Subject – Mathematics

Skills Progression Map

Purpose of Mathematics:

The National curriculum for mathematics aims to ensure that all pupils:

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

INTENT

At Lawn Primary and Nursery School, it is the intent of our Mathematics curriculum to deliver lessons that enable our pupils to develop fluency, mathematical reasoning and the ability to solve increasingly sophisticated problems. Mathematics is a tool for life: we want our pupils to become confident, enthusiastic and positive mathematicians who can apply their skills to real-life situations.

IMPLEMENTATION

We use the White Rose Scheme of Work to inform our weekly plans and provide most teaching resources although a range of online resources supplements these. Flashback 4 lesson starters are used to revisit objectives to help consolidate and embed them. Work set will be appropriate to the age-related expectations and differentiated, including levels of support, so that every child can achieve his/her mathematical potential and develop a positive and confident attitude to mathematics.

EYFS Knowledge:

Mathematical Vocabulary			
Three and Four-Year-Olds	Communication and Language		• Use a wider range of vocabulary. • Understand 'why' questions, like: "why do you think the caterpillar is so fat?"
Reception	Communication and Language		• Learn new vocabulary. • Use new vocabulary throughout the day.
ELG	Communication and Language	Speaking	• Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.
Number and Place Value			
Counting			
Three and Four-Year-Olds	Mathematics		• Recite numbers past 5. • Say one number name for each item in order: 1, 2, 3, 4, 5. • Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').
Reception	Mathematics		• Count objects, actions and sounds. • Count beyond ten.
ELG	Mathematics	Numerical Patterns	• Verbally count beyond 20, recognising the pattern of the counting system.
Identifying, Representing and Estimating Numbers			
Three and Four-Year-Olds	Mathematics		• Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). • Show 'finger numbers' up to 5. • Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. • Experiment with their own symbols and marks as well as numerals.

Reception	Mathematics		• Subitise. • Link the number symbol (numeral) with its cardinal number value.
ELG	Mathematics	Number	• Subitise (recognising quantities without counting) up to 5.
Reading and Writing Numbers			
Three and Four-Year-Olds	Mathematics		• Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. • Experiment with their own symbols and marks as well as numerals.
Reception	Mathematics		• Link the number symbol (numeral) with its cardinal number value.
Compare and Order Numbers			
Three and Four-Year-Olds	Mathematics		• Compare quantities using language: 'more than', 'fewer than'.
Reception	Mathematics		• Compare numbers.
ELG	Mathematics	Numerical Patterns	• Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
Understanding Place Value			
Reception	Mathematics		• Understand the 'one more than/one less than' relationship between consecutive numbers. • Explore the composition of numbers to 10.
ELG	Mathematics	Number	• Have a deep understanding of numbers to 10, including the composition of each number.
Solve Problems			
Three and Four-Year-Olds	Mathematics		• Solve real world mathematical problems with numbers up to 5.
Addition and Subtraction			

Mental Calculations			
Reception	Mathematics		• Automatically recall number bonds for numbers 0-5 and some to 10.
ELG	Mathematics	Number	• Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.
Solve Problems			
ELG	Mathematics	Numerical Patterns	• Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.
Measurement			
Describe, Measure, Compare and Solve (All Strands)			
Three and Four-Year-Olds	Mathematics		• Make comparisons between objects relating to size, length, weight and capacity.
Reception	Mathematics		• Compare length, weight and capacity.
Telling the Time			
Three and Four-Year-Olds	Mathematics		• Begin to describe a sequence of events, real or fictional, using words, such as 'first', 'then…'
Properties of Shapes			
Recognise 2D and 3D Shapes and their Properties			
Three and Four-Year-Olds	Mathematics		• Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners', 'straight', 'flat', 'round'. • Select shapes appropriately: flat surfaces for a building, a triangular pattern for a roof, etc. • Combine shapes to make new ones – an arch, a bigger triangle, etc.
Reception	Mathematics		• Select, rotate and manipulate shapes in order to develop spatial reasoning skills.

Compare and Classify Shapes		
Reception	Mathematics	• Compose and decompose shapes so that children can recognise a shape can have other shapes within it, just as numbers can.
Position and Direction		
Position, Direction and Movement		
Three and Four-Year-Olds	Mathematics	• Understand position through words alone – for example, "The bag is under the table," – with no pointing. • Describe a familiar route. • Discuss routes and locations, using words like 'in front of' and 'behind'.
Reception	Understanding the World	• Draw information from a simple map.
Patterns		
Three and Four-Year-Olds	Mathematics	• Talk about and identify the patterns around them. For example, stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc. • Extend and create ABAB patterns – stick, leaf, stick, leaf. • Notice and correct an error in a repeating pattern.
Reception	Mathematics	• Continue, copy and create repeating patterns.
Statistics		
Record, Present and Interpret Data		
Three and Four-Year-Olds	Mathematics	• Experiment with their own symbols and marks, as well as numerals.

KS1 Knowledge (for 'Small Steps' see below)

Pupils should be taught:

- Number and place value
- Addition and subtraction

- Multiplication and division
- Fractions
- Measurement
- Properties of shapes
- Position and direction
- Statistics

KS2 Knowledge (for 'Small Steps' see below)

Pupils should be taught:

- Number and place value
- Addition and subtraction
- Multiplication and division
- Fractions (including decimals and percentages)
- Measurement
- Properties of shapes
- Statistics
- Ratio and proportion
- Algebra

	Year 1 National Curriculum	Year 1 small steps	Key vocabulary introduced in this year group
Number: Place Value	Count to **ten**, forwards and backwards, beginning with 0 or 1, or from any given number. Count, read and write numbers to **10** in numerals and words. Given a number, identify one more or one less. Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. Count to **twenty**, forwards and backwards, beginning with 0 or 1, from any given number. Count, read and write numbers to **20**	**Place Value within 10** Sort objects Count objects Represent objects Count, read and write forwards from any number 0 to 10 Count, read and write backwards from any number 0 to 10 Count one more Count one less One-to-one correspondence to start to compare groups Compare groups using language such as equal, more/greater, less/fewer Introduce <, > and = symbols	*Greater, lesser* *Pair* *Units, ones, tens* *Ten more/less* *Figure (s)* *In order/ A different order* *Above, below*

	Count to **50** forwards and backwards, beginning with 0 or 1, or from any number. Count, read and write numbers to **50** in numerals. Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Count, read and write numbers to 100 in numerals.	Compare numbers Order groups of objects Order numbers Ordinal numbers (1st, 2nd, 3rd…) The number line **<u>Place Value within 20</u>** Count forwards and backwards and write numbers to 20 in numerals and words Numbers from 11 to 20 Tens and ones Count one more and one less Compare groups of objects Compare numbers Order groups of objects Order numbers **<u>Place Value within 50</u>** Numbers to 50 Tens and ones Represent numbers to 50 One more one less Compare objects within 50 Compare numbers within 50 Order numbers within 50 Count in 2s Count in 5s **<u>Place Value within 100</u>** Counting to 100 Partitioning numbers Comparing numbers (1) Comparing numbers (2) Ordering numbers One more, one less	

Number: Addition and Subtraction	Represent and use number bonds and related subtraction facts **within 10** Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. Add and subtract one digit numbers **to 10**, including zero. Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems. 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	Part-whole model Addition symbol Fact families – addition facts Find number bonds for numbers within 10 Systematic methods for number bonds within 10 Number bonds to 10 Compare number bonds Addition – adding together Addition – adding more Finding a part Subtraction – taking away, how many left? Crossing out Subtraction – taking away, how many left? Introducing the subtraction symbol Subtraction – finding a part, breaking apart Fact families – the 8 facts Subtraction – counting back Subtraction – finding the difference Comparing addition and subtraction statements a + b > c Comparing addition and subtraction statements a + b > c + d Add by counting on Find and make number bonds Add by making 10 Subtraction – Not crossing 10 Subtraction – Crossing 10 (1) Subtraction – Crossing 10 (2) Related Facts Compare number sentences	*Number bonds* *Inverse* *Near doubles* *Difference between* *How many fewer is…than…? How much less is…?*
Number: Multiplication and Division	Count in multiples of twos, fives and tens. 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.	Count in 10s Make equal groups Add equal groups Make arrays Make doubles Make equal groups - grouping	*Once, twice, three times. Five times.* *Count in tens (forwards from/ backwards from)* *How many times?* *Lots of, groups of* *Multiple of, times, multiply, multiply by* *Repeated addition*

		Make equal groups - sharing	*Array, row, column* *Group in twos, threes, etc* *Divided by, left, left over*
Number: Fractions	Recognise, find and name a half as one of two equal parts of an object, shape or quantity. Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	Find a half (1) Find a half (2) Find a quarter (1) Find a quarter (2)	*Equal parts, four equal parts* *Two halves* *A quarter, two quarters*
Geometry: Shape	Recognise and name common 2-D shapes, including: (for example, rectangles (including squares), circles and triangles) Recognise and name common 3-D shapes, including: (for example, cuboids (including cubes), pyramids and spheres.)	Recognise and name 3D shapes Sort 3D shapes Recognise and name 2D shapes Sort 2D shapes Patterns with 3D and 2D shapes	*Group, sort* *Cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle, square* *Shape* *Flat, curved, straight, round* *Hollow, solid* *Corner (point, pointed)* *Face, side, edge* *Make, build,*
Geometry: position and direction	Describe position, direction and movement, including whole, half, quarter and three quarter turns	Describe turns Describe Position (1) Describe Position (2)	*Position* *Over, under, underneath, above, below, top, bottom, side* *on, in, outside, inside* *around, in front, behind* *Front, back* *Before, after* *Beside, next to, Opposite* *Apart* *Between, middle, edge, centre* *Corner* *Direction* *Journey* *Left, right, up, down, forwards, backwards, sideways* *Across* *Close, far, near* *Along, through* *To, from, towards, away from* *Movement* *Slide, roll, turn, whole turn, half turn* *Stretch, bend*

Measurement: Length and Height	Measure and begin to record lengths and heights. **Compare, describe and solve practical problems for: lengths and heights (for example, long/short, longer/shorter, tall/short,** double/half)	Compare lengths and heights Measure length (1) Measure length (2)	*Full, half full, empty* *Holds* *Container* *Weigh, weighs, balances* *Heavy, heavier, heaviest, light, lighter, lightest* *Scales* *Time* *Days of the week: Monday, Tuesday, etc.* *Seasons: spring, summer, autumn, winter* *Day, week, month, year, weekend* *Birthday, holiday* *Morning, afternoon, evening, night, midnight* *Bedtime, dinnertime, playtime* *Today, yesterday, tomorrow* *Before, after* *Next, last* *Now, soon, early, late* *Quick, quicker, quickest, quickly , fast, faster, fastest, slow, slower, slowest, slowly* *Old, older, oldest, new, newer, newest* *Takes longer, takes less time* *Hour, o'clock, half past* *Clock, watch, hands* *How long ago?, how long will it be to…?, how long will it take to…?, how often?* *Always, never, often, sometimes, usually* *Once, twice* *First, second, third, etc.* *Estimate, close to, about the same as, just over, just under* *Too many, too few, not enough, enough* *Length, width, height, depth* *Long, longer, longest, short, shorter shortest, tall, taller, tallest, high, higher, highest*
Measurement: Weight and Volume	Measure and begin to record mass/weight, capacity and volume. **Compare, describe and solve practical problems for mass/weight: [for example, heavy/light, heavier than, lighter than]; capacity and volume [for example, full/empty, more than, less than,** half, half full, quarter]	Introduce weight and mass Measure mass Compare mass Introduce capacity and volume Measure capacity Compare capacity	
Measurement: Money	Recognise and know the value of different denominations of coins and notes.	Recognising coins Recognising notes Counting in coins	
Measurement: Time	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. Compare, describe and solve practical problems for time [for example, quicker, slower, earlier, later] Measure and begin to record time (hours, minutes, seconds)	Before and after Dates Time to the hour Time to the half hour Writing time Comparing time	

			Low, wide, narrow, deep, shallow, thick, thin *Far, near, close* *Metre, ruler, metre stick* *Money, coin, penny, pence, pound, price, cost, buy, sell, spend, spent, pay, change, dear(er), costs more, costs less, cheaper, costs the same as* *How much?, how many?*

	Year 2 National Curriculum	Year 2 small steps	Key vocabulary
Number: Place Value	Read and write numbers to at least 100 in numerals and in words. Recognise the place value of each digit in a two digit number (tens, ones) Identify, represent and estimate numbers using different representations including the number line. Compare and order numbers from 0 up to 100; use <, > and = signs. Use place value and number facts to solve problems. Count in steps of 2, 3 and 5 from 0, and in tens from any number, forward and backward.	Count objects to 100 and read and write numbers in numerals and words Represent numbers to 100 Tens and ones with a part-whole model Tens and ones using addition Use a place value chart Compare objects Compare numbers Order objects and numbers Count in 2s, 5s and 10s Count in 3s	*Numbers to one hundred* *Hundreds Partition, recombine, Hundred more/less*
Number: Addition and Subtraction	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. Show that the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. 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 written methods.	Fact families – addition and subtraction bonds to 20 Check calculations Compare number sentences Related facts Bonds to 100 (tens) Add and subtract 1s 10 more and 10 less Add and subtract 10s Add a 2-digit and 1-digit number – crossing ten Subtract a 1-digit number from a 2-digit number – crossing ten	

	Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	Add two 2-digit numbers – not crossing ten – add ones and add tens Add two 2-digit numbers – crossing ten – add ones and add tens Subtract a 2-digit number from a 2-digit number – not crossing ten Subtract a 2-digit number from a 2-digit number – crossing ten – subtract ones and tens Bonds to 100 (tens and ones) Add three 1-digit numbers	
Number: Multiplication and Division	Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) sign. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts. Show that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.	Recognise equal groups Make equal groups Add equal groups Multiplication sentences using the × symbol Multiplication sentences from pictures Use arrays 2 times-table 5 times-table 10 times-table Make equal groups - sharing Make equal groups - grouping Divide by 2 Odd & even numbers Divide by 5 Divide by 10	
Number: 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 $1/2$.	Make equal parts Recognise a half Find a half Recognise a quarter Find a quarter Recognise a third Find a third Unit fractions Non-unit fractions Equivalence of ½ and 2/4	*Three quarters, one third, a third* *Equivalence, equivalent*

		Find three quarters Count in fractions	
Geometry: Shape	Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. Identify and describe the properties of 3-D 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.	Recognise 2D and 3D shapes Count sides on 2D shapes Count vertices on 2D shapes Draw 2D shapes Lines of symmetry Sort 2D shapes Make patterns with 2D shapes Count faces on 3D shapes Count edges on 3D shapes Count vertices on 3D shapes Sort 3D shapes Make patterns with 3D shapes	*Size* *Bigger, larger, smaller* *Symmetrical, line of symmetry* *Fold* *Match* *Mirror line, reflection* *Pattern,*
Geometry: position and direction	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). Order and arrange combinations of mathematical objects in patterns and sequences	Describing movement Describing turns Describing movement and turns Making patterns with shapes	*Rotation* *Clockwise, anticlockwise* *Straight line* *Ninety degree turn, right angle*
Measurement: Length and Height	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 =	Measure length (cm) Measure length (m) Compare lengths Order lengths Four operations with lengths	*Quarter past/to* *m/km, g/kg, ml/l* *Temperature (degrees)*
Measurement: Weight and Volume	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 mass Measure mass in grams Measure mass in kilograms Compare volume Millilitres Litres Temperature	

	Compare and order lengths, mass, volume/capacity and record the results using >, < and =		
Measurement: Money	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.	Count money – pence Count money – pounds (notes and coins) Count money – notes and coins Select money Make the same amount Compare money Find the total Find the difference Find change Two-step problems	
Measurement: 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. Compare and sequence intervals of time.	O'clock and half past Quarter past and quarter to Telling time to 5 minutes Hours and days Find durations of time Compare durations of time	
Statistics	Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. 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.	Make tally charts Draw pictograms (1-1) Interpret pictograms (1-1) Draw pictograms (2, 5 and 10) Interpret pictograms (2, 5 and 10) Block diagrams	*Count, tally, sort* *Vote* *Graph, block graph, pictogram, Represent* *Group, set, list, table* *Label, title* *Most popular, most common, least popular, least common*

	Year 3 National Curriculum	Year 3 small steps	Key vocabulary
Number: Place Value	Identify, represent and estimate numbers using different representations. 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	Hundreds Represent numbers to 1,000 100s, 10s and 1s (1) 100s, 10s and 1s (2) Number line to 1,000 Find 1, 10, 100 more or less than a given number	*Numbers to one thousand*

	Read and write numbers up to 1000 in numerals and in words. Solve number problems and practical problems involving these ideas. **Count from 0 in multiples of** 4, 8, **50 and 100**	Compare objects to 1,000 Compare numbers to 1,000 Order numbers Count in 50s	
Number: Addition and Subtraction	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 formal written methods of columnar addition and subtraction. Estimate the answer to a calculation and use inverse operations to check answers. Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	Add and subtract multiples of 100 Add and subtract 3-digit numbers and 1-digit numbers – not crossing 10 Add 3-digit and 1-digit numbers – crossing 10 Subtract a 1-digit number from a 3-digit number – crossing 10 Add and subtract 3-digit and 2-digit numbers – not crossing 100 Add 3-digit and 2-digit numbers – crossing 100 Subtract a 2-digit number from a 3-digit number – crossing 100 Add and subtract 100s Spot the pattern – making it explicit Add and subtract a 2-digit and 3-digit number – not crossing 10 or 100 Add a 2-digit and 3-digit number – crossing 10 or 100 Subtract a 2-digit number from a 3-digit number – crossing 10 or 100 Add two 3-digit numbers – not crossing 10 or 100 Add two 3-digit numbers – crossing 10 or 100 Subtract a 3-digit number from a 3-digit number – no exchange Subtract a 3-digit number from a 3-digit number – exchange Estimate answers to calculations Check answers	*Column addition and subtraction*
Number: Multiplication and Division	**Count from 0 in multiples of 4, 8,** 50 and 100 Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.	Multiplication – equal groups Multiply by 3 Divide by 3	*Product* *Multiples of four, eight, fifty and one hundred*

	Write and calculate mathematical statements for multiplication and division using the multiplication tables they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which *n* objects are connected to *m* objectives.	The 3 times table Multiply by 4 Divide by 4 The 4 times table Multiply by 8 Divide by 8 The 8 times table Comparing statements Related calculations Multiply 2-digits by 1-digit (1) Multiply 2-digits by 1-digit (2) Divide 2-digits by 1-digit (1) Divide 2-digits by 1-digit (2) Divide 2-digits by 1-digit (3) Scaling How many ways?	*Scale up*
Number: Fractions	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 and use fractions as numbers: unit fractions and non-unit fractions with small denominators. 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 fractions, and fractions with the same denominators. Add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7] Solve problems that involve all of the above.	Unit and non-unit fractions Making the whole Tenths Count in tenths Tenths as decimals Fractions on a number line Fractions of a set of objects (1) Fractions of a set of objects (2) Fractions of a set of objects (3) Equivalent fractions (1) Equivalent fractions (2) Equivalent fractions (3) Compare fractions Order fractions Add fractions Subtract fractions	*Numerator, denominator* *Unit fraction, non-unit fraction* *Compare and order* *Tenths*
Geometry: Shape	Recognise angles as a property of shape or a description of a turn. Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn	Turns and angles Right angles in shapes Compare angles Draw accurately	*Greater/less than ninety degrees* *Orientation (same orientation, different orientation)*

	and four a complete turn; identify whether angles are greater than or less than a right angle. Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. Draw 2-D shapes and make 3- D shapes using modelling materials. Recognise 3-D shapes in different orientations and describe them.	Horizontal and vertical Parallel and perpendicular Recognise and describe 2D shapes Recognise and describe 3D shapes Make 3D shapes	
Measurement: Length and Perimeter	**Measure, compare, add and subtract: lengths (m/cm/mm);** mass (kg/g); volume/capacity (l/ml). Measure the perimeter of simple 2D shapes.	Measure length Equivalent lengths – m & cm Equivalent lengths – mm & cm Compare lengths Add lengths Subtract lengths Measure perimeter Calculate perimeter	*Leap year* *Twelve-hour/twenty-four- hour clock* *Roman numerals I to XIII*
Measurement: Weight and Capacity	**Measure, compare, add and subtract:** lengths (m/cm/mm); **mass (kg/g); volume/capacity (l/ml).**	Measure mass (1) Measure mass (2) Compare mass Add and subtract mass Measure capacity (1) Measure capacity (2) Compare capacity Add and subtract capacity	
Measurement: Money	Add and subtract amounts of money to give change, using both £ and p in practical contexts.	Pounds and pence Convert pounds and pence Add money Subtract money Give change	
Measurement: Time	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.	Months and years Hours in a day Telling the time to 5 minutes Telling the time to the minute Using a.m. and p.m. 24-hour clock	

	Record and compare time in terms of seconds, minutes and hours. Use vocabulary such as o'clock, a.m./p.m., 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].	Finding the duration Comparing durations Start and end times Measuring time in seconds	
Statistics	Interpret and present data using bar charts, pictograms and tables. 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.	Pictograms Bar Charts Tables	*Chart, bar chart, frequency table, Carroll diagram, Venn diagram* *Axis, axes* *Diagram*

	Year 4 National Curriculum	Year 4 small steps	Key vocabulary
Number: Place Value	**Count in multiples of** 6, 7, 9, **25 and 1000.** 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 Identify, represent and estimate numbers using different representations. Round any number to the nearest 10, 100 or 1000 Solve number and practical problems that involve all of the above and with increasingly large positive numbers. Count backwards through zero to include negative numbers. 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.	Roman Numerals to 100 Round to the nearest 10 Round to the nearest 100 Count in 1,000s 1,000s, 100s, 10s and 1s Partitioning Number line to 10,000 1,000 more or less Compare numbers Order numbers Round to the nearest 1,000 Count in 25s Negative numbers	*Tenths, hundredths Decimal (places)* *Round (to nearest) Thousand* *more/less than Negative integers* *Count through zero* *Roman numerals (I to C)*
Number: Addition and Subtraction	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.	Add and subtract 1s, 10s, 100s and 1,000s Add two 4-digit numbers – no exchange Add two 4-digit numbers – one exchange	

	Estimate and use inverse operations to check answers to a calculation. Solve addition and subtraction two step problems in contexts, deciding which operations and methods to use and why.	Add two 4-digit numbers – more than one exchange Subtract two 4-digit numbers – no exchange Subtract two 4-digit numbers – one exchange Subtract two 4-digit numbers – more than one exchange Efficient subtraction Estimate answers Checking strategies	
Number: Multiplication and Division	Recall and use multiplication and division facts for multiplication tables up to 12 × 12. **Count in multiples of 6, 7, 9,** 25 and 1000 Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. **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. Recognise and use factor pairs and commutativity in mental calculations. Multiply two digit and three digit numbers by a one digit number using formal written layout.	Multiply by 10 Multiply by 100 Divide by 10 Divide by 100 Multiply by 1 and 0 Divide by 1 and itself Multiply and divide by 6 6 times table and division facts Multiply and divide by 9 9 times table and division facts Multiply and divide by 7 7 times table and division facts 11 and 12 times-table Multiply 3 numbers Factor pairs Efficient multiplication Written methods Multiply 2-digits by 1-digit Multiply 3-digits by 1-digit Divide 2-digits by 1-digit (1) Divide 2-digits by 1-digit (2) Divide 3-digits by 1-digit Correspondence problems	*Multiplication facts (up to 12 X 12)*

Number: Fractions	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. Add and subtract fractions with the same denominator.	What is a fraction? Equivalent fractions (1) Equivalent fractions (2) Fractions greater than 1 Count in fractions Add 2 or more fractions Subtract 2 fractions Subtract from whole amounts Calculate fractions of a quantity Problem solving – calculate quantities	*Equivalent decimals and fractions*
Number: Decimals	Recognise and write decimal equivalents of any number of tenths or hundredths. Find the effect of dividing a one or two digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths **Solve simple measure** and money **problems involving fractions and decimals to two decimal places.** Convert between different units of measure [for example, kilometre to metre] Compare numbers with the same number of decimal places up to two decimal places. Round decimals with one decimal place to the nearest whole number. Recognise and write decimal equivalents to 1/4, 1/2 and 3/4	Recognise tenths and hundredths Tenths as decimals Tenths on a place value grid Tenths on a number line Divide 1-digit by 10 Divide 2-digits by 10 Hundredths Hundredths as decimals Hundredths on a place value grid Divide 1 or 2-digits by 100 Make a whole Write decimals Compare decimals Order decimals Round decimals Halves and quarters	*Equivalent decimals and fractions*
Geometry: Shape	Identify acute and obtuse angles and compare and order angles up to two right angles by size. Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. 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 angles Compare and order angles Triangles Quadrilaterals Lines of symmetry Complete a symmetric figure	*Quadrilaterals* *Triangles* *Right angle, acute and obtuse angles*

Geometry: position and direction	Describe positions on a 2-D grid as coordinates in the first quadrant. Plot specified points and draw sides to complete a given polygon. Describe movements between positions as translations of a given unit to the left/ right and up/ down.	Describe position Draw on a grid Move on a grid Describe a movement on a grid	*Coordinates* *Translation* *Quadrant* *x-axis, y-axis* *Perimeter and area*
Measurement: Length and Perimeter	Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres Convert between different units of measure [for example, kilometre to metre] Find the area of rectilinear shapes by counting squares.	Kilometres Perimeter on a grid Perimeter of a rectangle Perimeter of rectilinear shapes What is area? Counting squares Making shapes Comparing area	*Convert*
Measurement: Money	Estimate, compare and calculate different measures, including money in pounds and pence. Solve simple measure and money problems involving fractions and decimals to two decimal places.	Pounds and pence Ordering money Estimating money Four operations	
Measurement: Time	**Convert between different units of measure [for example,** kilometre to metre; **hour to minute]** Read, write and convert time between analogue and digital 12- and 24-hour clocks. Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	Hours, minutes and seconds Years, months, weeks and days Analogue to digital – 12 hour Analogue to digital – 24 hour	*Convert*
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 bar charts, pictograms, tables and other graphs.	Interpret charts Comparison, sum & difference Introducing line graphs Line graphs	*Continuous data* *Line graph*

	Year 5 National Curriculum	**Year 5 small steps**	**Key vocabulary**

Number: Place Value	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.	Numbers to 10,000 Roman Numerals to 1,000 Round to nearest 10, 100 and 1,000 Numbers to 100,000 Compare and order numbers to 100,000 Round numbers within 100,000 Numbers to a million Counting in 10s, 100s, 1,000s, 10,000s and 100,000s Compare and order numbers to one million Round numbers to one million Negative numbers	*Powers of 10*
Number- addition subtraction, multiplication + division	Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. 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 2 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 addition and subtraction, multiplication and division and a combination of these, including understanding the use of the equals sign.	Add whole numbers with more than 4 digits (column method) Subtract whole numbers with more than 4 digits (column method) Round to estimate and approximate Inverse operations (addition and subtraction) Multi-step addition and subtraction problems Multiples Factors Common Factors Prime Numbers Square Numbers Cube Numbers Multiply by 10, 100 and 1000 Divide by 10, 100 and 1000 Multiples of 10, 100 and 1000 Multiply 4-digits by 1-digit Multiply 2-digits (area model) Multiply 2-digits by 2-digits Multiply 3-digits by 2-digits	*Efficient written method* *Factor pairs* *Composite numbers, prime number, prime factors, square number, cubed number* *Formal written method*

		Multiply 4-digits by 2-digits Divide 4-digits by 1-digit Divide with remainders	
Fractions	Compare and order fractions whose denominators are 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 2/5 + 4/5 = 6/5 = 1 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 = 71/100] Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	Equivalent fractions Improper fractions to mixed numbers Mixed numbers to improper fractions Number sequences Compare and order fractions less than 1 Compare and order fractions greater than 1 Add and subtract fractions Add fractions within 1 Add 3 or more fractions Add fractions Add mixed numbers Subtract fractions Subtract mixed numbers Subtract – breaking the whole Subtract 2 mixed numbers Multiply unit fractions by an integer Multiply non-unit fractions by an integer Multiply mixed numbers by integers Fraction of an amount Using fractions as operators	*Proper fractions, improper fractions, mixed numbers* *Percentage* *Half, quarter, fifth, two fifths, four fifths* *Ratio, proportion*
Number: Percentages	Read, write, order and compare numbers with up to three decimal places. 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. 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.	Decimals up to 2 d.p. Decimals as fractions (1) Decimals as fractions (2) Understand thousandths Thousandths as decimals Rounding decimals Order and compare decimals Understand percentages Percentages as fractions and decimals Equivalent F.D.P	*Percentage*

	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.		
Number: Decimals	Solve problems involving number up to three decimal places. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	Adding decimals within 1 Subtracting decimals within 1 Complements to 1 Adding decimals – crossing the whole Adding decimals with the same number of decimal places Subtracting decimals with the same number of decimal places Adding decimals with a different number of decimal places Subtracting decimals with a different number of decimal places Adding and subtracting wholes and decimals Decimal sequences Multiplying decimals by 10, 100 and 1,000 Dividing decimals by 10, 100 and 1,000	
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.	Position in the first quadrant Reflection Reflection with coordinates Translation Translation with coordinates	*Reflex angle* *Dimensions*
Geometry: Properties of Shapes	Identify 3D shapes, including cubes and other cuboids, from 2D 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 (°)	Measuring angles in degrees Measuring with a protractor (1) Measuring with a protractor (2) Drawing lines and angles accurately Calculating angles on a straight line Calculating angles around a point Calculating lengths and angles in shapes Regular and irregular polygons Reasoning about 3D shapes	*Regular and irregular Polygons*

	Identify: angles at a point and one whole turn (total 360°), angles at a point on a straight line and ½ a turn (total 180°) other multiples of 90°		
Measurement Converting Units	Convert between different units of metric measure [for example, km and m; cm and m; cm and mm; g and kg; l and ml] Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. Solve problems involving converting between units of time.	Kilograms and kilometres Milligrams and millilitres Metric units Imperial units Converting units of time Timetables	*Imperial units, metric units*
Measurement: Perimeter, Area and Volume	Measure and calculate the perimeter of composite rectilinear shapes in cm and m. Calculate and compare the area of rectangles (including squares), and including using standard units, cm^2, m^2 estimate the area of irregular shapes. Estimate volume [for example using 1cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water] Use all four operations to solve problems involving measure.	Measure perimeter Calculate perimeter Area of rectangles Area of compound shapes Area of irregular shapes What is volume? Compare volume Estimate volume Estimate capacity	*Volume*
Statistics	Solve comparison, sum and difference problems using information presented in a line graph. Complete, read and interpret information in tables including timetables.	Read and interpret line graphs Draw line graphs Use line graphs to solve problems Read and interpret tables Two-way tables Timetables	

	Year 6 National Curriculum	Year 6 small steps	Key vocabulary
Number: Place Value	Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit Round any whole number to a required degree of accuracy Use negative numbers in context, and calculate intervals across 0	Numbers to ten million Compare and order any number Round any number Negative numbers	*Numbers to ten million*

	Solve number and practical problems that involve all of the above		
Number- addition subtraction, multiplication + division	Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why. Multiply multi-digit number up to 4 digits by a 2-digit number using the formal written method of long multiplication. Divide numbers up to 4 digits by a 2-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding as appropriate for the context. Divide numbers up to 4 digits by a 2-digit number using the formal written method of short division, interpreting remainders according to the context. Perform mental calculations, including with mixed operations and large numbers. Identify common factors, common multiples and prime numbers. Use their knowledge of the order of operations to carry out calculations involving the four operations. Solve problems involving addition, subtraction, multiplication and division. Use estimation to check answers to calculations and determine in the context of a problem, an appropriate degree of accuracy.	Add and subtract integers Multiply up to a 4-digit by 2-digit number Short division Division using factors Long division (1) Long division (2) Long division (3) Long division (4) Common factors Common multiples Primes to 100 Squares and cubes Order of operations Mental calculations and estimation Reasoning from known facts	*Order of operations (BODMAS)* *Common factors, common multiples*
Fractions	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. Compare and order fractions, including fractions > 1 Generate and describe linear number sequences (with fractions) Add and subtract fractions with different denominations and mixed numbers, using the concept of equivalent fractions.	Simplify fractions Fractions on a number line Compare and order (denominator) Compare and order (numerator) Add and subtract fractions (1) Add and subtract fractions (2) Add fractions	*Degree of accuracy* *Simplify*

	Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example 1/4 x 1/2 = 1/8] Divide proper fractions by whole numbers [for example 1/3 ÷ 2 = 1/6] 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.	Subtract fractions Mixed addition and subtraction Multiply fractions by integers Multiply fractions by fractions Divide fractions by integers (1) Divide fractions by integers (2) Four rules with fractions Fraction of an amount Fraction of an amount – finding the whole	
Number: Percentages	Solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison. Recall and use equivalences between simple fractions, decimals and percentages including in different contexts.	Fractions to percentages Equivalent FDP Order FDP Percentage of an amount (1) Percentage of an amount (2) Percentages – missing values	
Number: Decimals	Identify the value of each digit in numbers given to 3 decimal places and multiply numbers by 10, 100 and 1,000 giving answers up to 3 decimal places. Multiply one-digit numbers with up to 2 decimal places by whole numbers. Use written division methods in cases where the answer has up to 2 decimal places. Solve problems which require answers to be rounded to specified degrees of accuracy.	Three decimal places Multiply by 10, 100 and 1,000 Divide by 10, 100 and 1,000 Multiply decimals by integers Divide decimals by integers Division to solve problems Decimals as fractions Fractions to decimals (1) Fractions to decimals (2)	
Number: Algebra	Use simple formulae Generate and describe linear number sequences Express missing number problems algebraically	Find a rule – one step Find a rule – two step Forming expressions Substitution	*Linear number sequence* *Substitute* *Variables* *Symbol* *Known values*

	Find pairs of numbers that satisfy an equation with 2 unknowns Enumerate possibilities of combinations of 2 variables	Formulae Forming equations Solve simple one-step equations Solve two-step equations Find pairs of values Enumerate possibilities	
Number: Ratio	Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. Solve problems involving similar shapes where the scale factor is known or can be found. Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.	Using ratio language Ratio and fractions Introducing the ratio symbol Calculating ratio Using scale factors Calculating scale factors Ratio and proportion problems	
Geometry- Position and Direction	Describe positions on the full coordinate grid (all four quadrants). Draw and translate simple shapes on the coordinate plane and reflect them in the axes.	The first quadrant Four quadrants Translations Reflections	*Four quadrants (for coordinates)*
Geometry: Properties of Shapes	Draw 2-D shapes using given dimensions and angles. Compare and classify geometric shapes based on their properties and sizes and 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.	Measure with a protractor Introduce angles Calculate angles Vertically opposite angles Angles in a triangle Angles in a triangle – special cases Angles in a triangle – missing angles Angles in special quadrilaterals Angles in regular polygons Draw shapes accurately Draw nets of 3D shapes	*Vertically opposite angles* *Circumference, radius, diameter*

Measurement Converting Units	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 3dp. Convert between miles and kilometres.	Metric measures Convert metric measures Calculate with metric measures Miles and kilometres Imperial measures	
Measurement: Perimeter, Area and Volume	Recognise that shapes with the same areas can have different perimeters and vice versa. 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 cm^3, m^3 and extending to other units (mm^3, km^3)	Shapes – same area Area and perimeter Area of a triangle (1) Area of a triangle (2) Area of a triangle (3) Area of a parallelogram Volume – counting cubes Volume of a cuboid	
Statistics	Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. Interpret and construct pie charts and line graphs and use these to solve problems. Calculate the mean as an average.	Read and interpret line graphs Draw line graphs Use line graphs to solve problems Circles Read and interpret pie charts Pie charts with percentages Draw pie charts The mean	*Mean* *Pie chart* *Construct*