Scholar Green Primary School
Maths Progression Model

Knowledge	Small Steps	Vocabulary
Number **Number and place value** To know how to: Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit Round any whole number to a required degree of accuracy Use negative numbers in context, and calculate intervals across zero Solve number and practical problems that involve all of the above. **Addition, subtraction, multiplication and division** **Pupils should be taught to:** To know how to: Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context Perform mental calculations, including with mixed operations and large numbers	Numbers to ten million Compare and order any number Round any number Negative numbers Add and subtract whole numbers Multiply up to a 4-digit number by 1-digit Short division Division using factors Long division (1) Common factors Common multiples Prime Square and cubes Order of operations Mental calculations and estimation Reason from know facts	Ten milliom

Identify common factors, common multiples and prime numbers Use their knowledge of the order of operations to carry out calculations involving the four operations Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving addition, subtraction, multiplication and division Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. **Fractions** To know how to: Use common factors to simplify fractions; use common multiples to express fractions in the same denomination Compare and order fractions, including fractions > 1 Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 41 × 21 = 81] Divide proper fractions by whole numbers [for example, 31 ÷ 2 = 61] Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 83] Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places	Simplify fractions Fractions on a number line Compare and order (denominator) Compare and order (numerator) Add and subtract fractions Add fractions Subtract fractions Mixed addition and subtraction Multiply fractions by integers Multiply fractions by fractions Divide fractions by integers Four rules with fraction s Fraction of an amount Fraction of amount – find the whole Three decimal places Multiply by 10, 100 and 1,000 Divide by 10, 100 and 1,000 Multiply decimals by integers Divide decimals by integers Division to solve problems Decimals as fractions Fractions to decimals Fractions to percentages Equivalent FDP Order FDP Percentage of an amount Percentages – missing values	Multiply fractions Divide proper fractions by whole numbers

multiply one-digit numbers with up to two decimal places by whole numbers Use written division methods in cases where the answer has up to two decimal places Solve problems which require answers to be rounded to specified degrees of accuracy Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.		
Ratio and Proportion To know how to: Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison Solve problems involving similar shapes where the scale factor is known or can be found Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.	Using ratio language Ratio and fractions Introducing the ratio symbol Calculating ratio Using scale factors Calculating scale factors Ratio and proportion problems	Ratio Proportion Unequal sharing
Algebra To know how to: Use simple formulae Generate and describe linear number sequences	Find a rule – one step Find a rule – two step Forming expressions Substitution Formulae	Algebra Formulae Linea number sequences Expressions Forming equations Pairs of values Enumerate possibilities

Express missing number problems algebraically Find pairs of numbers that satisfy an equation with two unknowns Enumerate possibilities of combinations of two variables.	Forming equations Solve simple one-step equations Solve two-step equations Find pairs of values Enumerate possibilities	
Measurement To know how to: Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places Convert between miles and kilometres Recognise that shapes with the same areas can have different perimeters and vice versa Recognise when it is possible to use formulae for area and volume of shapes Calculate the area of parallelograms and triangles Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3].	Metric measures Convert metric measures Calculate with metric measures Miles and kilometres Imperial measures Shapes – same area Area and perimeter Area of a triangle Area of parallelogram Volume – counting cubes Volume of a cuboid	Area of triangles Are of parallelograms Decimal notation up to 3 dp Miles/kilometres
Geometry **Properties of shape** **draw 2-D shapes using given dimensions and angles** To know how to:		Nets Geometric shapes Regular polygons Radius

Recognise, describe and build simple 3-D shapes, including making nets Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. **Position and direction** To know how to: Describe positions on the full coordinate grid (all four quadrants) Draw and translate simple shapes on the coordinate plane, and reflect them in the axis.	Measure with a protractor Introduce angles Calculate angles Vertically opposite angles Angles in a triangle Angles in a triangle – special cases Angles in a triangle – missing angles Angles in special quadrilaterals Angles in regular polygons Draw shapes accurately Draw nets of 3-D shapes The first quadrant Four quadrants Translations Reflections	Diameter Circumference Opposite angles Area in triangles Four quadrants Coordinate plane Reflect in the axis
Statistics To know how to: Interpret and construct pie charts and line graphs and use these to solve problems Calculate and interpret the mean as an average.	Read and interpret line graphs Draw line graphs Use line graphs to solve problems Circles Read and interpret pie charts Pie charts with percentages Draw pie charts The mean	Mean Average Pie charts