Coates Primary School

Maths Progression Grid- 2026-27

Blue highlight- Ready to progress criteria statements

Yellow highlight- key areas for 2026-27

Subject	Overview and goals	Knowledge	Skills	Concepts
EYFS	Children to be confident at the basic skills and understanding in number Children to have a deep understanding of numbers up to 10 Children to be confident at the basic skills and knowledge of shape, space and measure Children to know and apply the key concepts of maths in EYFS Children to be confident to describe their ideas verbally Children to be able to solve simple problems involving number and geometry Children to answer basic EYFS fluency questions rapidly and automatically by the end of the year Children to begin to demonstrate simple problem solving skills and show resilience in finding other solutions	Number ELG Children at the expected level of development will: - Have a deep understanding of number to 10, including the composition of each number; - Subitise (recognise quantities without counting) up to 5; - 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. Numerical Patterns ELG Children at the expected level of development will: - Verbally count beyond 20, recognising the pattern of the counting system; - Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity; - Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.	Fluency Recall counting in order from 0-10 Verbally count to 20 Begin to use concrete resources to find amounts and build numbers up to 10 Begin to make links between counting, adding and subtracting Be confident at number sense- begin to explain and show value of numbers through concrete resources, drawings and digits Know how to build numbers in different ways – how many ways can you make 4? 5? 6? Etc. Begin to notice number sentence symbols and name them Recognise and subitise amounts up to 5 Identify and match different concrete and pictorial representations to amounts Use concrete resources to show thinking of number bonds to 10 and doubles facts. Reasoning Verbally identify similarities and differences between amounts or objects Recognise some amounts are still the same but in different orientations Identify and verbalise an example or non-example Begin to identify the odd one out or mistakes Use concrete representations to explain their thinking verbally Children practice using the sentence stem “I know that… because….” Verbally Be confident to draw and use a part-part whole model	Number Place value • Know that amounts can be counted in different arrangements – spots, dice, dominoes, a line, a group in small and different sizes • Know that the last number when counting gives you the total so far • Know that the number does not change when things are re-arranged • Know that when adding one more, the amount increases by 1 • Know that when subtracting one less, the amount decreases by 1 • Know when counting the numbers go into a specific order and this order is repeated • Know that the number system counts 0-9 then repeats in the next 10 Addition and subtraction • Know that the equal means the same amount in each group • Know that a number can be partitioned into more than one part (up to 10) • Know that when numbers are added together the total will be a bigger number than the number started with • Know that when numbers are subtracted a smaller amount is taken away from a larger amount • When subtraction whole numbers, the number will be smaller than the number started with • Know that single digit numbers are made up of ones- eg there are 5 ones in the number

	Children to develop maths skills indoor and outdoors Children to apply their maths skills in other EYFSP areas and through independent child initiated play Children to make links between ideas and patterns, noticing links and explaining verbally Children to not be afraid of not making mistakes and 'having a go'		Use a tens frame to build number sentences independently Use some bar model representations with concrete or pictorial resources <u>Problem solving</u> Follow and create patterns, notice changes in patterns Find more than one way to a simple solution through guided activities and child initiated play Children to build own rules and ideas to games and own mathematical problems Answer simple "what if" questions and give simple predictions during games and play. Children to work with peers when faced with a problem, and persist when a challenge occurs. Children to create their own mathematical problems for others to solve	5. Or there are 2 ones and 3 ones in the number 5. • Know that some numbers are bigger and some numbers are smaller • Know which number is bigger or smaller by the image/drawing/concrete resource shown • Know which number is bigger or smaller by the value of the digit • Know what number pairs make up a number. • Know that numbers can be represented in different ways: *drawings, counters, numicon, part whole model, place value counters, number tracks, cubes, measure and money.* <u>Doubling and halving</u> • Know that doubling is when two equal amounts are added to find a total • Know that sharing is when amounts are distributed equally into groups • Know that halving is when an amount is shared into 2 equal groups <u>Measure</u> • Know simple attributes to length- a stick is long, the man is tall • Know there are words that describe length- big, tall long, short, little etc • Know that some objects are longer or shorter than each other • Know that some objects are heavier, lights, fuller, emptier etc • Know that some quantities might have too much or not enough • Know that estimating is having a guess or predicting: "how much can fit in here?" • Know that measurement can be related to units or numbers • Know that non unit objects can be used to measure- sticks, loose parts, cubes and children to count up to find the measurement • Know there are no gaps between the units of measurements

				• Know that there are instruments that help us measure: rulers, metre sticks, stop watches, balancing scales, measuring jugs etc. • Know that sometimes come before and sometimes come after • Know that there is an order of the day, week, month and year <u>Pattern</u> • Know that a pattern repeats itself • Know that a pattern can be copied • Know that they can create their own pattern- a big bear, a small bear, a big bear or stamp, clap, stamp etc. • Know that a pattern has a "unit of repeat" and children to spot this • Know that sometimes patterns stop mid unit • Know that a pattern doesn't always go in a straight line- it can go in a circle or square <u>Shape and Space</u> • Know that there is space around us • Know that objects can be turned or moved around to fit into a set place- shape sorters, puzzles and shape boards • Know that different places have position or direction- in, on, under, behind, next to • Know that there are similarities between shapes and real life objects- representing a ball as a circle, or using curved block as an elephant trunk • Know that shapes have different properties – sides, corners, faces, curvedness, equal sides • Know that shapes have properties and can be sorted into their descriptions • Know that shapes can be placed into different orientations • Know that shapes can be represented in different sizes
Y1	Children to be confident at the basic skills and understanding in number	<u>Number</u> Read and write numbers within 100	<u>Fluency</u> Recall of known facts Confidently use facts to make links to other areas of Maths curriculum	<u>Number</u> <u>Place Value</u> • Know that the number system counts 0-9 then repeats in the next 10 • Know that in 1 ten there are 10 ones

	Children to be confident at the basic skills and knowledge of shape, space and measure Children to know and apply the key concepts of maths in year one Children to be confident to describe their ideas verbally and begin to write ideas these down Children to be able to solve simple problems involving number and geometry Children to answer basic fluency questions rapidly and automatically Children to begin to demonstrate simple problem solving skills and show resilience in finding other solutions Children to develop maths skills indoor and outdoors Children to apply their maths skills in other curriculum subjects- such as Science.	Compose numbers up to 10 into two parts, partitioning with number facts Have a secure understanding of place value of numbers within 100. Fluid of addition and subtraction facts up to 10 Fluid recall of number bonds to and within 20 Fluid recall of doubles and halves up to 20 Recognise odd and even numbers Be able to use concrete resources and mental strategies to add and subtract one and two digit numbers up to 20 Count in 2, 5, 10 forwards Solve simple problems with multiplication and division, using concrete and pictorial representatives Write numbers in the correct formation and orientation Compare numbers within 20 using < > and = Read equations with + - and = in real life contexts <u>Geometry</u> Know the names of common 2D and 3D shapes	Use concrete resources to solve simple problems once modelled Notice when number sentences are set out in different orders (eg missing number, = at the beginning of the sentence). <u>Reasoning</u> Use simple mathematical vocabulary to explain ideas Describe methods and ideas verbally and begin to write these down Break down steps into manageable chunks to explain method or ideas Find simple examples and non-examples Use manipulatives to explain thinking and ideas Use simple jottings and drawings to explain ideas Use simple sentence stems to explain thinking or answers Identify corrections or errors- spotting mistakes to a pattern or rule (e.g odd one out/whats my rule) Begin to write a simple reasoning answer using sentence stems and key vocabulary with support <u>Problem solving</u> Know that there is more than one way to solve a problem Find more than one way to solve a problem- how many strategies can they use? Bar, cubes, drawing, Numicon etc Notice and describe simple patterns Begin to explore simple trial and improvement problems Begin to visualize problems by testing out ideas by using manipulatives/concrete resources Say what they can see when they notice a pattern or solve a problem	• Know that numbers can be partitioned in different way • Counting forwards numbers will increase • Counting backwards numbers will decrease • Know that zero has a value and the value is nothing • Equals doesn't mean the answer, it means an equal amount on both sides of the number sentence • 2 digit numbers are built up of tens and ones • Numbers can be partitioned in more than one way <u>Addition and Subtraction</u> • Number bonds to 10 are 2 single digit numbers that always equal 10 • Number bonds can be used to add up to 20 and 100 • Know that also number bonds are pairs of numbers to total amounts within 10 • Know that counting on is putting the biggest number in their head, and count forwards on fingers • Know that counting back is putting the biggest number in their head and count backwards • Know that numbers can be represented in different ways: *drawings, base 10, numicon, part whole model, bar model, place value counters, number line.* <u>Multiplication and division</u> • Know that counting in 10s, the tens value increases by the value of 10 and the unit digit will not change –eg 10, 20, 30 • Know that step counting in 2s you miss out one number each time- can be counted in 2, 4, 6, 8 or 1, 3, 5, 7, 9 <u>Measurement</u> • Know that vocabulary mass, weight, volume and capacity used interchangeably • Know that non-standard units are used for measuring • Know that rulers and measuring equipment have standard units of measurement- cm, m, ml, l, g and kg

		Compose 2D and 3D shapes from smaller shapes in particular orientations Describe positions in turns practically Can measure in length, weight, height and capacity Can measure in money and time Children know o'clock and half past Children know hands on the clock and can them correctly Know and order the days of the week		• Know and use rulers have numbers on the side and the ruler starts 0cm and increases by 1cm each time • Know how to use measuring scales, balancing scales and measuring jugs • Know that o'clock has 12 numbers around it from 1-12 • Know that on the clock the hands represent the time • Know that o'clock the minute hand is at the 12 • Know that half past is when the minute hand is at the 6 • Know that the hour hand is the smaller hand • Know the names of the coins and eg- that there are 10 pennies in a 10p and there are 5x10p in a 50p • Know there are 7 days in a week, there are 28-31 days in a month and there are 12 months in a year <u>Shape</u> • Know that 2D and 3D shapes can be represented in different orientations and sizes • Know that rectangles, triangles, cuboids and pyramids are not always similar to each other • Know that there are 4 quarter turns in 1 whole turn
Y2	Children to be confident at the key key stage one skills and understanding in number Children to be confident at the key key stage one skills and knowledge of shape, space and measure Children to know and apply the key concepts of maths in year one and two Children to be confident to explain their ideas verbally and	<u>Number</u> Find place value of numbers up to 100 Recognise the place value of each digit- compose and decompose 2 digit numbers Find more than one way to partition 2 digit numbers Reason about the location of any linear 2 digit number including next multiple of 10	<u>Fluency</u> Recall counting in 2, 3, 5, 10 fluently and automatic recall of known facts Confident understanding of related or derived facts to solve other problems Use concrete resources independently to solve problems Rapid recall of number bonds, doubles and halves to link to related facts Solve number sentences independently with the 4 operations, solving missing numbers and using different orders (eg = sign at the beginning of the sentence) Use jottings to solve fluency questions	<u>Number</u> • Zero is a digit and is a place holder when writing numbers • Zero has a value of nothing • Know that 1 ten is equal to 10 ones • Know that 1 hundred is equal to 10 tens and 100 ones. • Know that 2 digit numbers are numbers bigger than 9 • Know that rounding numbers finds the nearest 10. Numbers ending in 0-4, round down to the nearest 10, numbers ending in 5-9 round up to the nearest 10.

	write their ideas these down confidently Children to be able to solve 2 step problems involving number and geometry Children to answer ks1 fluency questions rapidly and automatically Children know and use problem solving skills and show resilience in finding other solutions Children to develop maths skills indoor and outdoors Children to apply their maths skills in other curriculum subjects- such as Science.	Use concrete resources and pictorial representations to demonstrate understanding Round 2 digit numbers to the nearest 10 Count in 2, 3, 5, 10 forwards and backwards Know doubles and halves up to 20 Secure addition and subtraction facts within 10, through continued practise Use number bonds to 20 to derive facts and reason with number bonds up to 100 Recognise repeated addition in contexts solving multiplication problems in 2, 5, 10s Solve problems with multiplication and division, making simple deductions outside known facts Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations Add and subtract 2 digit numbers with bridging 10 Recognise subtraction structure as "difference" through how many more than Solve addition and subtract facts within 100 including adding 1s and adding 10s	Know and use a range of strategies to solve number problems Make links and notice patterns between known facts and other knowledge in number Use efficient methods to solve problems <u>Reasoning</u> Use number facts to reason and explain ideas for number problems Describe methods clearly and confidently in sentences written Explain how problems have been solved with some evidence to back up ideas Find examples and non-examples to problems presented Use manipulatives and pictorial representations (base 10, bar model) to explain ideas with reasons Use sentence stems with reasons to draw together thinking Identify corrections or errors- spotting mistakes and explain why <u>Problem Solving</u> Find more than one way to answer an open ended problem Identify and explain patterns noticed Use trial and error to explore more than one method to solving a problem Begin to visualize ways to solve a problem; drawing out ideas or using manipulatives to support this Begin to work systematically, finding a system that explores more than one idea or strategy 'how do you know that you have got them all?' Adult to scaffold resources to model and support this Begin to ask "what if?" when looking at the structure of a problem	• Know that <> the larger number or amount sits next to the opening of the arrow to represent the greater amount in the number sentence <u>Fractions</u> • Fractions are parts of a whole • Number bonds are pairs of numbers to total an amount • A half is represented in 2 equal parts • A quarter is represented in 4 equal parts <u>Addition and Subtraction</u> • Double is two amounts that equal the same, added together • Know that addition is different amounts combined together to make a total • Know that when adding two numbers greater than 10, bridging can be used (2 digit numbers) • Know that numbers and number sentences can be represented in different ways: *drawings, base 10, numicon, part whole model, bar model, place value counters, number line.* • Know that subtraction is when a smaller amount is taken away from a larger amount • Know that addition is the inverse of subtraction (visa/versa) • Know that commutative law means in addition number sentences can be "moved around" a + b = b + a <u>Multiplication and division</u> • Know that multiplication can be repeated addition of equal groups • Know that division needs to be shared into equal groups • Know that some number sentences can be represented by an equals at the beginning or middle of the number sentence • Know that when step counting in 5s the numbers will always end in the value of a 5 or a 0. • Know that counting in 10s, the tens value increases by the value of 10 and the unit digit will not change –eg 13, 23, 33

		Know inverse relationship for the 4 operations and commutative rule of addition Find ½, ¼ 2/4 and ¾ of an object, number or shape Know ½ is the same value as 2/4 <u>Geometry</u> Read scales in 2, 5, 10 in practical contexts Use precise language to describe common 2D and 3D shapes including faces and lines of symmetry, similarities and differences Understand turn in a rotation of clockwise and anti-clockwise Measure and compare length, weight, capacity and temperature using <> Solve simple money problems up to £1 Construct and interpret simple pictograms and tally charts Can ask and answer simple questions by totaling and comparing data Read the time to the nearest 15 minutes		• Counting in 10s doesn't always have to start at the number 10, it means adding 10 or taking away 10 each time • Know that multiplication is the inverse of division (visa/versa) <u>Measurement</u> • Know that centimeters is abbreviated into cm (and other related units of measurement). • Know and use doubles and halves to compare measurements- "twice and high- measure 2 times the amount" • Know that a clock is broken down into quarters and the names link to fractions • Know that past on the clock- means past the hour • Know that 'to' on the clock- means to the next hour • Know that there are 100p in a £1 and other related place value facts • Know how to represent the symbols of £ and p • Know that there are 100cm in 1m and this is different to g and ml • Know that there are 1000ml in 1 and 1000g in 1kg • Know there are 60 minutes in an hour and 24 hours in a day <u>Shape and space</u> • Know that 3D shapes have 2D faces • Know that there are similarities between 2D and 3D shapes, as well as comparing between different 3D shapes • Know that a quarter turn can be related to a right angle • Know that a right angle is 90 degrees • Know that a turn is also called a rotation • Know that a vertical line of symmetry reflects the same representation

Y3	Children to use and apply the skills taught from key stage one Children to be confident at beginning of stage two skills and understanding in number Children to know and apply the key concepts of maths in year three and revisit key concepts of KS1. Children to be confident at the beginning key stage two skills and knowledge of shape, space and measure Children to be confident to explain their ideas verbally and write their ideas with a clear outcome Children to begin to convince and justify their ideas when reasoning Children to be able to solve 2 step problems involving number and geometry Children to answer Year 3 fluency questions rapidly and automatically, using and applying KS1 number facts Children know and use problem solving skills and show resilience in finding other solutions Children to develop maths skills indoor and outdoors	<u>Number</u> Count in 3, 4, 8, 50 and 100 Recognise the place value of 3 digit numbers using standard and non-standard partitioning Find 10 and 100 more and less than a number 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 3 digit multiples of 10. Order numbers up to 1000 Reason about the location of any 3 digit number in the linear number system, including identifying the previous and next multiple of 100 and 10. Secure fluency in addition and subtraction facts that bridge 10, through continued practice. Use number bonds to calculate to 100 Add and subtract up to 3 digit numbers mentally Add and subtract 3 digit numbers using column method Estimate amounts and use inverse to check answers Recall multiplication and division facts in 2, 5, 10, 3, 4, 8 tables. Use formal written method for multiplication and division for 2 digit numbers Divide 100 into 2, 4, 5, and 10 equal parts Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure.	<u>Fluency</u> Use known recall facts to support with linked facts (counting in 2, 5, 10s to help us with 3, 4, 8 and 100s) Practise and use knowledge of related facts to solve more complex calculations Use efficient methods to solve problems with larger numbers Rapid recall of mental calculations Rapid and automatic recall of learned times table facts Show understanding of number through using and applying different strategies from concrete, pictorial and abstract strategies Make links and explain patterns found in number <u>Reasoning</u> Children are confident in their chain of reasoning Explain methods clearly in full sentences to convey their thinking Explain how problems have been solved with clear evidence to back up ideas Find examples and non-examples to problems presented and explain how they know this Convince a partner of their reasoning and Convince the teacher of their reasoning with some evidence Use pictorial representations independently to justify ideas and thinking (bar model, jottings, place value counters etc) Use sentence stems as a building block to build deeper explanations Identify corrections in calculations and write/verbalise a convincing argument to back up their ideas Ideas and thinking are more coherent and complete <u>Problem Solving</u> Use a range of strategies taught from KS1 to solve problems in Year 3 Children are resilient when solving trial and error problems, seeking more than one strategy to solve a problem Find and explain many possible answers	<u>Number</u> <u>Place Value</u> • Know that an integer is a number that is whole • Know that counting forwards and backwards doesn't always have to start at 0. • Know that 1000 is 1000 ones and 100 tens and 10 one hundreds • Know that 3 digit numbers mean numbers bigger than 99. • Know that a 3 digit number can be partitioned into 100s, 10s and 1s • Know that estimation is a educated guess using prior knowledge and mathematical information • Know that rounding numbers finds the nearest 10. • Know that when rounding 3 digit numbers to the nearest 10, place value knowledge of 100s, 10s and 1s to be used • Know that roman numerals are historical context of number <u>Fractions</u> • Know that fractions can be represented as numbers, amounts, shapes, measures and orientations Know that fraction is part of a whole and these parts are represented by a fraction • Know that fractions are made up of numerators and denominators • Know that some fractions are bigger and small than others, and can be ordered • Know that some fractions are equivalent to one another • Know that tenths is arise from dividing an object into 10 equal parts, dividing 1 digit numbers by 10 • Know that fractions go beyond the 0-1 interval <u>Addition and Subtraction</u> • Know that when adding two numbers greater than 10, bridging can be used (3 digit numbers) • Know that digits can be exchanged from 1 ten to 10 ones when bridging

	Children to apply their maths skills in other curriculum subjects- such as Science.	Understand and use the commutative property of addition. Apply known facts of multiplication and division to solve problems Count in 10ths Compare and order fractions Interpret and write proper fractions up to 1 Find unit fractions of quantities using known facts Add and subtract fractions with common denominator Recognise equivalent fractions <u>Geometry</u> Measure and compare length, weight, mass and volume Add and subtract with length, weight, mass and volume Add and subtract amounts of money and give change Fluent in telling the time- 12hr and 24 hr, telling the time to the minute Read and write roman numerals Draw 2D and make 3D shapes and recognize them in different orientations Draw polygons by joining marked points, and identify parallel and perpendicular sides Recognize and count right angles in a half turn, three quarter and whole turn Recognize horizontal, vertical and perpendicular lines Read and interpret data using pictograms, bar charts and tables	Visualise problems through drawings and concrete resources- key question "How do you know you have got all the answers?" Use a methodical and systematic way to solve open ended problem Identify and explain patterns noticed and to give an additional example Be confident to ask "what if?" when looking at the structure of a problem Begin to see similarities and differences between the structure of problems Begin to generalise and give rules for strategies the have used Begin to use strategies such as working backwards to solve a problem Begin to use a system for solving a problem "I started with this strategy because"	<u>Multiplication and Division</u> • Know through doubling children can solve 2, 4, 8 times table • Know through related facts children and solve 5, 10 and 50 and 100 times tables • Know that commutative law can be used for multiplication and division eg 4 x 5 x 12= 5 x 4 x 12 and this links to 20 x 12 = 240 • Know that partitioning knowledge/value of number will support in multiplying and dividing by 2 digit numbers <u>Measurement</u> • Know that the perimeter is the distance/length around a shape • Know that this can be calculated by adding up the sides to solve the total • Know that measurements can be compared in equivalent amounts 1kg and 200g or 5kg = 500g • Know that multiplication can be used to support scaling measurements such as- "a measure" is twice as long or 5 times as high. • Know that pounds and pence can be represented as mixed units • Know that there is an analogue and a digit clock representation- up to 12 hours only <u>Shape</u> • Know that a horizontal line runs across landscape • Know that a vertical line runs across portrait • Know that parallel lines run adjacent to each other at the same angle • Know that perpendicular lines cross at a 90 degree angle • Know that there are 4 right angles in a whole rotation and other related facts • Know that shapes can be represented as regular and irregular • Know there are different types of triangles- isosceles, right angle and scalene • Know that a quadrilateral- a four sided shape • Know that a polygon is a shape with 5 more sides

				• Know that graphs and charts can count up in scales • Know that there is an x axis and a y axis on a graph
Y4	Children to use and apply the skills taught from key stage one Children to be confident at beginning of stage two skills and understanding in number Children to know and apply the key concepts of maths in year three and four Children to know and apply the key concepts of maths in year three and revisit key concepts from year three. Children to be confident at the beginning key stage two skills and knowledge of shape, space and measure Children to be confident to explain their ideas verbally and write their ideas with a clear and systematic outcome Children to confidently convince and justify their ideas when reasoning Children to be able to solve 2 step problems involving number and geometry Children to answer Year 4 fluency questions rapidly and automatically, using and applying KS1 number facts	<u>Number</u> count in multiples of 6, 7, 9, 25 and 1,000 find 1,000 more or less than a given number count backwards through 0 to include negative numbers recognise the place value of each digit in a four-digit number order and compare numbers beyond 1,000 identify, represent and estimate numbers using different representations round any number to the nearest 10, 100 or 1,000 read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of 0 and place value Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100 add and subtract numbers with up to 4 digits using the formal written methods estimate and use inverse operations to check answers to a calculation Recall multiplication and division facts for multiplication tables up to 12 × 12 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.	<u>Fluency</u> Use known recall facts to support with linked facts (counting in 3s, 50s to help us with 6,9s and 25s) Practise and use knowledge of related facts to solve more complex calculations Use efficient mental methods to solve problems with larger numbers Use formal written methods to solve complex number problems Rapid recall of mental calculations with numbers up to 4 digits Rapid and automatic recall of learned times table facts up to 12 x 12 Show understanding of number through using and applying different strategies from concrete, pictorial and abstract strategies Make links and explain patterns found in number in detail using evidence and examples to back up ideas <u>Reasoning</u> Children are confident in their chain of reasoning Explain methods clearly in full sentences to convey their thinking Explain and justify how problems have been solved with clear evidence to back up ideas Children to make sensible estimate to problems using logic and known facts to make links Find examples and non-examples to problems presented and explain how they know this Justify thinking a partner of their reasoning and Justify the teacher of their reasoning with clear evidence with examples Use pictorial representations independently to justify ideas and thinking (bar model, jottings, place value counters etc) Use sentence stems confidently and independently to develop their argument or solution	<u>Number</u> <u>Place Value</u> • Know that 1000 is 1000 ones and 100 tens and 10 one hundreds • Know that 4 digit numbers mean numbers bigger than 999. • Know that a 4 digit number can be partitioned into 1000, 100, 10s and 1s. • Know that a 4 digit number can be partitioned in more than one way • Know that numbers can be represented in different ways and the children and explain these methods: *bar model, part whole, missing number, jottings, place value counters and chart, formal methods* • Know that when rounding 4 digit numbers to the nearest 10 and 100, place value knowledge of 100s, 10s and 1s to be used • Know that roman numerals are historical context of number • Know that you can count back from 0 into negative numbers, and the bigger the negative number, the smaller the amount/value <u>Addition and Subtraction</u> • Know which methods to use when adding complex addition and subtraction questions (up to and within 4 digits). <u>Multiplication and Division</u> • Know through doubling children can solve 3, 6, 9 times tables • Know through fraction (quarters) knowledge 25 times table • Know that distributive law 39 x 7 = 30 x 7 + 9 x 7 and associative law (2x3) x 4 = 2 x (3x4)). They combine their knowledge of number facts and rules or arithmetic to solve mental calculations, for example, 2 x 5 x 6 = 10 x 6 = 60.

	Children know and use problem solving skills and show resilience in finding other solutions Children to develop maths skills indoor and outdoors Children to apply their maths skills in other curriculum subjects- such as Science (graphs, time, tally charts minutes, seconds, decimals)	use place value, known and derived facts to multiply and divide mentally Multiply and divide numbers by 10 and 100 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 solve problems involving multiplying and adding, including using the distributive law, including remainders Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. recognise and show, using diagrams, families of common equivalent fractions count up and down in hundredths solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities add and subtract proper and improper fractions with the same denominator recognise and write decimal equivalents of any number of tenths or hundreds recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ find the effect of dividing a one- or two-digit number by 10 and 100 Reason about the location of mixed numbers on a linear number system Convert mixed numbers into improper fractions (visa versa)	Identify corrections in calculations and write a convincing and justifying argument to back up their ideas Ideas and thinking are coherent and complete. "Therefore… this leads to…" <u>Problem Solving</u> Use a range of strategies taught from Year 3 (prior knowledge) to apply to problems in Year 4 Children are resilient when solving trial and error problems, seeking many possibilities to solve a problem Children to draw on known strategies confidently Visualise problems through drawings and concrete resources- key question "How do you know you have got all the answers?" Use a methodical and systematic way to solve open ended problem Identify and explain patterns noticed and to give a more than one example to prove their argument Be confident to ask "what if?" when looking at the structure of a problem Notice similarities and comparisons between the structure of problems- Begin to generalise and give rules for strategies the have used, linking simple rule to concept Be able to explain this verbally to a partner/peer Begin to use strategies such as working backwards to solve a problem Begin to use a system for solving a problem "I started with this strategy because"	<u>Fractions and Decimals</u> • Know that fractions and decimals are linked • Know that there are common equivalent fractions • Know that when fractions get bigger, the denominator digit is a smaller number (less parts to a whole amount) • Know that when fractions get smaller the denominator digit is a bigger number (more parts to a whole amount) • Know that decimals are parts of a whole number • Know that the decimal point does not move • Know that tenths and hundredths link to decimal place value • Know that 10 tenths are in 1 whole • Know that there are 100 hundredths and 10 tenths in 1 whole • Know that fractions can be simplified using multiplication facts 2/10 = 1/5 <u>Measurement</u> • Know that the decimal point can represent pounds and pence in money • Know that multiplication facts can be used to convert larger to smaller units • Know that the area of a shape is the 2D space that is covers- measured in squares and then cm squared • Know that arrays can be used to solve area of shape • Know that digital clock is read in 24 hours • <u>Shape</u> • Know that triangles and quadrilaterals can be classified in different ways • Know that acute angles are less than 90 degrees, obtuse angles are more than 90 degrees • Know that a protractor is measured in degrees from a half protractor- 180 degrees • Know that angles can be ordered by size

		round decimals with 1 decimal place to the nearest whole number compare numbers with the same number of decimal places up to 2 decimal places <u>Geometry</u> convert between different units of measure measure and calculate the perimeter of a rectilinear figure in centimetres and metres find the area of rectilinear shapes by counting squares estimate, compare and calculate different measures, including money in pounds and pence read, write and convert time between analogue and digital 12- and 24-hour clocks 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 2 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 describe positions on a 2-D grid as coordinates in the first quadrant Find the perimeter of regular and irregular polyons describe movements between positions as translations		• Know that a line of symmetry reflects the same representation and this can be displayed in different orientations • Know that a co-ordinate is a set of values that show an exact position • Know where left, right is confidently • Know that shapes can be plotted on a quadrant using co-ordinates • Know that graphs and charts can count up in scales • Know that there is an x axis and a y axis on a graph • Know that graphs can represent change over time

		Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant. 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		

Y5	Children to use and apply the skills taught from key stage two Children to be confident at Lower KS2 and year 5 skills and understanding in number Children to know and apply the key concepts of maths in year 5 Children to know and apply the key concepts of maths in year 5 and revisit key concepts from year 4. Children to be confident at the the year 5 skills and knowledge of shape, space and measure Children to be confident to justify their ideas verbally and write their ideas with a clear outcome Children to confidently justify and prove their ideas when reasoning Children to begin to generalize and prove their ideas and evidence with a structure Children to be able to solve 2 step problems involving number and geometry Children to answer Year 5 fluency questions rapidly and automatically, using and applying KS2 number facts Children know and use problem solving skills and show resilience in finding other solutions	<u>Number</u> Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit 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. Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth). Count forwards or backwards in steps of powers of 10 Interpret negative numbers in context, count forwards and backwards Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 Read Roman numerals to 1,000 (M) and recognise years written in Roman numeral Add and subtract whole numbers with more than 4 digits Identify multiples and factors Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers Multiply and divide numbers up to 4 digits Secure fluency of table facts to multiply and divide 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. Multiply and divide decimals by 10, 100 and 1,000	<u>Fluency</u> Can recall all 12x12 timetables automatically and use these to solve division facts Confident recall of many number facts mentally Use jottings effectively to solve more complex number problems Confident and secure in the place value of a number and value of each digit Know and use the formal methods efficiently. Begin to know when a mental strategy is more effective. Recognise and use varied fluency- solve number problems with missing number, different ordered number sentences and more than one missing number problems Make links and explain patterns found in number <u>Reasoning</u> Children are clear in their reasoning Children can draw conclusions on their reasoning, forming an argument with a well thought out process/method Arguments and reasoning is backed up with more than one piece of evidence Children's reasoning makes links to other areas of the maths concepts Children use some generalisations and it is based on underlying structure or rule Can justify their arguments to a partner, teacher and start present their ideas with a wider group Children can draw on a range of strategies from KS1 and KS2 curriculum taught Children can make estimations and predictions Use pictorial representations independently to justify ideas and show thinking in multiple ways (bar model, jottings, place value counters etc) Use examples and non-examples to justify their argument <u>Problem Solving</u> Can use trial and improvement to seek out starting points to solve problems Find multiply ways or multiple possibilities to answer problems- asking the question "have I got all of the answers?"	<u>Number</u> <u>Place Value</u> • Know how many digits are in numbers up to 1 million. • Know how place value links into each number and know the value of each digit • Know that Roman numerals can be used in context for years • Use the knowledge of place value to apply to the context of Roman numerals <u>Addition and Subtraction</u> • Know that when rounding 6 digit numbers to the nearest 10 and 100, place value knowledge of 100s, 10s and 1s to be used • Know that rounding reduces the digits in the number while trying to keep its value similar. • Know which methods to use when adding complex addition and subtraction questions (more than 4 digits) • Know that number facts (adding 10, bridging 10, number bonds, adding 9/11) can be used to add large mental calculations fluently <u>Multiplication and division</u> • Understand that the power of 10 is 10 multiplied by itself a certain number of times: 10 to the power of 3 would be 10x 10 x 10 • Know that a multiple is the product of one number multiplied by another- so multiples of 2 are 2,4, 6, 8 • Know that a factor is number that divides into another number exactly and without leaving a remainder- such as 12 has 6 factors: 1, 2, 3, 4, 6, 12 • Know that a prime number is divisible by itself and one only- 13, 17, 19 • All prime numbers are odd numbers • Know that Square numbers are formed by multiplying a number by itself. All square numbers have an odd number of factors- such as 1, 5, and 25. • Know that cube numbers are formed by multiplying a number by itself and by itself again – 2 x 2 x 2 = 8

	Children to develop maths skills indoor and outdoors Children to apply their maths skills in other curriculum subjects- such as Science.	Recognise and use square numbers and cube numbers Find factors and multiples of whole numbers including common multiples and factor pairs compare and order fractions whose denominators are all multiples of the same number identify, name and write equivalent fractions of a given fraction Find non-unit fractions of quantities recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\ \frac{1}{5}$] add and subtract fractions with the same denominator multiply proper fractions and mixed numbers by whole numbers read and write decimal numbers as fractions recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers Reason about the location of any number with up to 2 decimals places in the linear number system round decimals with 2 decimal places to the nearest whole number and to 1 decimal place read, write, order and compare numbers with up to 3 decimal places Recall decimal fractions equivalents	Recognise efficient methods of working Children to follow an ordered way of working out Use models and images (including concrete, pictorial and abstract strategies) to support methods and working out Children can use the "working backwards" strategy to solve problems, using inverse to support their methods Explain similarities and differences between the structure of problems- generalizing with some support Make links between patterns identified and the KS2 maths curriculum and be able to justify and explain their theory Generalise and give rules for strategies the have used, linking simple rule to concept and explaining their thinking on this Explain this verbally and confidently to a partner/peer Use strategies such as working backwards to solve a problem Use a system for solving a problem "I started with this strategy because"	• Know the equals sign means a number sentence or problem is balanced on either side of the sign <u>Fractions, decimals and percentages</u> • Know that some fractions with different denominators can have equivalent value • Know a proper fraction is a fraction with the value less than 1 whole, with the numerator worth less than the denominator • Know that an improper fraction is a fraction where the numerator is larger than the denominator • Know that a mixed fraction a fraction including whole numbers and proper fractions • Know that improper fractions can be converted into mixed fractions • understand that per cent relates to 'number of parts per 100' • Know that decimals are parts of 10 • Know that fractions are parts of a whole • Know that fractions, decimals and percentages link • Know that 3 decimals places has the value of thousandths • Children to connect their multiplication and division knowledge to fractions • Know that number bonds up to 100, can be apply to decimal adding up to 1- 0.83 + 0.17= 1 • Know that 50% is equal to 50 parts out of 100 (and other related facts) • Know that 0.71 is equal to 71 parts out of 100. • Know that to multiply simple fractions the numerators are multiplied, and then the denominators are multiplied. • Know that fractions can be simplified (built on year 4 knowledge) <u>Measurement</u> • Know that different metric units can be converted

		recognise the per cent symbol (%) and write percentages as a fraction with denominator 100, and as a decimal fraction <u>Geometry</u> Convert between different units of metric measure Understand and use approximate equivalences between metric units and imperial units Measure and calculate the perimeter in centimetres and metres Calculate and compare the area including using cm^2/m^2 Estimate volume using 1 cm^3 blocks to build cuboids Solve problems involving converting between units of time Identify 3-D shapes, including cubes and other cuboids, from 2-D representations Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles Draw given angles, and measure them in degrees Identify, describe and represent the position of a shape following a reflection or translation Solve comparison, sum and difference problems using information presented in a line graph Complete, read and interpret information in tables, including timetables		• Know that composite shapes are when a shape can be divided into 2 or more regular shapes • Know that perimeter problems need to use the rule that each 2 sides are the same value • Know that area can be calculated by multiplying 2 known sides together • Know that money can be calculated with the 4 operations and a decimal point (previous learning) <u>Shape</u> • Know that 3D shapes can be draw in 2D representations • Know that reflect angles are more and 180 degrees but smaller than 360 • Know that 1 turn is 360 degrees • Know that half turn is 180 degrees and on a straight line • Know that protractor helps us to draw angles • Know that there are regular and irregular polygons • Know that some angle facts can help us to solve missing angle/number problems • Know that translations of shapes is when shapes are moved or rearranged in different orientations • Know that reflection is a shape changes position across a reflection line • Know that reflection should be in lines that are parallel to the axes • Know that a shape can be rotated and it is still the same shape • Know that timetables identify start and end times across distances

Y6	Children to use and apply the skills taught from key stage two Children to be confident at all of the stage two skills and understanding in number Children to know and apply the key concepts of maths in key stage two Children to know and apply the key concepts of maths in year six and revisit key concepts from year five. Children to be confident at the the key stage two skills and knowledge of shape, space and measure Children to be confident to explain their ideas verbally and write their ideas with a clear and systematic outcome Children to confidently convince and justify their ideas when reasoning Children to generalize and prove their ideas and evidence with a structure Children to be able to solve 2 step problems involving number and geometry Children to answer Year 6 fluency questions rapidly and automatically, using and applying KS2 number facts Children know and use problem solving skills and show	<u>Number</u> Read, write and compare numbers up to 10 million Recognise place value of numbers up to 10 million Round whole numbers with a degree of accuracy Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system 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. Use negative numbers in context Know place value of decimals Solve problems with addition and subtraction Perform mental calculations with mixed operations Solve multi step problems Use estimations to check answers in context and with accuracy Understand that 2 numbers can be related additively or multiplicatively, and quantify	<u>Fluency</u> Can recall all 12x12 timetables automatically and use these to solve division facts Rapid recall of number facts mentally Use jottings efficiently and independently to solve more complex number problems Recall known facts for decimals, percentages and fractions Confident and secure in the place value of a number and value of each digit Know and use the formal methods efficiently, knowing when a mental strategy is more effective. Recognise and use varied fluency- solve number problems with missing number, different ordered number sentences and more than one missing number problems Make confident links and explain patterns found in number <u>Reasoning</u> Children are clear, systematic in their reasoning Children can draw conclusions on their reasoning, forming a clear and developed argument Arguments and reasoning is water tight and backed up with evidence Children's reasoning makes links to other areas of the maths curriculum/concepts Children use generalisations and it is based on underlying structure or rule Can prove their arguments to a partner, teacher and present their argument to the class Children can draw on a range of strategies from KS1 and KS2 curriculum taught Children can identify the rule and use this to make predictions and estimations clearly Use pictorial representations independently to prove ideas and thinking in multiple ways (bar model, jottings, place value counters etc) Use examples and non-examples to prove their argument <u>Problem Solving</u> Can use trial and improvement to seek out effective strategies to solve problems	<u>Number</u> <u>Place Value</u> • Know the value of each digit up to 10 million and can draw this out using many strategies/pictorial representations • Know that you can count back from 0 into negative numbers, and the bigger the negative number, the smaller the amount/value • Know that round can be to the nearest 10, 20, 50 etc <u>Addition and subtraction, multiplication and division</u> • Know and apply the KS2 strategies taught previously (see above) • Know the rule of BIDMAS and that Brackets are always solved first in a calculation • Know that common factors can be linked to solve equivalent fractions • Know that a multiple is the product of one number multiplied by another- so multiples of 2 are 2,4, 6, 8 • Know that a factor is number that divides into another number exactly and without leaving a remainder- such as 12 has 6 factors: 1, 2, 3, 4, 6, 12 • All prime numbers are odd numbers • Know that Square numbers are formed by multiplying a number by itself. All square numbers have an odd number of factors- such as 1, 5, and 25. • Know that cube numbers are formed by multiplying a number by itself and by itself again – 2 x 2 x 2 = 8 <u>Fractions, decimals and percentages</u> • To solve addition and subtraction with fractions, know that a common denominator needs to be simplified first • Start with fraction where the denominator of one fraction is a multiple of another and then develop to complex problems • Know and use images to represent fractions (from previously strategies taught) This follow previous work on fractions of numbers, amounts or shapes

	resilience in finding other solutions Children to develop maths skills indoor and outdoors Children to apply their maths skills in other curriculum subjects- such as Science.	additive and multiplicative relationships Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. Formal methods for short and long multiplication Formal methods for short and long multiplication Know multiplication facts 12 x 12 and use them confidently to solve problems Identify common factors, multiples and prime numbers Understand order of operations including brackets Can calculate and interpret the mean as an average Solve problems involving the relative sizes of 2 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 Use common factors to simplify fractions	Find multiply ways or multiple possibilities to answer problems- asking the question "have I got all of the answers?" Recognise when there is a more efficient method to use Children have an ordered and systematic way of working Use models and images (including concrete, pictorial and abstract strategies) to support methods and working out Children can use the "working backwards" strategy to solve problems, using inverse to support their methods Children can predict and conjure their methods to find a rule or solution to the problem Explain similarities and differences between the structure of problems- generalizing independently Make links between patterns identified and the KS2 maths curriculum and be able to prove their theory Generalise and give rules for strategies the have used, linking simple rule to concept and explaining their thinking on this Explain this verbally and confidently to a partner/peer Use strategies such as working backwards to solve a problem Use a system confidently, drawing on known strategies to solve a problem "I started with this strategy because…. then I changed to this method because "	• Use their understanding of unit fractions and division to work backwards by multiplying a quantity in context (1/4 of of a length is 36cm= 36cm x 4 = 144cm). • Know that simple fractions have equivalent decimals and list fractions to identify common denominators • Know that when there is a recurring decimals, the decimal is rounded to 3 decimal places • Know that times tables link to multiplying and dividing with decimals- 4 x 2 = 8, 0.4 x 2 = 8). <u>Ration and proportion</u> • Know that 360 degree links to calculating angles in pie charts • Know that two missing numbers can be solved using integer multiplication and division facts • Know that the scale factor is when increasing the size of 2D shapes, the scale factor is the amount in which the shape has increased by (2 times or 3 times the size). • Know ratio compares values, telling us how much of one thing there is compared to another thing. <u>Algebra</u> • Know that letters and symbols can be used to represent numbers • Know that these are expressed in a Formulae • Know how to express missing number sentences algebraically • Know how to use input and put machines and they perform an operation after the input of the number • Know that BIDMAS can be used to solve simple input/output number sentences • Know that an expression is when a simple algebraic letter has been used to represent a number • Know that expressions can be simplified that y x 4 can be represented a 4y • Know to use concrete resources to solve simple equations

		Add and subtract fractions with different denominations Multiply simple pairs of proper fractions Divide proper fractions Recall equivalent decimals, percentages and fractions Compare fractions with different denominators, including fractions greater than 1 Multiply one digit numbers by decimals to 2dp Solve problems with ratio properties Solve problems with 2 unknowns <u>Geometry</u> Convert units of measurement u to 3dp Recognise shapes with the same area can have different perimeters Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems. Calculate the area of parallelograms and triangles Can calculate, estimate and compare the volume of cubes and cuboids Draw 2D shapes using given dimensions and angles.		• Know that the same expression can have different values depending on what has been substituted. • Know that an expression is different to an equation: expression is x + 5 and an equation is x + 5 = 11.2 • Know that problem solving strategies are used to solve equations: trial and error, working backwards, working systematically and visualising. <u>Measurement</u> • Know that distances and measurements can be converted from metric to imperial units • Know that there are 1.6 km to 1 mile (and other related facts) • Know that we can measure speed in miles per hour and km per hour • Know that estimating helps us to solve approximate conversions of measurements • Know that a number line can help to calculate positive and negative numbers in temperature • Know that areas of rectangles can be used to help us calculate the area of a triangle • Know to solve volume it is calculated by length x width x height • Know that this is represented as cm cubed (cm^3) <u>Shape</u> • Know that 3D shapes can be represented as nets • Know that nets are a flat pattern which is cut or folded to make a 3D shape • Know that angles can be derived from known measurements • Know that the radius is distance from the centre of the circle to the outside edge of the circle • The diameter is the distance from on edge of the circle to another edge • The circumference is the distance around the circle • Know that the diameter is twice the radius

		Recognise, describe and build simple 3D shapes, including making nets. Find unknown angles in triangles, quadrilaterals and regular polygons Illustrate and name parts of a circle and know that diameter is twice radius Can recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. Describe positions on the full coordinate grid Draw and translate simple shapes on the coordinate plane and reflect them in the axes Interpret and construct pie charts and line graphs and use these to solve problems.		• Know that angles that meet at a point are on a straight line and missing angles can be solved from this • Know there are 4 quadrants on a grid • Know there are negative numbers on a quadrant grid • Know that a shape can still be plotted/draw on a quadrant grid with missing co-ordinates • Know that angles, fractions and percentages links to reading and understanding pie charts • Know that the average is when there is a calculated value of a set of numbers • The mean is when all numbers are added up and divided by the amount of numbers there are in total. • Know that converted measurements can be represented on a graph