Mathematics Skills & Knowledge Progression

Number & Place Value

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Counting	- Count to 10	- Count beyond 10 - *Verbally count beyond 20, recognising the pattern of the counting system*	-Count to 100 (using concrete objects)	- Count to 100	- Count to 1000	- Count to 10 000	- Count to 1 000 000	- Count to 10 000 000
Read / writing numbers	- Link numerals with amounts - Experiment with mark making to represent numbers - Begin to use numerals	- Link numerals with cardinal numbers values - Read and write numbers up to 20	- Read and write numbers from 0 to 100 (first 0-10, then to 20, then 40 to 100)	- Read and write numbers to 100	- Read and write numbers to 1000	- Read and write numbers to 10,000	- Read and write numbers to 1 000 000	- Read and write numbers to 10 000 000
Skip Counting	- Count in ones	- Count forwards and backwards in ones	- Count in twos, fives and tens to 100 using 10s frames and PV cards (first 0-10, then to 20, then 40 to 100)	- Count in twos, threes, fives and tens to 100	- Count in hundreds, tens and ones - Count in fifties - Count in fours and eights	- Count in thousands, hundreds, tens and ones - Count in 25s - Count in 6,7,9s	- Count forwards or backwards in steps of 1000, 10 000 and 100 000	
Place value	- Begin to look at composition of number - Show 'finger numbers' up to 5	- *Composition of numbers to 10* - Use tens frames to represent numbers >10	- Use a PV chart to show numbers in tens and ones	- Tell the value of a digit in a number with up to 3 digits	- Tell the value of a digit in a number with up to 4 digits	- Tell the value of a digit in a number with up to 5 digits	- Tell the value of a digit in a number with up to 6 digits	- Tell the value of a digit in a number with up to 7 digits
Comparison	- Compare quantities up to 5	- *Compare quantities up to 10 in different contexts*	- Compare and order numbers from 0 to 100 (first 0-10, then to 20, then 40 to 100)	- Compare and arrange numbers within 100	- Compare and arrange numbers within 1000	- Compare and arrange numbers within 10 000	- Compare and arrange numbers within 1 000 000	- Compare and arrange numbers within 10 000 000
Number Patterns	- Learning colours to be able to recognise, complete and extend AB patterns	- *Explore and represent patterns in numbers up to 10* - Understand the 1 more 1 less relationship between consecutive numbers	- Make number stories and complete number patterns in numbers up to 20 - FInd 1 more 1 less- than a 2 digit number	- Complete number patterns using more complex numbers (eg 3 and 5) - Introduce boundary crossing	- Complete and describe number patterns for numbers with 1000	- Complete and describe number patterns for numbers within 10 000	- Complete and describe number patterns for numbers within 1 000 000	- Complete and describe number patterns for numbers within 10 000 000
Rounding and estimating	- Develop subitising up to 3 objects	- *Subitise up to 5*	-*Subitise up to 10*			- Round numbers to the nearest 10, 100, 1000 and estimate sum and difference	- Round numbers to the nearest 10, 100, 1 000, 10 000 and 100 000	- Round numbers to the nearest 10, 100, 1 000, 10 000 and 100 000 & 1 000 000

Mathematics Skills & Knowledge Progression

Addition and Subtraction (Whole Numbers)

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mental / informal methods for addition		*- Automatically recall numbers bonds to 5 (including subtractions facts) and some to 10, including double facts*	- Add by counting on - Add using number bonds - Add by making 10 - Add by separating ones and tens	- Add a 1 digit and 2 digit number - Add tens - Add 2 digit numbers where 1 is a multiple of 10 - Add tens and ones where the ones are both more than 0 - Add 3, one digit numbers	- Add a 1 digit and 3 digit number - Add 3 digit numbers where 1 is a multiple of 10 - Add multiples of 100 - Add 2, 3 digit numbers	- Add numbers within 10 000 using mental strategies; ie. making tens, hundreds and thousands, rounding and adjusting	- Add numbers within 1 000 000 using mental strategies ie. using PV knowledge. doubles and near doubles,	- Perform mental calculations accurately and efficiently
Mental / informal methods for subtraction		*- Automatically recall numbers bonds to 5 (including subtraction facts) and some to 10, including double facts*	- Subtract by crossing out - Subtract by using number bonds - Subtract by counting back	- Subtract ones from a 2 digit number - Subtract 2, 2 digit multiples of 10 - Subtract tens from a 2 digit number - Subtract 2, 2 digit numbers	- Subtract ones from a 3 digit number - Subtract multiples of 10 from a 3 digit number - Subtract 1 digit numbers and multiples of 10,100 from a 3 digit number	- Subtract numbers within 10 000 using mental strategies ie. partitioning (renaming)	- Subtract numbers within 1 000 000 using mental strategies ie. partitioning (renaming)	- Perform mental calculations accurately and efficiently
Written / formal methods for addition				- Add 1 digit to a 2 digit number where the ones are renamed - Add 2, 2 digit numbers with renaming	- Add 1 digit to a 3 digit number where the ones are renamed - Add with renaming in the tens - Add two 3 digit numbers with renaming in ones, tens and then both	- Add up to 4 digit numbers with renaming	- Add up to 6 digit numbers with renaming	
Written / formal methods for subtraction				- Subtract a 1 digit number from a 2 digit number with renaming - Subtract 2, 2 digit numbers with renaming	- Subtract 3 digit numbers with renaming in hundreds, tens and ones - Subtract a 3 digit number with zeros	- Subtract up to 4 digit numbers with renaming	- Subtract up to 6 digit numbers with renaming	
Problem solving	- Solve real life mathematical problems with numbers up to 5	- Solve real life mathematical problems with numbers up to 20	- Solve word problems with numbers up to 20 using pictorial representations	- Draw models for different situations	- Draw bar models to represent information in 'more than' and 'fewer than' questions	- Use the bar model to represent information in an + / - problem - Solve word problems involving addition and subtraction within 10 000	- Solve multi-step word problems including multiple operations	- Solve multi-step word problems - Use the order of operations - Use estimation to check answers

Multiplication & Division (Whole Numbers)

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recalling and Identifying Number Facts and using Mental Methods **Multiples, Factors, Prime, Squared, Cubed Numbers**	- Group even numbers to 10	- Explore how numbers can be distributed evenly	- Make equal groups - Add equal groups to find the total number of objects - Group things equally - Share things equally	- Do my 2,5,10 times table - Divide a number by 2,5,10 - Recognise odd and even numbers	- Do my 3,4,8 times table - Divide a number by 3,4,8	- Do my 6,7,9,11,12 times table Divide a number by 6,7,9,11,12 - Divide to find a quotient and remainder	- Find multiples and common multiples - Find factors and common factors - Identify prime and composite numbers - Recognise square numbers and cubed numbers (using the notations)	- Identify common factors, common multiples and prime numbers
Recording Number Facts				- Write multiplication and division equations - Write a family of multiplication and division facts	- Write multiplication and division equations - Write a family of multiplication and division facts	- Write multiplication and division equations - Write a family of multiplication and division facts		
Formal written methods					- Multiply 2x1 digits with and without regrouping	- Multiply 3x1 digits with and without regrouping - Divide 3x1 digits with and without regrouping using short division	- Multiply numbers up to 4 x 1 digits with renaming - Multiply numbers up to 3 x 2 digits with renaming - Divide 4 by 1 digits using short division	- Multiply numbers up to 4 digits x 2 digits with renaming - Divide 4 by 2 digits using range of strategies including long division
Problem solving			- Solve word problems about multiplication	- Solve word problems using the 2,5,10 times tables. - Solve word problems involving multiplication and division	- Solve word problems involving the 3,4,8 times table - Solve word problems involving the division of 3,4,8	- Use the bar model to represent information in a x / ÷ problem - Solve multi-step word problems using multiplication and division	- Solve multi-step word problems including multiple operations	- Solve multi-step word problems including multiple operations - Use the order of operations - Use estimation to check answers

Fractions

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Naming fractions and value of fractions			- Show a half - Show a quarter	- Make and show halves, quarters and thirds - Name and write a fraction - Name fractions that make one whole	- Make number pairs that form one whole	- Make number pairs that form one whole (with different denominators)		
Counting				- Count wholes with halves, quarters and thirds	- Count in tenths	- Count in hundredths		
Calculating with fractions			- Group / share things together to get a half / quarter - Find a half or quarter of a group of things	- FInd part of a set and a quantity	- Find part of a set and a fraction of a number - Share a number equally - Add and subtract two fractions (within 1 whole)	- Add and subtract fractions (same denominators, more than 1)	- Add and subtract fractions - Multiply proper fractions and mixed numbers by whole numbers	- Add and subtract fractions - Multiply proper fractions - Divide proper fractions by whole numbers - Relate division of whole numbers to fractions and decimals
Comparison and ordering				- Compare and order fractions	- Compare fractions with same denominators - Compare fractions with different denominators with diagrams	- Write and show mixed numbers on a number line (halves, thirds, quarters, fifths, eighths) within 3 whole ones	- Compare and order fractions with different denominators	- Compare and order fractions including mixed numbers
Equivalence					- FInd and list equivalent fractions - Write a fractions in its simplest form (sixths, eighths, tenths and twelfths)	- Find equivalent fractions - Simplify fractions and mixed numbers	- Find equivalent fractions of a given fraction - Recognise mixed numbers and improper fractions and convert from one form to another	- Find equivalent fractions using common multiples - Simplify fractions using common factors
Problem solving					- Solve word problem involving fractions and measurements	- Solve word problem involving fractions	- Solve word problem involving fractions	- Solve word problem involving fractions

Decimals & Percentages

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recognise, read and write decimals						- Recognise and write tenths and hundredths	- Read and write decimals up to 3 decimal places	- Tell the place value of digits in a decimal number
Compare decimal numbers						- Compare numbers with the same number of decimal places	- Compare and order decimals up to 3 decimal places	
Number patterns with decimals						- Complete number patterns involving decimals		- Relate division of whole numbers to fractions and
Round decimals						- Round decimals with 1 decimal place to the nearest whole number	- Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place	
Decimal equivalence						- Recognise and write decimal equivalents of ¼ ½ and ¾	- Write fractions as decimals	- Write fractions as decimals
Calculate with decimal numbers						- Divide a 1 or 2 digit number by 10 and 100	- Add and subtract decimals	decimals - Multiply and divide decimals with 1-digit and 2-digit whole numbers
Problem solve with decimals						- Solve simple measures and money problems involving decimals	- Solve problems involving decimals	- Solve measures and money problems involving decimals upto 3 decimal places
Finding, interpreting and comparing percentages							- Recognise the % symbol (%) - Find percentages of a given number - Interpret a percentage as a fraction of an amount	- Calculate the percentage of a number and a quantity - Use percentages to describe changes - Use percentages to compare

Length

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Measure / write lengths			-Compare the length of objects - Measure the length of objects	- Measure length in metres (m) -Measure length in centimetres (cm) -Learn when to use cm or m to measure length -Measure and draw lines	- Write length in metres (m) and c centimetres (cm) - Write length in kilometres (Km) and metres (m)	- Measure and estimate length		
Compare / convert lengths				-Compare and order length	- Convert length from m to m&cm - Convert length from cm to m&cm - Convert length from m to km&m -Convert length from km&m to m	-Convert units of length	-Convert measurements of length	
Solve problems				- Solve word problems on length	- Solve word problems on length		-Solve problems involving measurement	-Solve problems involving measurement

Area & Perimeter

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Measure / find and calculate perimeter and area					-Measure the total length around a shape -Find the perimeter of figures using a square a grid - Find the perimeter of figures in centimetres (cm) and metres (m) - Find the perimeter of squares and rectangles	- Measure perimeter in different units	-Find the perimeter of a figure. -Find the area of a figure -Use scale drawings to find the area / perimeter of a figure -Estimate the area of a figure	-Find the perimeter and area of rectangles, triangles and parallelograms. - Use formulae to find the area of rectangles. triangles and parallelograms - Use the area of rectangles to find the area of other types of polygons.

Volume

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Find, compare and measure volume			- Compare volume and capacity - Use half and a quarter to describe volume - Find volume and capacity	- Compare volume - Measure volume in millilitres (ml) and litres (l)	-Measure volume in millilitres (ml)	-Measure and estimate volume	- Find and compare the volume of solids - Find and compare the capacity of rectangular boxes - Estimate volume of capacity	- Find the volume of solids by counting unit cubes.
Calculate and convert volume						-Convert units of volume	- Convert units of volume	- Calculate the volume of cubes and cuboids in standard units (mm, cm, m, km)
Solve problems				- Solve word problems on volume and capacity			-Solve word problems involving volume	- Solve problems involving volume

Mass

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Find, compare and measure mass			- Compare the mass of objects -FInd the mass of objects	- Measure mass in kilograms (kg) - Measure mass in grams (g) -Compare and order mass	-Read the scales for mass in kilograms (kg) and grams (g)	-Measure and estimate mass		
Convert mass						-Convert units of mass	-Convert units of mass	
Solve problems				-Solve word problems on mass	-Solve word problems on mass		-Solve problems involving measurements	

Temperature

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Read, measure and solve problems involving temperature				-Read a thermometer -Measure and write down the temperature			-Tell the temperature -Solve problems involving temperature	

Money

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Know, name and count money		-Use everyday language talk about money	-Recognise coins -Recognise notes	-Name coins and notes -Count an amount of money	-Name the amount of money in pounds and pence	-Count an amount of money and write it using decimals		
Compare, exchange and find equivalence				-Show amounts of money in different ways -Exchange coins and notes -Compare amounts of money	-Use different ways to show the same amount of money	- Compare different amounts of money		
Estimate and calculate with money				-Calculate change	-Add money in pounds and pence -Subtract money in pounds and pence -Calculate change in pounds and pence	-Round money to the nearest £ and £10 -Estimate total amounts of money -		
Solve problems				-Solve word problems on money	-Solve word problems on money	-Solve problems involving money		

Time

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Tell the time	- Begin to use words such as 'first' 'then'		-Tell the time to the hour -Tell the time to the half hour -Compare different times -Recognise dates on a calendar	-Tell and write the time to 5 minutes -Draw hands on a clock face to draw hands	-Tell the time in am and pm -Tell and write time using 'past' and 'to' -Tell and write time shown on different types of clocks	-Tell the time using the 24 hour clock		
Time facts				-Know the number of minutes in an hour -Know the number of hours in a day	-Know the number of days in each month, year and leap year			
Convert and calculate time				-Find the duration of time -Find the ending or starting time -Compare and sequence intervals of time	-Measure time in seconds, hours and minutes -Find starting time, ending time and duration -Change minutes to seconds and seconds to minutes -Find the number of days using a calendar	-Change time in minutes to seconds -Change time in hours to minutes -Change time in years to months -Change time in months to years -Find the duration starting time and finishing time	-Convert measurements of time	
Solve problems						-Solve word problems on time	-Solve problems involving measurements	-Solve problems involving measurements

Mathematics Skills & Knowledge Progression

Geometry

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recognise 2D shapes and their properties	- Talk about and explore 2D and 3D shapes using informal and mathematical language (eg. sides, corners, straight, flat, round - Combine shapes to make new ones - an arch, a bigger triangle etc - Select shapes appropriately: flat surfaces for a building, a triangular pattern for a roof etc.	- Select, rotate and manipulate shapes in order to develop spatial reasoning skills - Compose and decompose shapes so that children can recognise a shape can have other shapes within it, just as numbers can.	-Names solids and shapes -Look for shapes in solids -Group shapes -Make and complete patterns with shapes	-Name triangles, quadrilaterals and polygons -Identify the number of sides and vertices of a shape -Identify the lines of symmetry of a shape or figure -Form different figures with shapes -Name the shapes that make up a figure -Draw figures on a square grid and dot grid -Make and complete patterns -Recognise flat and curved surfaces		-Identify lines of symmetry in 2D shapes -Complete a simple symmetrical figures with respect to a specific line of symmetry	-Identify regular polygons	
Recognise 3D shapes and their properties				-Name and describe spheres cuboids, cubes, cylinders, cones, pyramids and prisms. -Identify the number of faces, edges and vertices of a shape -Fold 2D shapes into 3D ones			-Identify 3D shapes from 2D drawings	
Sort and classify shapes				-Sort shapes		- Compare and classify triangles and quadrilaterals		
Angles and direction				-Move and turn shapes	-Recognise an angle -Find angles in shapes -Find a right angle,an acute angle and an obtuse angle -Compare the sizes of angles -Make a half, three quarters and a full turn	-Identify acute and obtuse angles -Compare and order angles -Identify	-Identify acute, right, obtuse and reflex angles -Draw and measure given angles -Identify angles on a straight line and angles that meet at a point -Find unknown angles in squares and rectangles	

Position & Direction

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Position and movement	- Understand position through words alone - Describe a familiar route - Discuss routes and locations, using words like 'in front of' and 'behind'	- Draw information from a simple map	-Name positions in a race and in a queue -Name positions from the left and right -Use words such as before, after, next to, last, between -Describe positions, movements and turns			-Describe positions using coordinates -Plot points and form figures on the grid -Describe movement including translation of figures	-Write the coordinates of points -Describe translations and reflections -Find the position of a shape after translation or reflection	-Use coordinate grids with negative numbers Describe positions of points with coordinates -Draw, translate and reflect simple shapes on the coordinate plane

Graphs

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Record, present and interpret data	- Experiment with their own symbols and marks, as well as numerals			-Read information from, make and solve problems using pictograms, block diagrams, tally charts and tables	-Draw picture graphs and bar graphs -Read and interpret bar graphs -Solve problems using information from bar graphs	-Use a table to show information -Draw, read and interpret tabl;es, picture graphs, bar graphs and line graphs -Solve word problems using information from a line graph	-Read and interpret information in a timetable -Read interpret and complete information in a table -Read and interpret information for a line graph -Solve word problems using information for a line graph	-Calculate and interpret the mean as an average -Draw and read pie charts -Draw and read graphs Solve problems using information provided by graphs

Ratio

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Use ratio								-Compare quantities and numbers using ratio -Solve problems involving ratios

Negative Numbers

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Use negative numbers								-Add and subtract negative numbers -Use negative numbers in context -Solve problems involving negative numbers

Algebra

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Use algebra								-Describe and complete a pattern -Write and evaluate algebraic expressions -Solve equations

Roman Numerals

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Read and write Roman Numerals						-Read and write Roman Numerals from 1-20 -Read and write Roman Numerals from 1-100	-Read Roman Numerals up to 1000 -Write years in Roman Numerals	