SURREY STREET PRIMARY SCHOOL

Numeracy – Long Term Plans

Our whole-school Curriculum Development Leader for Numeracy is Mr L Geer

EYFS (40-60+ months)

Number: Number and place value				
Counts: • up to three or four objects by saying a number name for each item • actions or objects which cannot be moved • objects to 10, and beginning to count beyond 10 • out up to six objects from a larger group • an irregular arrangement of up to ten objects Estimates how many objects they can see and checks by counting them	Says the number that is one more than a given number Finds one more or one less from a group of up to five objects, then ten objects	Uses the language of 'more' and 'fewer' to compare two sets of objects	Recognises: • some numerals of personal significance • numerals 1 to 5 Selects the correct numeral to represent 1 to 5, then 1 to 10 objects	ELG Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number.

Number: Addition and subtraction		
In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting	Finds the total number of items in two groups by counting all of them	ELG Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

Measurement		
Orders two or three items by length or height Orders two items by weight or capacity	**ELG** Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems.	Uses everyday language related to time Orders and sequences familiar events Measures short periods of time in simple ways
Geometry: Properties of Shapes		**Geometry: Position and direction**
Beginning to use mathematical names for 'solid' 3D shapes and 'flat' 2D shapes, and mathematical terms to describe shapes Selects a particular named shape Uses familiar objects and common shapes to create and recreate patterns and build models	**ELG** They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.	Can describe their relative position such as 'behind' or 'next to'

Year 1

Mathematical Thinking				
Solve problems involving counting, adding, subtracting, doubling or halving in the context of numbers, measures or money; for example to 'pay' and 'give change' **(See problem solving within individual strands for more detail)**	Describe a puzzle or problem using numbers, practical materials and diagrams; use these to solve the problem and set the solution back in the original context	Answer a question by selecting and using suitable equipment, and sorting information, shapes or objects; display results using tables and pictures	Describe simple patterns and relationships involving numbers or shapes; decide whether examples satisfy given conditions	Describe ways of solving problems and explain choices and decisions orally or using pictures
Number: Number and place value				
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Count in multiples of twos, fives and tens.	Given a number, identify one more and one less	Use the language of: equal to, more than, less than (fewer), most, least	Identify and represent numbers using objects and pictorial representations including the number line	Read and write numbers from 1 to 20 in numerals and words. Count, read and write numbers to 100 in numerals
Number: Addition and subtraction				
Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs	Represent and use number bonds and related subtraction facts within 20	Add and subtract one-digit and two-digit numbers to 20, including zero	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = [] – 9	

Multiplication and division

Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher

Number: Fractions (decimals and percentages)

Recognise, find and name a half as one of two equal parts and a quarter as one of four equal parts of an object, shape or quantity

Measurement

Compare, describe and solve practical problems for: • lengths and heights (for example, long/short, longer/shorter, tall/short, double/half) • mass or weight (for example, heavy/light, heavier than, lighter than) • capacity and volume (for example, full/empty, more than, less than, quarter) • time (for example, quicker, slower, earlier, later)	Measure and begin to record the following: • lengths and heights • mass/weight • capacity and volume • time (hours, minutes, seconds)	Recognise and know the value of different denominations of coins and notes	Sequence events in chronological order using language for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening. Recognise and use language relating to dates, including days of the week, weeks, months and years. Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.

Geometry – Properties of Shapes

Recognise and name common 2-D and 3-D shapes, including:
- 2D shapes (for example, rectangles (including squares), circles and triangles)
- 3D shapes (for example, cuboids (including cubes), pyramids and spheres)

Geometry – Positions and direction

Describe position, directions and movements, including half, quarter and three-quarter turns

Statistics

Answer a question by recording information in lists and tables; present outcomes using practical resources and pictures	Use diagrams to sort objects into groups according to a given criterion; suggest a different criterion for grouping the same objects

Year 2

Mathematical Thinking				
Solve problems involving addition, subtraction, multiplication or division in contexts of numbers, measures or pounds and pence **(See problem solving within individual strands for more detail)**	Identify and record the information or calculation needed to solve a puzzle or problem; carryout the steps or calculations and check the solution in the context of the problem	Follow a line of enquiry; answer questions by choosing and using suitable equipment and selecting , organising and presenting the information in lists, tables and simple diagrams	Describe patterns and relationships involving numbers or shapes, make predictions and test these with examples.	Present solutions to puzzles and problems in an organised way; explain decisions, methods and results in pictorial, spoken or written form, using mathematical language and number sentences

Number: Number and place value					
Count in steps of 2, 3, and 5 from 0, and in tens from any number forward or backward	Recognise the place value of each digit in a two-digit number (tens, ones)	Compare and order numbers from 0 up to 100; use <, > and = signs. Round two-digit numbers to the nearest 10.	Identify, represent and estimate numbers using different representations, including the number line	Read and write numbers to at least 100 in numerals and in words	Use place value and number facts to solve problems

Number: Addition and subtraction				
Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.	Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: • a two-digit number and ones • a two-digit number and tens • two two-digit numbers • adding three one-digit numbers	Use practical and informal written methods to support addition and subtraction of two-digit numbers	Solve problems with addition and subtraction: • using concrete objects and pictorial representations, including those involving numbers, quantities and measures • applying their increasing knowledge of mental and informal written methods

Multiplication and division			
Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.	Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot Understand that halving is the inverse of doubling and derive and recall doubles of all numbers to 20, and the corresponding halves.	Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

Number: Fractions (decimals and percentages)		
Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity.	Recognise the equivalence of $^{2}/_{4}$ and ½.	Write simple fraction statements e.g. ½ of 6 = 3

Measurement			
Compare and order lengths, mass, volume/capacity and record the results using >, < and =	Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); volume/ capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels	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.	Compare and sequence intervals of time Know the number of minutes in an hour and the number of hours in a day. 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

Geometry – Properties of Shapes	Geometry – Positions and direction	
Identify and describe the properties of 2D shapes, including the number of sides and symmetry in a vertical line Identify and describe the properties of 3D shapes, including the number of edges, vertices and faces Identify 2-D shapes on the surface of 3-D shapes, for example a circle on a cylinder and a triangle on a pyramid Compare and sort common 2-D and 3-D shapes and everyday objects	Order and arrange combinations of mathematical objects in patterns and sequences.	Use mathematical vocabulary to describe position, direction and movement including 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)
Statistics		
Interpret and construct simple pictograms, tally charts, block diagrams and simple tables	Use lists, tables and diagrams to sort objects against one or two criteria; explain choices using appropriate language, including 'not'	Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity Ask and answer questions about totalling and comparing categorical data.

Year 3

Mathematical Thinking				
Solve one- and two-step problems involving numbers, money or measures, including time, choosing and carrying out appropriate calculations **(See problem solving within individual strands for more detail)**	Represent the information in a puzzle or problem using numbers , images or diagrams; use these to find a solution and present it in context, where appropriate using £.p notation or units of measure	Follow a line of enquiry by deciding what information is important; make and use lists, tables and graphs to organise and interpret the information	Use patterns and relationships involving numbers or shapes, and use these to solve problems	Describe and explain methods, choices and solutions to puzzles and problems, orally and in writing, using pictures and diagrams

Number: Number and place value					
Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number	Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)	Compare and order numbers up to 1000. Round two- or three-digit numbers to the nearest 10 or 100	Identify, represent and estimate numbers using different representations	Read and write numbers up to 1000 in numerals and in words	Solve number problems and practical problems involving these ideas

Number: Addition and subtraction				
Estimate the answer to a calculation and use inverse operations to check answers	Derive and recall sums and differences of multiples of 10 and number pairs that total 100.	Add and subtract numbers mentally, including: • a three-digit number and ones • a three-digit number and tens • a three-digit number and hundreds	Add and subtract numbers with up to three digits using informal written methods with increasing efficiency	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

Number: Multiplication and division

Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	Multiply one- and two-digit numbers by 10 or 100, and describe the effect. Use doubling and halving to support mental calculations.	Use practical and informal written methods to multiply and divide two-digit numbers (e.g. 13 × 3, 50 ÷ 4) using known multiplication tables; round remainders up or down, depending on the context.	Solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects

Number: Fractions (decimals and percentages)

Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10	Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators	Recognise and show, using diagrams, equivalent fractions with small denominators.	Compare and order unit fraction and fractions with the same denominators	Add and subtract fractions with the same denominator within one whole (e.g. $^5/_7 + {}^1/_7 = {}^6/_7$)

Measurement

Measure, compare, add and subtract: lengths (km/m/cm/mm); mass (kg/g); volume/capacity (l/ml)	Add and subtract amounts of money to give change, using both £ and p in practical contexts	Compare durations of events (for example, calculate the time taken by particular events or tasks) Know the number of seconds in a minute and then number of days in each month, year and leap year Record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight Tell and write the time (to the nearest minute) from an analogue and 12-hour digital clock.

Geometry – Properties of Shapes

Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	Recognise angles as a property of shape or a description of a turn Identify whether angles are greater than or less than a right angle	Draw and complete shapes with reflective symmetry and draw the reflection of a shape in a mirror line along one side

Geometry – Position and direction

Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn	Read and record the vocabulary of position, direction and movement, using the four compass directions to describe movement about a grid

Statistics		
Interpret and present data using bar charts, pictograms and tables	Use Venn diagrams or Carroll diagrams to sort data and objects using more than one criterion	Solve one-step and two-step questions (for example ‘How many more?’ and ‘How many fewer?’) using information presented in scaled bar charts and pictograms and tables

Year 4

Mathematical Thinking				
Solve one- and two-step problems involving numbers, money or measures, including time; choose and carry out appropriate calculations **(See problem solving within individual strands for more detail)**	Represent a puzzle or problem using number sentences, statements or diagrams; use these to find a strategy to solve the problem; present and interpret the solution in the context of the problem	Suggest a line of enquiry and the strategy needed to follow it; collect, organise and interpret selected information to find answers	Identify patterns, relationships and properties of numbers or shapes; investigate a statement involving numbers and test it with examples	Report solutions to puzzles and problems, giving explanations and reasoning orally and in writing, using diagrams and symbols

Number: Number and place value						
Count in multiples of 6, 7, 9, 25 and 1000.	Count backwards through zero to include negative numbers.	Find 1000 more or less than a given number. Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)	Order and compare numbers beyond 1000. Round any number to the nearest 10, 100 or 1000	Identify, represent and estimate numbers using different representations	Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	Solve number and practical problems that involve all of the above and with increasingly large positive numbers

Number: Addition and subtraction			
Estimate and use inverse operations to check answers to a calculation	Use knowledge of addition and subtraction facts and place value to derive sums and differences of pairs of multiples of 10 or 100 or 1000	Add and subtract numbers with up to 3 digits using the formal written methods of columnar addition and subtraction where appropriate	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Multiplication and division			
Recall multiplication and division facts for multiplication tables up to 12 × 12	Use place value, known and derived facts, including doubling and halving, to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. Recognise and use factor pairs and commutativity in mental calculations	Multiply and divide two-digit and three-digit numbers by a one-digit number using informal written methods with increasing efficiency, including division with remainders.	Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects

Fractions (Decimals and percentages)				
Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.	Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. Solve simple measure and money problems involving fractions and decimals to two decimal places.	Recognise and show, using diagrams, families of common equivalent fractions. Recognise and write decimal equivalents to ¼, ½ and ¾, and of any number of tenths or hundredths.	Round decimals with one decimal place to the nearest whole number. Compare numbers with the same number of decimal places up to two decimal places.	Add and subtract fractions with the same denominator

Measurement		
Know the meaning of kilo, centi and milli and, where appropriate, use decimal notation to record measurements, e.g. 1.3 m or 0.6 kg Estimate, compare and calculate different measures, including money in pounds and pence	Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres Measure the perimeter of simple 2D shapes Find the area of rectilinear shapes by counting squares	Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. Tell and write the time from an analogue clock, including using Roman numerals from I to XII Read, write and convert time between analogue and digital 12- hour clocks.

Geometry – Properties of Shapes				Geometry – Positions and direction
Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	Identify acute and obtuse angles and compare and order angles up to two right angles by size	Identify lines of symmetry in 2-D shapes presented in different orientations Complete a simple symmetric figure with respect to a specific line of symmetry	Identify horizontal and vertical lines	Use the eight compass points to describe direction; describe and identify the position of a square on a grid of squares
Statistics				
Interpret and present discrete data using appropriate graphical methods, including bar charts				Solve comparison, sum and difference problems using information presented in bar charts, pictograms, and tables

Year 5

Mathematical Thinking				
Solve one-, two- and multi-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate methods **(See problem solving within individual strands for more detail)**	Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem	Plan and pursue an enquiry; present evidence by collecting, organising and interpreting information; suggest extensions to the enquiry	Explore patterns, properties and relationships and propose a general statement involving numbers or shapes; identify examples for which the statement is true or false	Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols

Number: Number and place value					
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.	Determine the value of each digit in numbers to at least 1 000 000	Order and compare numbers to at least 1 000 000 Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000	Read and write numbers to at least 1 000 000. Read Roman numerals to 1000 (M).	Solve number problems and practical problems that involve all of the above

Number: Addition and subtraction			
Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	Add and subtract numbers mentally with increasingly large numbers	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Number: Multiplication and division			
Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. Multiply and divide numbers mentally drawing upon known facts.	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. 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	Solve problems involving multiplication and division: •including using knowledge of factors, multiples, squares and cubes •using a combination of the four number operations, including understanding the meaning of the equals sign • including scaling by simple fractions and problems involving simple rates

Number: Fractions (decimals and percentages)				
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 involving numbers with up to two decimal places Solve problems which require knowing percentage and decimal equivalents of $^1/_2$, $^1/_4$, $^1/_5$, $^2/_5$, $^4/_5$ and those fractions with a denominator of a multiple of 10 or 25.	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, 2/5+4/5 =6/5 = 1 1/5] Read and write decimal numbers as fractions (for example, 0.71 = 71/100)	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 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 two decimal places	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

Measurement

Convert between different units of metric measure (e.g. kilometre and metre; centimetre 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 Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling	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 (cm^2) and square metres (m^2) Estimate volume [e.g., using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [e.g. using water]	Solve problems involving converting between units of time Read, write and convert time between analogue (including ones labelled using Roman numerals) and digital 12- and 24-hour clocks

Geometry – Properties of Shapes

Identify 3-D shapes, including cubes and other cuboids, from 2-D representations 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.	Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles Draw given angles, and measure them in degrees (°) Identify: •angles at a point and one whole turn (total 360°) •angles at a point on a straight line and a ½ turn (total 180°) • other multiples of 90°	Complete patterns with up to two lines of symmetry	Identify pairs of perpendicular and parallel lines

Geometry – Position and direction

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 movements between positions as translations of a given unit to the left/right and up/down.	Describe positions on a 2-D grid as coordinates in the first quadrant

Statistics

Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	Solve comparison, sum and difference problems using information presented in a line graph Complete, read and interpret information in tables, including timetables.

Year 6

Mathematical Thinking				
Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage **(See problem solving within individual strands for more detail)**	Tabulate systematically the information in a problem or puzzle; identify and record the steps or calculations needed to solve it, using symbols where appropriate; interpret solutions in the original context and check their accuracy.	Suggest, plan and develop lines of enquiry; collect, organise and represent information, interpret results and review methods; identify and answer related questions	Represent and interpret sequences, patterns and relationships involving numbers and shapes; suggest and test hypotheses; construct and use simple expressions and formulae in words then symbols (e.g. the cost of c pens at 15 pence each is 15c pence)	Explain reasoning and conclusions, using words, symbols or diagrams as appropriate

Number: Number and place value					Algebra
Use negative numbers in context, and calculate intervals across zero	Determine the value of each digit in numbers up to 10 000 000	Order and compare numbers up to 10 000 000 Round any whole number to a required degree of accuracy.	Read and write numbers up to 10 000 000. Recognise years written in Roman numerals	Solve number problems and practical problems that involve all of the above	Use simple formulae Generate and describe linear number sequences Express missing number problems algebraically Find pairs of numbers that satisfy an equation with two unknowns Enumerate all possibilities of combinations of two variables.

Number: Addition and subtraction			
Use their knowledge of the order of operations to carry out calculations involving the four operations. Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	Perform mental calculations, including with mixed operations and large numbers	Add and subtract whole numbers with more than 4 digits and decimals with up to 3 decimal places, including using formal written methods	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Number: Multiplication and division			
Recall prime numbers up to 19.	Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers; establish whether a number up to 100 is prime. Identify common factors, common multiples and prime numbers. Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	Multiply one-digit numbers with up to two decimal places by whole numbers Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. Use written division methods in cases where the answer has up to two decimal places Divide numbers up to 4 digits by a two-digit whole number using the formal written methods of short or long division where appropriate, interpreting remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.	Use knowledge of the order of operations to carry out calculations involving the four operations. Solve problems involving addition, subtraction, multiplication and division. Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts (ratio and proportion)

Number: Fractions (decimals and percentages)				
Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.	Solve problems involving numbers up to three decimal places. 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 unequal sharing and grouping using knowledge of fractions and multiples (ratio and proportion)	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8] Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts	Compare and order fractions, including fractions > 1 Read, write, order and compare numbers with up to three decimal places 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. Solve problems which require answers to be rounded to specified degrees of accuracy	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, ¼ x ½ = 1/8] Divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6)

Measurement

Convert between miles and kilometres

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

Recognise that shapes with the same areas can have different perimeters and vice versa

Estimate the area of irregular shapes

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 (cm^3) and cubic metres (m^3), and extending to other units [for example, mm3 and km^3].

Geometry – Properties of Shapes

Draw 2-D shapes using given dimensions and angles

Recognise, describe and build simple 3-D shapes, including making nets

Compare and classify geometric shapes based on their properties and sizes

Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius

Solve problems involving similar shapes where the scale factor is known or can be found

Find unknown angles in any triangles, quadrilaterals, and regular polygons

Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles

Geometry – Position and direction

Draw and translate simple shapes on the coordinate plane, and reflect them in the axes

Describe positions on the full coordinate grid (all four quadrants)

Plot specified points and draw sides to complete a given polygon

Statistics

Interpret and construct pie charts and line graphs and use these to solve problems

Calculate and interpret the mean as an average