

John Emmerson Batty Primary School Mathematics Curriculum – Year 5

Year 5	KEY VOCABULARY						
Number System	Number - Addition and Subtraction	Number - Multiplication and Division	Number - Fractions/Decimals/Percentages and Ratio	Algebra	Measurement	Statistics	Geometry
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 solve number problems and practical problems that involve all of the above read Roman numerals to 1000 (M) and recognise years written in Roman numerals. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) add and subtract numbers mentally with increasingly large numbers use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers establish whether a number up to 100 is prime and recall prime numbers up to 19 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 multiply and divide numbers mentally drawing upon known facts 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 multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> compare and order fractions whose denominators are all multiples of the same number 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, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$] add and subtract fractions with the same denominator and denominators that are multiples of the same number multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$] recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents round decimals with two decimal places to the nearest whole number and to one decimal place read, write, order and compare numbers with up to three decimal places solve problems involving number up to three decimal places 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 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. 	<ul style="list-style-type: none"> Pupils should be taught to: *solve missing number problems using number facts, place value, and more complex addition and subtraction. *solve missing number problems involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. *NB these are specifically Y3 requirements but children need to revise missing number problems during Y4 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> convert between different units of metric measure (for example, kilometre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres 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 estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water.] solve problems involving converting between units of time use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> solve comparison, sum and difference problems using information presented in a line graph complete, read and interpret information in tables, including timetables. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify 3-D shapes, including cubes and other cuboids, from 2-D representations know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles draw given angles, and measure them in degrees (o) identify <ul style="list-style-type: none"> angles at a point and one whole turn (total 360o) angles at a point on a straight line and a turn (total 180o) other multiples of 90o use the properties of rectangles to deduce related facts and find missing lengths and angles distinguish between regular and irregular polygons based on reasoning about equal sides and angles. 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.
	KEY VOCABULARY					KEY VOCABULARY	
	<p>capacity</p> <p>numerators</p> <p>imperial measures</p> <p>area</p> <p>quadrilaterals</p> <p>equivalent</p> <p>ascending</p> <p>descending</p>					<p>adjacent</p> <p>parallel</p> <p>perpendicular</p> <p>vertex</p> <p>sum</p> <p>product</p> <p>inverse</p> <p>origin</p> <p>vertical</p> <p>horizontal</p>	

Termly / Weekly Focus (Guide for the Class Teacher) – Year 5

Wk	Term 1a	Wk	Term 1b
1	Number and Place Value - 5-digit numbers, Ordering, Counting/Rounding 5-digit numbers	1	Addition - Adding Mentally, Written Addition, Checking Calculations
2	Addition and Subtraction - Adding/Subtracting Mentally, Word Problems	2	Decimals - Decimals as fractions, Rounding/Compliments, Rounding to 1 decimal place, Decimal Sequences
3	Properties of Shapes - Faces/Edges in 3D, Identifying/Drawing 3D	3	Measurement - Mass - Converting Masses, Metric/Imperial units, Problem Solving
4	Multiplication - Multiplying by 9, 99 using 10,100 and adjusting, Use Multiples of 10, Halving	4	Multiplication/Division - Square/Cubed Numbers, Multiplying ThHTO \times O, Multiples, Factors
5	Fractions - Finding Fractions, Sequencing Fractions, Equivalent, Ordering	5	Multiplication/Division - Prime Numbers, Division of Multiples of 10, 100, 1000, ThHTO \div O using mental methods
6	Geometry - Translating Shapes, Tiling, Translating Polygons, Translating with Coordinates	6	Measurement - Time - 12-hour, 24-hour clock, Time Problems
7	Assessments	7	Assessments

Wk	Term 2a	Wk	Term 2b
1	Number and Place Value - 6-digit numbers, Ordering, Counting/Rounding 6-digit numbers, Negative Numbers	1	Measurement - Length - Converting Length, Metric/Imperial, Distances Statistics - Line Graphs, Data in Tables
2	Subtraction - Subtracting Mentally, Written Subtraction, Adding/Subtracting Decimals	2	Decimals - Decimal Thousandths, Ordering Thousandths, Rounding/Ordering
3	Properties of Shapes - Naming/Measuring/Drawing/Identifying Angles	3	Addition Subtraction - Adding/Subtracting Decimals, Problem Solving
4	Division - HTO \div O with a Remainder, HTO \div O with a Fraction Remainder, HTO \div O with a Decimal Remainder, Rounding Remainders	4	Multiplication - TO \times TO using Partitioning, TO \times TO using Grid Method
5	Fractions - Thousandths, Fractions in Order, Adding/Subtracting fractions	5	Percentages - Percentages and Hundredths, Percentages and Decimal Hundredths, Percentages and Decimal Equivalent, Problems Solving
6	Assessments	6	Assessments

Wk	Term 3a	Wk	Term 3b
1	Measurement - Perimeter/Area - Perimeters, Using Square Units, Missing Lengths, Area of Irregular Shapes	1	Addition/Subtraction - Numbers Squares, Adding, Subtracting, Word Problems
2	Geometry - Properties of Rectangles, Diagonal Lines, Regular/Irregular Polygons, Missing Angles	2	Percentages - Percentages/Fractions/Decimals, Statistics _ Data in Tables, Time Graphs, Presenting Data
3	Number - 6-digit numbers, Ordering, Counting/Rounding 6-digit numbers, Roman Numerals	3	Geometry - Reflecting 2D Shapes, Reflection in Two Lines of Symmetry, Reflecting Shapes Using Coordinates, Four-Way Reflections
4	Assessments - In School End of year Assessments	4	Multiplication - HTO \times TO Using Partitioning/Grid Methods, Word Problems
5	Addition/Subtraction - Adding/Subtracting Mentally, Written Addition/Subtraction,	5	Division - ThHTO \div O with a Decimal Remainder, HTO \div O with a Fraction Remainder, HTO \div O Rounding Remainders, Money Problems
6	Fractions - Improper Fractions, Mixed Numbers, Multiplying Proper Fractions, Multiplying Mixed Numbers	6	Assessments
7	Measurement - Volume/Capacity - Converting Capacities, Pints/Litres, Volume of Cuboids	7	Division - ThHTO \div O with a Decimal Remainder/Fraction remainder, Rounding Remainders, Money Problems

Place Value	1. Read, write, order & compare numbers to at least 1 000 000 and determine the value of each digit.
	2. Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000. Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000
	3. Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.
	4. Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.
Add and Sub	5. Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).
	6. Add and subtract numbers mentally with increasingly large numbers. Use rounding to check answers to calculations and levels of accuracy.
	7. Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
Mult and Div	8. Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.
	9. Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19.
	10. Multiply numbers up to 4 digits by a 1- or 2-digit number using a formal written method. Divide numbers up to 4 digits by a 1-digit number using the formal written method of short division.
	11. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.
	12. Recognise and use square numbers and cube numbers, and the notation for squared and cubed.
Fractions	13. Compare and order fractions whose denominators are all multiples of the same number. Add and subtract fractions with the same denominator and multiples of the same number.
	14. Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.
	15. Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number.
	16. Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.
	17. Round decimals with two decimal places to the nearest whole number and to one decimal place. Read and write decimal numbers as fractions (e.g. $0.72 = \frac{72}{100}$).
	18. Read, write, order and compare numbers with up to three decimal places. Solve problems involving number up to three decimal places.
	19. Write percentages as a fraction. Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{3}{5}$ and those with a denominator of a multiple of 10 or 25.
MEASURE	20. Convert between different units of metric measure (e.g. km & m; cm & m; cm & mm; g & kg; l & ml). Use approx. equivalences between metric and imperial units (e.g. inches, pounds & pints).
	21. Measure & calculate the perimeter of composite rectilinear shapes in cm/m. Calculate the area of squares/rectangles using standard units, square cm/m and estimate the area of irregular shapes.
	22. Estimate volume (e.g. using 1 cm blocks to build cubes/cuboids) and capacity (e.g. using water).
	23. Solve Problems involving converting between units of time. Use all four operations to solve Problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.
GEOMETRY	24. Identify 3D shapes, including cubes and other cuboids, from 2D representations.
	25. Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. Draw given angles, and measure them in degrees.
	26. Identify: angles at a point and one whole turn (total 360°); angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°); other multiples of 90° .
	27. Use the properties of rectangles to deduce related facts and find missing lengths and angles.
	28. 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.
STATS	29. Solve comparison, sum and difference problems using information presented in a line graph.
	30. Complete, read and interpret information in tables, including timetables.