Maths Overview

Maths for KS1 and KS2 is taught in split age classes of Y1/2   Y3/4   Y5/6

Year One

Number and Place Value
- Count within 100, forwards and backwards, starting with any number.
- Composition of numbers: 20–10
- Count within 100, forwards and backwards, starting with any number.
- Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =.
- Comparison of quantities and measures
- Introducing 'whole' and 'parts': part–part–whole
- Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =.
- Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =.
- Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.
- Composition of numbers: 0–5
- Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =.
- Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.
- Composition of numbers: 6–10
- Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =.
- Composition of numbers: 11–19

Number Facts
- Develop fluency in addition and subtraction facts within 10.
- Addition and subtraction: strategies within 10
- Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers.
- Counting, unitising and coins

Geometry – Properties of Shapes
- Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another.
- Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.

Addition and Subtraction
- Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =.
- Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.
- Composition of numbers: 0–5
- Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =.
- Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.
- Composition of numbers: 6–10
- Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts.
- Additive structures: introduction to aggregation and partitioning
- Additive structures: introduction to augmentation and reduction

Geometry - Position and Direction
- Describe position, direction and movement, including whole, half, quarter and three-quarter turns.

Year Two

Number and Place Value
- Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and non-standard partitioning.
- Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10.
- Composition of numbers: multiples of 10 up to 100 Composition of numbers: 20–100

Number Facts
- Secure fluency in addition and subtraction facts within 10, through continued practice.
- Addition and subtraction: strategies within 10

Fractions
- Recognise, find, name and write fractions 1/3 , 1/4 , 2/4 and 3/4 of a length, shape, set of objects or quantity
- Write simple fractions, for example 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2

Addition and Subtraction
- Add and subtract across 10.
- Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more…?".
- Addition and subtraction: bridging 10
- Subtraction as difference
- Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones or only tens to/from a two-digit number.
- Addition and subtraction: two-digit and single-digit numbers
- Addition and subtraction: two-digit numbers and multiples of ten
- Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers.
- Addition: two-digit and two-digit numbers
- Subtraction: two-digit and two-digit numbers
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Multiplication and Division
- Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.
- Structures: multiplication representing equal groups
- Times tables: groups of 2 and commutativity (part 1)
- Times tables: groups of 10 and of 5, and factors of 0 and 1
- Commutativity (part 2), doubling and halving
- 2MD–2 Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).
- Structures: quotitive and partitive division
- Commutativity (part 2), doubling and halving
- Structures: quotitive and partitive division

Measures
- choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels
- compare and order lengths, mass, volume/capacity and record the results using >, < and =
- recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value
- find different combinations of coins that equal the same amounts of money
- solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
- compare and sequence intervals of time
- tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times
- know the number of minutes in an hour and the number of hours in a day

Geometry – Position and Direction
- Order and arrange combinations of mathematical objects in patterns and sequences
- Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)
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Geometry – Properties of Shapes
- Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties.

Year Three

Number and Place Value
- Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10.
- Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning.
- Reason about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10.
- Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.

Multiplication and Division
- Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division.
- Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number.
- Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).
- Times tables: 2, 4 and 8, and the relationship between them

Number Facts
- Secure fluency in addition and subtraction facts that bridge 10, through continued practice.
- Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).

Fractions
- Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.
- Find unit fractions of quantities using known division facts (multiplication tables fluency).
- Preparing for fractions: the part–whole relationship
- Unit fractions: identifying, representing and comparing
- F–1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.
- Reason about the location of any fraction within 1 in the linear number system.
- Add and subtract fractions with the same denominator, within 1.
- Non-unit fractions: identifying, representing and comparing
- Adding and subtracting within one whole

Geometry
- Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations.
- Draw polygons by joining marked points, and identify parallel and perpendicular sides.

Addition and Subtraction
- Add and subtract across 10.
- Addition and subtraction: bridging 10
- Calculate complements to 100
- Composition and calculation: 100 and bridging 100
- Composition and calculation: three-digit numbers
- Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction.
- Securing mental strategies: calculation up to 999
- Add and subtract up to three-digit numbers using columnar methods.
- Algorithms: column addition
- Add and subtract up to three-digit numbers using columnar methods.
- Algorithms: column subtraction

Measures
- Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks
- Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight
- Know the number of seconds in a minute and the number of days in each month, year and leap year
- Compare durations of events [for example, to calculate the time taken by particular events or tasks]

Year Four		
Number and Place Value • Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100. • Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning. • Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each. • Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts. • Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100). Composition and calculation: 1,000 and four-digit numbers	**Number Facts** • Recall multiplication and division facts up to 12×12, and recognise products in multiplication tables as multiples of the corresponding number. • Times tables: 3, 6 and 9, and the relationship between them • Recall multiplication and division facts up to 12×12, and recognise products in multiplication tables as multiples of the corresponding number. • Times tables: 7 and patterns within/across times tables • Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100) • Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders.	**Addition and Subtraction** • Add and subtract up to three-digit numbers using columnar methods.
		Geometry • Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. • Find the perimeter of regular and irregular polygons. • Multiplicative contexts: area and perimeter 1 • Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant. • Identify line symmetry in 2D shapes presented in different orientations. • Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.
Multiplication and Division • Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. • Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. • Understand and apply the distributive property of multiplication. • Connecting multiplication and division, and the distributive law • Calculation: multiplying and dividing by 10 or 100 • Division with remainders	**Fractions** • Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. • Preparing for fractions: the part–whole relationship • Reason about the location of mixed numbers in the linear number system. • Convert mixed numbers to improper fractions and vice versa. • Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers. • Working across one whole: improper fractions and mixed numbers	

Year Five

Number and Place Value
- Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1.
- Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01.
- Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01.
- Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning.
- Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each.
- Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts.
- Composition and calculation: tenths
- Composition and calculation: hundredths and thousandths
- Convert between units of measure, including using common decimals and fractions.

Fractions
- Find non-unit fractions of quantities.
- Find equivalent fractions and understand that they have the same value and the same position in the linear number system.
- Recall decimal fraction equivalents for 1/2, 1/4, 1/5 and 1/10, and for multiples of these proper fractions. Multiplying whole numbers and fractions
- Finding equivalent fractions and simplifying fractions
- Linking fractions, decimals and percentages

Geometry
- Compare areas and calculate the area of rectangles (including squares) using standard units.
- Multiplicative contexts: area and perimeter 1
- Structures: using measures and comparison to understand scaling
- Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size.

Multiplication and Division
- Multiply any whole number with up to 4 digits by any one-digit number using a formal written method.
- Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context. Multiplication: partitioning leading to short multiplication
- Division: partitioning leading to short division
- Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.
- Calculation: ×/÷ decimal fractions by whole numbers
- Decimal place-value knowledge, multiplication and division.
- Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.
- Multiplication with three factors and volume
- Factors, multiples, prime numbers and composite numbers

Addition and Subtraction
- Addition and subtraction: money

Number Facts
- Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth)

Other
- Negative numbers: counting, comparing and calculating

Year Six		

Number and Place Value
- Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000).
- Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning.
- Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.
- Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts.
- Composition and calculation: numbers up to 10,000,000 Composition and calculation: multiples of 1,000 up to 1,000,000

Other
- Mean average and equal shares

Fractions and Percentages
- Recognise when fractions can be simplified, and use common factors to simplify fractions.
- Express fractions in a common denomination and use this to compare fractions that are similar in value.
- Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy.
- Common denomination: more adding and subtracting
- Multiplying fractions and dividing fractions by a whole number
- Linking fractions, decimals and percentages

Geometry
- Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.
- Multiplicative contexts: area and perimeter

Addition, Subtraction, Multiplication and Division
- Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number).
- Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.
- Common structures and the part–part–whole relationship
- Using equivalence and the compensation property to calculate
- Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.
- Using equivalence to calculate
- Multiplication strategies for larger numbers and long multiplication
- Division: dividing by two-digit divisors
- Using compensation to calculate
- Solve problems involving ratio relationships.
- Scale factors, ratio and proportional reasoning
- Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.
- Using equivalence and the compensation property to calculate
- Solve problems with 2 unknowns
- Combining multiplication with addition and subtraction

		• Combining division with addition and subtraction