frac{1}{5} = 6 \frac{1}{5} = 11 \frac{1}{5}$) • add and subtract fractions with the same denominator and multiples of the same number	• Find fractions equivalent to a unit fraction • Find fractions equivalent to a non-unit fraction • Recognise equivalent fractions • Convert improper fractions to mixed numbers • Convert mixed numbers to improper fractions • Compare fractions less than 1 • Order fractions less than 1 • Compare and order fractions greater than 1 • Add and subtract fractions with the same denominator • Add fractions within 1 • Add fractions with total greater than 1 • Add to a mixed number • Add two mixed numbers • Subtract fractions • Subtract from a mixed number • Subtract from a mixed number – breaking the whole

		• Subtract two mixed numbers
Number: Negative numbers	Pupils should be taught to: • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero	• Understand negative numbers • Count through zero in 1s • Count through zero in multiples • Compare and order negative numbers • Find the difference



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Year 5 – Spring Term

Unit:	National Curriculum:	Small Steps:
Number: Multiplication and Division	Pupils should be taught to: - multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers - multiply and divide numbers mentally drawing upon known facts - divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context - solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign - solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	- Multiply up to a 4-digit number by a 1-digit number - Multiply a 2-digit number by a 2-digit number (area model) - Multiply a 2-digit number by a 2-digit number - Multiply a 3-digit number by a 2-digit number - Multiply a 4-digit number by a 2-digit number - Solve problems with multiplication - Short division - Divide a 4-digit number by a 1-digit number - Divide with remainders - Efficient division - Solve problems with multiplication and division
Number: Fractions	Pupils should be taught to: multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	- Multiply a unit fraction by an integer - Multiply a non-unit fraction by an integer - Multiply a mixed number by an integer - Calculate a fraction of a quantity - Fraction of an amount - Find the whole - Use fractions as operators

Number: Decimals & Percentages	Pupils should be taught to: • read and write decimal numbers as fractions (e.g. $0.71 = 71/100$) • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • round decimals with two decimal places to the nearest whole number and to one decimal place • read, write, order and compare numbers with up to three decimal places • solve problems involving number up to three decimal places • recognise the per cent symbol (%) and understand that per cent relates to “number of parts per hundred”, and write percentages as a fraction with denominator hundred, and as a decimal fraction • solve problems which require knowing percentage and decimal equivalents of $1/2$, $1/4$, $1/5$, $2/5$, $4/5$ and those with a denominator of a multiple of 10 or 25.	• Decimals up to 2 decimal places • Equivalent fractions and decimals (tenths) • Equivalent fractions and decimals (hundredths) • Equivalent fractions and decimals • Thousandths as fractions • Thousandths as decimals • Thousandths on a place value chart • Order and compare decimals (same number of decimal places) • Order and compare any decimals with up to 3 decimal places • Round to the nearest whole number • Round to 1 decimal place • Understand percentages • Percentages as fractions • Percentages as decimals • Equivalent fractions, decimals and percentages
Measurement: Perimeter and Area	Pupils should be taught to: • measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres • calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes	• Perimeter of rectangles • Perimeter of rectilinear shapes • Perimeter of polygons • Area of rectangles • Area of compound shapes • Estimate area
Statistics	Pupils should be taught to: • solve comparison, sum and difference problems using information presented in a line graph • complete, read and interpret information in tables, including timetables.	• Draw line graphs • Read and interpret line graphs • Read and interpret tables • Two-way tables • Read and interpret timetables



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Year 5 – Summer Term

Unit:	National Curriculum:	Small Steps:
Geometry: Properties of Shape	Pupils should be taught to: • identify 3-D shapes, including cubes and other cuboids, from 2-D representations • know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • draw given angles, and measure them in degrees ($^{\circ}$) • identify: ○ angles at a point and one whole turn (total 360°) ○ angles at a point on a straight line and $1/2$ a turn (total 180°) ○ other multiples of 90° • use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	• Understand and use degrees • Classify angles • Estimate angles • Measure angles up to 180° • Draw lines and angles accurately • Calculate angles around a point • Calculate angles on a straight line • Lengths and angles in shapes • Regular and irregular polygons • 3-D shapes
Number: Decimals (Calculations)	Pupils should be taught to: • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 • read, write, order and compare numbers with up to three decimal places • solve problems involving number up to three decimal places	• Use known facts to add and subtract decimals within 1 • Complements to 1 • Add and subtract decimals across 1 • Add decimals with the same number of decimal places • Subtract decimals with the same number of decimal places • Add decimals with different numbers of decimal places • Subtract decimals with different numbers of decimal places

		• Efficient strategies for adding and subtracting decimals • Decimal sequences • Multiply by 10, 100 and 1000 • Divide by 10, 100 and 1000 • Multiply and divide decimals – missing values
Geometry: Position and Direction	Pupils should be taught to: • identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.	• Read and plot coordinates • Problem solving with coordinates • Translation • Translation with coordinates • Lines of symmetry • Reflection in horizontal and vertical lines
Measurement: Converting Units	Pupils should be taught to: • convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) • understand and use equivalences between metric units and common imperial units such as inches, pounds and pints • solve problems involving converting between units of time • use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.	• Kilograms and kilometres • Millimetres and millilitres • Convert units of length • Convert between metric and imperial units • Convert units of time • Calculate with timetables
Measurement: Volume	Pupils should be taught to: • estimate volume (e.g. using 1 cm³ blocks to build cubes and cuboids) and capacity (e.g. using water) • use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.	• Cubic centimetres • Compare volume • Estimate volume • Estimate capacity