Waterville Primary School Progression of Skills and Vocabulary in MATHS

Year 4

KS2 National Curriculum

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of Year 4 pupils should:

∗ Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 x 100.

*Reason about the location of any four-digit number in a linear number system.

*Recall multiplication and division facts up to 12 x 12, and regconise products.

*Apply place value knowledge to known additive and multiplicative number facts.

*Manipulate multiplication/division equations, and understand commutative law.

*Reason about the location of mixed numbers in the linear number system.

*Add and subtract improper and mixed fractions with the same denominator.

*Identify regular polygons, including equilateral triangle and squares.

* Recognise the place value of each digit in four-digit numbers, compose and decompose by partitioning

*Divide 1000 into 2, 4, 5 and 10 equal parts and read scales and number lines marking in equal parts.

*Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders.

*Multiply and divide whole numbers by 10 and 100.

*Understand and apply the distributive property of multiplication.

*Convert mixed numbers to improper fractions and vice versa.

*Draw polygons specified by coordinates in the first quadrant, and translate within the first quadrant.

*Identify line symmetry in 2D shapes presented in different orientations.

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TEACH – MODEL – USE MANIPULATIVES – RECORD – INVESTIGATE – MASTER - REPEAT

Year 4 Maths Skills	Number – Number and Place Value	Number – Addition and Subtraction	Number – Multiplication and Division	Number – Fractions
	Counting To count backwards through zero to include negative numbers. To count in multiples of 6, 7, 9, 25 and 1000. To find 1000 more or less than a given number. **Comparing Numbers** To order and compare numbers beyond 1000. To compare numbers with the same number of decimal places up to two decimal places. **Identifying, Representing and Estimating Numbers** To identify, represent and estimate numbers using different representations. **Reading and Writing Numbers** To 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. **Understanding Place Value** To recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) . To find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths. **Rounding** To round any number to the nearest 10, 100 or 1 000. To round decimals with one decimal place to the nearest whole number. **Problem Solving** To solve number and practical problems that involve all of the above and with increasingly large positive numbers.	**Written Methods** To add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. **Inverse Operations, Estimating and Checking Answers** To estimate and use inverse operations to check answers to a calculation. **Problem Solving** To solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	**Multiplication and Division Facts** To count in multiples of 6, 7, 9, 25 and 1 000. To recall multiplication and division facts for multiplication tables up to 12 × 12. **Mental Calculation** To 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. To recognise and use factor pairs and commutativity in mental calculations. **Written Calculation** To multiply two-digit and three-digit numbers by a one-digit number using formal written layout. **Properties of Numbers** To recognise and use factor pairs and commutativity in mental calculations. **Inverse Operations, Estimating and Checking Answers** To estimate and use inverse operations to check answers to a calculation. **Problem Solving** To 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.	**Counting in Factional Steps** To count up and down in hundredths. **Recognising Fractions** To recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. **Comparing Decimals** To compare numbers with the same number of decimal places up to two decimal places. **Rounding** To round decimals with one decimal place to the nearest whole number. **Equivalence** To recognise and show, using diagrams, families of common equivalent fractions. To recognise and write decimal equivalents of any number of tenths or hundredths. To recognise and write decimal equivalents to $^{1}/_{4}$; $^{1}/_{2}$; $^{3}/_{4}$. **Addition and Subtraction of Fraction** To add and subtract fractions with the same denominator. **Multiplication and Division of Fraction** To find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. **Problem Solving** To 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. To solve simple measure and money problems involving fractions and decimals to two decimal places.
	Vocabulary			
	Negative numbers, roman numerals, 1000 more, 1000 less, thousands, round.	4-digit number, operations, methods.	Factor pairs, formal written layout, distributive law, remainders.	Decimal equivalence, hundredths, convert, proper fraction, improper fractions, decimal point.

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TEACH – MODEL – USE MANIPULATIVES – RECORD – INVESTIGATE – MASTER - REPEAT

Year 4 Maths Skills	Algebra	Measurement	Geometry – Properties of Shape	Geometry – Position and Direction	Statistics
	Formulae To Perimeter can be expressed algebraically as 2(a + b) where a and b are the dimensions in the same unit.	**Comparing and Estimating** To estimate, compare and calculate different measures, including money in pounds and pence. **Measuring and Calculating** To estimate, compare and calculate different measures, including money in pounds and pence. To measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. To find the area of rectilinear shapes by counting squares. **Telling the Time** To read, write and convert time between analogue and digital 12 and 24-hour clocks. To solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. **Converting** To convert between different units of measure (e.g. kilometre to metre; hour to minute). To read, write and convert time between analogue and digital 12 and 24-hour clocks. To solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	**Identifying Shapes and their Properties** To identify lines of symmetry in 2-D shapes presented in different orientations. **Drawing and Constructing** To complete a simple symmetric figure with respect to a specific line of symmetry. **Comparing and Classifying** To compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. **Angles** To identify acute and obtuse angles and compare and order angles up to two right angles by size.	**Position, Direction and Movement** To describe positions on a 2-D grid as coordinates in the first quadrant. To describe movements between positions as translations of a given unit to the left/right and up/down. To plot specified points and draw sides to complete a given polygon.	**Interpreting, Constructing and Presenting Data** To interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. **Solving Problems** To solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.
		Vocabulary			
		Measure and Length Kilometres km, rectilinear figure, area. **Time** Convert.	Isosceles, equilateral, scalene, trapezium, rhombus, parallelogram, kite, geometric shapes, quadrilaterals.	Co-ordinates, first quadrant, grid, translation, plot, polygon, axis.	Time graph, discrete data, continuous data, line graph, comparison problem, sum problem, difference problem, calculate, interpret.