

Scholar Green Primary School Maths Progression Model

Knowledge	Small Steps	Vocabulary
<p>Number</p> <p>Number and place value</p> <p>To know how to:</p> <p>read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit</p> <p>count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</p> <p>interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero</p> <p>round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000</p> <p>solve number problems and practical problems that involve all of the above</p> <p>read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</p>	<p>Numbers to 10,000</p> <p>Roman numerals to 1,000</p> <p>Round to the nearest 10, 100 and 1,000</p> <p>Number to 100,000</p> <p>Compare and order numbers to 100,000</p> <p>Round numbers within 100,000</p> <p>Numbers to a million</p> <p>Counting in 10s, 100s, 1,000s, 10,000s and 100,000s</p> <p>Compare and order numbers to a million</p> <p>Round numbers to a million</p> <p>Negative numbers</p>	<p>Hundred thousand</p> <p>Million</p>
<p>Addition, subtraction</p> <p>To know how to:</p> <p>add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)</p> <p>add and subtract numbers mentally with increasingly large numbers</p> <p>use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy</p> <p>solve addition and subtraction multi-step problems in contexts, deciding</p>	<p>Add whole numbers with more than 4digits (column method)</p> <p>Subtract whole numbers with more than 4digits (column method)</p> <p>Round to estimate and approximate</p> <p>Inverse operations (addition and subtraction)</p> <p>Multi-step addition and subtraction problems</p>	<p>4 digit numbers</p>

<p>which operations and methods to use and why.</p> <p>Multiplication and division To know how to: identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers</p> <p>use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</p> <p>establish whether a number up to 100 is prime and recall prime numbers up to 19</p> <p>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</p> <p>multiply and divide numbers mentally drawing upon known facts</p> <p>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</p> <p>multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</p> <p>recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)</p> <p>solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes</p> <p>solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</p>	<p>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</p> <p>Multiply 4-digits by 1-digit Multiply 2-digits (area model) Multiply 2-digits by 2-digits Multiply 3-digits by 2-digits Multiply 4-digits by 2-digits Divide 4-digits by 1-digit Divide with remainders</p>	<p>Common factors Factor pairs Prime numbers Square numbers Cube numbers Prime factors Composite numbers</p> <p>Long multiplication</p> <p>Short division Remainders Interpret remainders</p>
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<p>solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</p> <p>Fractions To know how: compare and order fractions whose denominators are all multiples of the same number</p> <p>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 [for example, $52 \div 54 = 56 = 151$]</p> <p>add and subtract fractions with the same denominator and denominators that are multiples of the same number</p> <p>multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</p> <p>read and write decimal numbers as fractions [for example, $0.71 = 71/100$]</p> <p>recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</p> <p>round decimals with two decimal places to the nearest whole number and to one decimal place</p> <p>read, write, order and compare numbers with up to three decimal places</p> <p>solve problems involving number up to three decimal places</p>	<p>Equivalent fractions Improper fractions to mixed numbers Mixed numbers to improper fractions Number sequences Compare and order fractions less than 1 Compare and order fractions greater than 1 Add and subtract fractions Add fractions within 1 Add 3 or more fractions Add fractions Add mixed numbers Subtract fractions Subtract mixed numbers Subtract – breaking the whole Subtract 2 mixed numbers Multiply unit fractions by an integer Multiply non-unit fractions by an integer Multiply mixed numbers by integers Fraction of an amount Using fractions as operators</p> <p>Decimals up to 2 d.p. Decimals as fractions Understand thousandths Thousandths as decimals Rounding decimals Order and compare decimals Understand percentages Percentages as fractions and decimals Equivalent F.D.P.</p> <p>Adding decimals within 1 Subtracting decimals within 1 Complements to 1 Adding decimals – crossing the whole Adding decimals with the same number of decimal places</p>	<p>Improper fractions Mixed numbers Fraction number sequences Decimals as fractions Hundredths Percent</p>
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<p>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 100, and as a decimal</p> <p>solve problems which require knowing percentage and decimal equivalents of 21, 41, 51, 52, 54 and those fractions with a denominator of a multiple of 10 or 25.</p>	<p>Subtracting decimals with the same number of decimal places</p> <p>Adding decimals with a different number of decimal places</p> <p>Subtracting decimals with a different number of decimal places</p> <p>Adding and subtracting wholes and decimals</p> <p>Decimal sequences</p> <p>Multiplying decimals by 10, 100 and 1,000</p> <p>Dividing decimals by 10, 100 and 1,000</p>	
<p>Measurement</p> <p>To know how to:</p> <p>convert between different units of metric measure</p> <p>understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints</p> <p>measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</p> <p>calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes</p> <p>estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water]</p> <p>solve problems involving converting between units of time</p> <p>use all four operations to solve problems involving measure using decimal notation, including scaling.</p>	<p>Measure perimeter</p> <p>Calculate perimeter</p> <p>Area of rectangles</p> <p>Area of compound shapes</p> <p>Area of irregular shapes</p> <p>Kilograms and kilometres</p> <p>Milligrams and millilitres</p> <p>Metric units</p> <p>Imperial units</p> <p>Converting units of time</p> <p>Timetables</p> <p>What is volume</p> <p>Compare volume</p> <p>Estimate volume</p> <p>Estimate capacity</p>	<p>Area of irregular shapes</p> <p>Perimeter of composite rectilinear shapes</p> <p>shapes</p> <p>Metric units</p> <p>Imperial units</p> <p>Timetables</p> <p>Volume</p>
<p>Geometry</p> <p>Properties of shape</p> <p>To know how to:</p> <p>identify 3-D shapes, including cubes and other cuboids, from 2-D representations</p>	<p>Measuring angles in degrees</p> <p>Measuring with a protractor</p> <p>Drawing lines and angles accurately</p> <p>Calculating angles on a straight line</p> <p>Calculating angles around a point</p>	<p>Degrees</p> <p>Angle</p> <p>measurer/protractor</p> <p>Reflex angles</p> <p>Angles on a whole turn</p> <p>Straight line</p>

<p>know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles</p> <p>draw given angles, and measure them in degrees (o)</p> <p>identify: angles at a point and one whole turn (total 360o) angles at a point on a straight line and 21 a turn (total 180o) other multiples of 90o</p> <p>use the properties of rectangles to deduce related facts and find missing lengths and angles</p> <p>distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</p> <p>Position and direction To know how 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.</p>	<p>Calculating lengths and angles in shapes Regular and irregular polygons Reasoning about 3-D shapes</p> <p>Position in the first quadrant Reflection Reflection with coordinates Translation Translation with coordinates</p>	
<p>Statistics To know how to: solve comparison, sum and difference problems using information presented in a line graph</p> <p>complete, read and interpret information in tables, including timetables.</p>	<p>Read and interpret line graphs Draw line graphs Use line graphs to solve problems Read and interpret tables Two-way tables Timetables</p>	<p>Two-way tables Timetables</p>