



Legrave Primary School

Year 6 EEE

Subject: Maths

Legrave Primary School

STRIVING FOR EXCELLENCE, LEARNING FOR LIFE

Yr6	Emerging	Expected	Exceeding
Number – number and place value	Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000		All aspects of number and place value at the national standard are embedded.
	Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.	Use negative numbers in practical contexts and solve problems, including calculating intervals across 0.	Test generalisations by checking particular cases.
	Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit	Use place value in whole numbers to at least 10 000 000 to read, write, compare and order numbers.	Order and approximate decimals when solving numerical problems and equations such as $x^3 + x = 20$, using trial-and-improvement methods.
	Read roman numerals to 1000 (m) and recognise years written in roman numerals.	Read Roman numerals to 1000 (M).	
	Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000	Identify the value of each digit in numbers with up to 3 decimal places.	Round positive numbers to any given power of 10.
		Round any whole number to the nearest 10, 100, 1,000, 10,000, 100,000.	
	Solve number problems and practical problems that involve all of the above.	Use approximation to estimate and check answers to calculations and determine, in the context of a problem, levels of accuracy.	Choose and use efficient techniques for calculation.
Number – addition and subtraction	Add and subtract whole numbers with 4 or more digits, including using formal written methods (columnar addition and subtraction)	Solve problems and reason about place value and number.	All aspects of number - addition and subtraction at the national standard are embedded.
	Add and subtract numbers mentally, including: <ul style="list-style-type: none"> a four- digit number and ones a four-digit number and tens a four-digit number and hundreds 	<ul style="list-style-type: none"> Add and subtract whole numbers with more than 4 digits, using formal written methods Add and subtract mentally with increasingly large numbers.	
	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	Use estimation to check answers to calculations and determine, in the context of a problem, appropriate levels of accuracy.	Choose and use efficient techniques for calculation.
	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	Solve addition and subtraction multi-step problems in context.	Carry through substantial tasks and solve quite complex problems by independently breaking them down into smaller, more manageable tasks
		Solve problems involving addition, subtraction, multiplication and division.	All aspects of number – multiplication and division at the national standard are embedded
Number - multiplication and division	Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	Use knowledge of the 4 operations to reason and to solve problems, including puzzles not set in a context.	
	Recall multiplication and division facts for multiplication tables up to 12×12	Use understanding of place value to multiply and divide whole numbers and decimals with up to 3 decimal places by 10, 100 and 1000.	
	Multiply and divide numbers mentally drawing upon known facts	Recall multiplication and division facts for multiplication tables up to 12×12	
		Multiply and divide numbers mentally, drawing upon multiplication facts, including with mixed operations and large numbers	
	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	Perform mental calculations including with mixed operations and large numbers.	Multiply and divide integers and decimals by 0.1, 0.01
	Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers	Fluently multiply numbers up to 4 digits by a 2-digit number using the long multiplication method.	
	Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers	Recognise and use: <ul style="list-style-type: none"> multiples and factors; prime numbers to at least 19; and square numbers, at least up to 144 	
	Establish whether a number up to 100 is prime and recall prime numbers up to 19	Use estimation to check answers to calculations and determine, in the context of a problem, appropriate levels of accuracy.	
	Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)		
	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	Fluently divide numbers with up to 4 digits by a 1-digit number using the formal written method.	
	Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	Use long division with 2-digit divisors.	
	Interpret remainders according to 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 addition, subtraction, multiplication and division.	Choose and use efficient techniques for calculation.	
	Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	Use knowledge of the 4 operations to reason and to solve problems, including puzzles not set in a context.	Carry through substantial tasks and solve quite complex problems by independently breaking them down into smaller, more manageable tasks.	
Number - fractions	Read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$]		All aspects of number - fractions at the national standard are embedded	
	Count up and down in tenths and hundredths	Multiply one-digit numbers with up to 2 decimal places by whole numbers.	Multiply and divide integers and decimals by 0.1, 0.01.	
	Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.	Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred'.	I know which number to consider as 100 per cent, or a whole, in problems involving comparisons, and can use this to evaluate one number as a fraction or percentage of another.	
	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	Use common factors to: <ul style="list-style-type: none"> simplify fractions; identify equivalent fractions, using common multiples to express fractions in the same denomination. 	Convert and calculate between improper fractions and mixed numbers where appropriate for the context.	Multiply and divide a fraction by an integer.
	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, $+ = 1$]	Fluently add and subtract decimal numbers and round when required to specified degrees of accuracy.		Understand and use 'useful' equivalencies between fractions, decimals and percentages when solving problems.
	Compare and order fractions whose denominators are all multiples of the same number	Recall and use equivalences between simple fractions, decimals and percentages, in different contexts.	Associate a fraction with division and begin to calculate decimal fraction equivalents.	I can add and subtract fractions by writing them with a common denominator.
	Read, write, order and compare numbers with up to three decimal places	Add and subtract fractions with denominators that are multiples of the same number.	Add and subtract fractions with denominators that are multiples of the same number.	Solve problems, using knowledge that the total probability of all the mutually exclusive outcomes of an experiment is 1.
	Round decimals with two decimal places to the nearest whole number and to one decimal place	Calculate simple fractions and percentages of whole numbers and quantities.	Use written division methods in cases where the answer has up to 2 decimal places.	All aspects of measurement at the national standard are embedded
	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	Use written division methods in cases where the answer has up to 2 decimal places.	Solve problems and reason about fractions, decimals and percentages.	Find volumes of cuboids when solving problems
	Add and subtract fractions with the same denominator and denominators that are multiples of the same number	Solve problems involving converting units of time, including problems involving the duration of events.	Solve problems involving converting units of time, including problems involving the duration of events.	
	Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	Use, read, write and convert between standard metric units of measure.	Use, read, write and convert between standard metric units of measure.	
	Solve problems involving number up to three decimal places	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.	
	Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.	Recognise that shapes with the same areas can have different perimeters and vice versa.	Recognise that shapes with the same areas can have different perimeters and vice versa.	
	Measurement	Solve problems involving converting between units of time	Calculate and compare the area of squares and other rectangles including using standard units, square centimetres (cm ²) and square metres (m ²).	
Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)		Estimate the area of irregular shapes by counting squares (including half squares and fractions of squares).		
Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints				
Measure and calculate the perimeter of simple 2d shapes and composite rectilinear shapes in centimetres and metres				
Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm ²) and square metres (m ²) and estimate the area of irregular shapes				

	Estimate volume [for example, using 1 cm ³ blocks to build cuboids (including cubes)] and capacity [for example, using water]			
	Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.		Read, write and convert time between analogue clocks (including clock faces using Roman numerals) and digital 12- and 24-hour clocks, using am and pm where necessary.	
<i>Ratio and proportion</i>			Reason and solve problems involving measures.	
			Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate.	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate.
<i>Algebra</i>			Use simple ratio and proportional reasoning to solve problems.	All aspects of ratio and proportion at the national standard are embedded
			Solve problems involving similar shapes where the scale factor is known or can be found.	Calculate using ratios in situations.
			Use simple formulae in words, and express missing number problems algebraically.	Enlarge shapes by a positive whole-number scale factor.
<i>Geometry - properties of shapes</i>	Identify 3-D shapes, including cubes and other cuboids, from 2-D representations		Generate and describe linear number sequences.	Find and describe in words the rule for the next term or nth term of a sequence where the rule is linear, when exploring number sequences.
	Use the properties of rectangles to deduce related facts and find missing lengths and angles		Find possible values in missing number problems and equations involving 1 or 2 unknowns.	Recognise relationships that grow in a linear way and those that grow in a non linear way.
	Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.		Compare and classify geometric shapes based on their properties and sizes.	Formulate and solve linear equations with whole-number coefficients.
	Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles		Recognise, describe and build simple 3-D shapes, including using nets and other 2-D representations.	I need to simplify algebraic expressions by factorising.
	Draw given angles, and measure them in degrees (°)		Draw 2-D shapes using given lengths and angles with increasing accuracy.	
	Identify:		Illustrate and describe parts of circles including radius, diameter and circumference.	All aspects of geometry – properties of shape at the national standard are embedded
	<ul style="list-style-type: none"> Angles at a point and one whole turn (total 360°) Angles at a point on a straight line and a turn (total 180°) Other multiples of 90° 		Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	Understand that π is a constant proportion, that is useful for finding certain measurements of a circle.
Solve problems involving shapes and reason about their properties.		Find unknown angles in triangles.	Understand and can use appropriate formulae for finding circumferences and areas of circles.	
<i>Geometry – p&d</i>			Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	Solve problems using angle and symmetry properties of polygons and angle properties of intersecting and parallel lines, and explain these properties.
			Solve problems and reason about shapes and their properties.	
	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.		Describe positions of a 2-D grid as co-ordinates in the first quadrant.	Solve problems and reason about shapes and their properties.
<i>Statistics</i>	Complete, read and interpret information in tables, including timetables, bar charts, pictograms, tables and time graphs		Draw and translate simple shapes on the co-ordinate plane in the first quadrant.	All aspects of geometry – position and direction at the national standard are embedded
	Solve comparison, sum and difference problems using information presented in a line graph		Use reasoning to solve problems related to co-ordinates, reflections and translations.	Represent mappings expressed algebraically and use Cartesian coordinates.
			Present, complete, read and interpret information in tables and bar charts	Devise instructions for a computer to generate and transform shapes and paths.
		Construct and interpret line graphs, interpret pie charts and use both to solve problems.	All aspects of geometry – position and direction at the national standard are embedded	
		Calculate and interpret the mean as an average for simple sets of discrete data in different contexts.	Collect and record continuous data, choosing appropriate equal class intervals over a sensible range to create frequency tables.	
			Draw conclusions from scatter diagrams, and have a basic understanding of correlation.	
			Understand the difference between discrete and continuous data	
			Identify which type of graph is most useful in the context of the problem.	