Springfield School   Maths APP   Levels 3 to 5

	Algebra	Numbers and the number system	Calculating	Using and applying mathematics	Shape, space and measure	Handling data
Level 5	◆construct, express in symbolic form, and use simple formulae involving one or two operations ◆use and interpret coordinates in all four quadrants	◆use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 and 1000 and explain the effect ◆round decimals to the nearest decimal place and order negative numbers in context ◆recognise and use number patterns and relationships ◆use equivalence between fractions and order fractions and decimals ◆reduce a fraction to its simplest form by cancelling common factors ◆understand simple ratio	◆use known facts, place value, knowledge of operations and brackets to calculate including using all four operations with decimals to two places ◆use a calculator where appropriate to calculate fractions/percentages of quantities/measurements ◆understand and use an appropriate non-calculator method for solving problems that involve multiplying and dividing any three digit number by any two-digit number ◆solve simple problems involving ordering, adding, subtracting negative numbers in context ◆solve simple problems involving ratio and direct proportion ◆apply inverse operations and approximate to check answers to problems are of the correct magnitude	◆identify and obtain necessary information to carry through a task and solve mathematical problems ◆check results, considering whether these are reasonable ◆solve word problems and investigations from a range of contexts ◆show understanding of situations by describing them mathematically using symbols, words and diagrams ◆draw simple conclusions of their own and give an explanation of their reasoning	◆use a wider range of properties of 2-D and 3-D shapes and identify all the symmetries of 2-D shapes ◆use language associated with angle and know and use the angle sum of a triangle and that of angles at a point ◆reason about position and movement and transform shapes ◆measure and draw angles to the nearest degree, when constructing models and drawing or using shapes ◆read and interpret scales on a range of measuring instruments, explaining what each labelled division represents ◆solve problems involving the conversion of units and make sensible estimates of a range of measures in relation to everyday situations ◆understand and use the formula for the area of a rectangle and distinguish area from perimeter	◆ask questions, plan how to answer them and collect the data required ◆in probability, select methods based on equally likely outcomes and experimental evidence, as appropriate ◆understand and use the probability scale from 0 to 1 ◆understand and use the mean of discrete data and compare two simple distributions, using the range and one of mode, median or mean ◆understand that different outcomes may result from repeating an experiment ◆interpret graphs and diagrams, including pie charts, and draw conclusions ◆create and interpret line graphs where the intermediate values have meaning
Level 4	◆begin to use simple formulae expressed in words ◆use and interpret coordinates in the first quadrant ◆recognise a wider range of sequences ◆begin to understand the role of '=' (the 'equals' sign)	◆recognise and describe number patterns ◆recognise and describe number relationships including multiple, factor and square ◆use place value to multiply and divide whole numbers by 10 or 100 ◆recognise approximate proportions of a whole and use simple fractions and percentages to describe these ◆order decimals to three decimal places ◆begin to understand simple ratio	◆use a range of mental methods of computation with all operations ◆recall multiplication facts up to 10 × 10 and quickly derive corresponding division facts ◆use efficient written methods of addition and subtraction and of short multiplication and division ◆multiply a simple decimal by a single digit ◆solve problems with or without a calculator ◆check the reasonableness of results with reference to the context or size of numbers	◆develop own strategies for solving problems ◆use their own strategies within mathematics and in applying mathematics to practical contexts ◆present information and results in a clear and organised way ◆search for a solution by trying out ideas of their own	◆use the properties of 2-D and 3-D shapes ◆make 3-D models by linking given faces or edges and draw common 2-D shapes in different orientations on grids ◆reflect simple shapes in a mirror line, translate shapes horizontally or vertically and begin to rotate a simple shape or object about its centre or a vertex ◆choose and use appropriate units and instruments ◆interpret, with appropriate accuracy, numbers on a range of measuring instruments ◆find perimeters of simple shapes and find areas by counting squares	◆collect and record discrete data ◆group data, where appropriate, in equal class intervals ◆continue to use Venn and Carroll diagrams to record their sorting and classifying of information ◆construct and interpret frequency diagrams and simple line graphs ◆understand and use the mode and range to describe sets of data
Level 3	◆recognise a wider range of sequences ◆begin to understand the role of '=' (the 'equals' sign)	◆understand place value in numbers to 1000 ◆use place value to make approximations ◆recognise negative numbers in contexts such as temperature ◆use simple fractions that are several parts of a whole and recognise when two simple fractions are equivalent ◆begin to use decimal notation in contexts such as money	◆derive associated division facts from known multiplication facts ◆add and subtract two-digit numbers mentally ◆add and subtract three digit numbers using written method ◆multiply and divide two digit numbers by 2, 3, 4 or 5 as well as 10 with whole number answers and remainders ◆use mental recall of addition and subtraction facts to 20 in solving problems involving larger numbers ◆solve whole number problems including those involving multiplication or division that may give rise to remainders	◆select the mathematics they use in a wider range of classroom activities ◆try different approaches and find ways of overcoming difficulties that arise when they are solving problems ◆begin to organise their work and check results ◆use and interpret mathematical symbols and diagrams ◆understand a general statement by finding particular examples that match it ◆review their work and reasoning	◆classify 3-D and 2-D shapes in various ways using mathematical properties such as reflective symmetry for 2-D shapes ◆begin to recognise nets of familiar 3-D shapes, e.g. cube, cuboid, triangular prism, square-based pyramid ◆recognise shapes in different orientations and reflect shapes, presented on a grid, in a vertical or horizontal mirror line ◆describe position and movement ◆use a wider range of measures including non-standard units and standard metric units of length, capacity and mass in a range of contexts ◆use standard units of time	◆gather information ◆construct bar charts and pictograms, where the symbol represents a group of units ◆use Venn and Carroll diagrams to record their sorting and classifying of information ◆extract and interpret information presented in simple tables, lists, bar charts and pictograms

In maths assessment focus 2, number, at level:	
5	Pupils use their understanding of place value to multiply and divide whole numbers and decimals by 10, 100 and 1000. They order, add and subtract negative numbers in context. They use all four operations with decimals to two places. They reduce a fraction to its simplest form by cancelling common factors and solve simple problems involving ratio and direct proportion. They calculate fractional or percentage parts of quantities and measurements, using a calculator where appropriate. Pupils understand and use an appropriate non-calculator method for solving problems that involve multiplying and dividing any three-digit number by any two-digit number. They check their solutions by applying inverse operations or estimating using approximations. They construct, express in symbolic form, and use simple formulae involving one or two operations. They use brackets appropriately. Pupils use and interpret coordinates in all four quadrants.
4	Pupils use their understanding of place value to multiply and divide whole numbers by 10 or 100. In solving number problems, pupils use a range of mental methods of computation with the four operations, including mental recall of multiplication facts up to 10 × 10 and quick derivation of corresponding division facts. They use efficient written methods of addition and subtraction and of short multiplication and division. They add and subtract decimals to two places and order decimals to three places. In solving problems with or without a calculator, pupils check the reasonableness of their results by reference to their knowledge of the context or to the size of the numbers. They recognise approximate proportions of a whole and use simple fractions and percentages to describe these. Pupils recognise and describe number patterns, and relationships including multiple, factor and square. They begin to use simple formulae expressed in words. Pupils use and interpret coordinates in the first quadrant.
3	Children show understanding of place value in numbers up to 1000 and use this to make approximations. They begin to use decimal notation and to recognise negative numbers, in contexts such as money and temperature. Pupils use mental recall of addition and subtraction facts to 20 in solving problems involving larger numbers. They add and subtract numbers with two digits mentally and numbers with three digits using written methods. They use mental recall of the 2, 3, 4, 5 and 10 multiplication tables and derive the associated division facts. They solve whole number problems involving multiplication or division, including those that give rise to remainders. They use simple fractions that are several parts of a whole and recognise when two simple fractions are equivalent.

Date:		
Level:		