Maths Progression Map

Concept	Nursery	Reception	Y1	Y2
Number & Place Value	Shows an awareness of number activities and counting. **Demonstrate an understanding of the concept of 1:1 correspondence, e.g. in routine activities such as fruit time ensure gives one piece of fruit goes to each pupil.** **Demonstrates an understanding of the concept of transaction in familiar mathematical activities *e.g. knows that in a role play shop a coin can be exchanged for an item.*** **Distinguish between 'one' and 'lots', when shown an example of a single object and a group of objects.** Indicates one or two. **Says the number names to 5 in the correct order e.g. joins in counting to 5 with the teacher, in songs and rhymes.** Solves simple problems practically e.g. checking there is a knife for every fork. Makes sets that have the same small number of objects in each.	Demonstrates understanding of 'more'. **Demonstrates understanding of the concept of numbers up to 5 by putting together the right number of objects when asked.** Joins in rote counting to 10. **Identify how many objects there are in a group of up to 10 objects, recognising smaller groups on sight (subitising) and counting the objects in larger groups up to 10.** Recognises numerals from 1 – 5. **Demonstrate an understanding that the last number counted represents the total number of the count.** Counts reliably with numbers from one to 20, places them in order. Begins to use ordinal numbers (first, second, last) when describing the position of objects. Begins to recognise numerals 1-9 and relate them to sets of objects, understanding that each represents a constant number or amount. Recognises differences in quantity, identifying larger/smaller Estimates a small number and checks by counting. Continues counting from a given small number up to 10.	**Counts, reads and writes numbers in numerals from 0 – 9m** **Count to 20, demonstrating that the next number in the count is one more and the previous number one less.** Counts in 2's forward and backwards to 10m **Demonstrates that the number of objects remains the same when they are rearranged, providing nothing has been added or taken away.** Counts, reads, orders and writes numbers to 20. Reads and writes numbers to ten in words. Demonstrate an understanding of place value of 10s and 1s in a 2-digit number using resources up to 20. Counts in 2's forward and backwards to 20. Counts in 10's to 100. Given a number can identify one more/less quickly. Counts to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Counts, reads and writes numbers to 100 in numerals and to 20 in words; counts in multiples of twos, fives and tens. Uses the language of: equal to, more than, less than (fewer), most least. Identifies and represents numbers using objects and pictorial representations including the number line. When given a number (to 100), identifies one more and one less.	Practically compares, orders, **reads and writes numbers to 100.** Using a number square identifies 10 more and 10 less. **Partition a two-digit number into tens and ones to demonstrate an understanding of place value, using structured resources.** **Counts in multiples of twos, fives and tens from 0 (to 100) and use to solve problems.** Counts in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward. Compares and orders numbers from 0 up to 100; uses <,> and = signs. Identifies, represents and estimates numbers using different representations, including the number line. Reads and writes numbers to at least 100 in numerals and in words. **Partitions two-digit numbers into different combinations and explain their thinking verbally, in pictures or using apparatus e.g. 46 is 40 +6 or 30 + 16.** Using a number square can calculate 9 more, 9 less, 11, more and 11 less by adjusting.
Addition	Shows an awareness of number activities and counting. **Demonstrate an understanding of the concept of 1:1 correspondence, e.g. in routine activities such as fruit time ensure gives one piece of fruit goes to each pupil.** **Demonstrates an understanding of the concept of transaction in familiar mathematical activities *e.g. knows that in a role play shop a coin can be exchanged for an item.*** **Distinguish between 'one' and 'lots', when shown an example of a single object and a group of objects.** Demonstrates awareness of contrasting quantities - Makes 'one' and 'lots' by making groups of one or lots of food items on plates in role play and real life.	Demonstrates understanding of 'more' - Asks for 'more' e.g. cups, food items as required. **In practical situations responds to 'add one' to a number of objects - use real-life materials (e.g. apples or crayons) to add 1 to a group of objects and indicate how many are now present.** Says which number is one more than a given number to 10. Uses quantities and objects, adds two single-digit numbers and counts on to find the answer.	Add numbers when solving problems involving 10 objects practically. **Demonstrates an understanding of the composition of numbers to 5 and a developing ability to recall number bonds within 5 (e.g. 2 + 2 = 4 and 3 + 1 = 4).** Begins to recognise that addition can be done in any order e.g. 3 + 2 = 5 and 2 + 3 = 5 Understands the relationship of the largest number (whole and parts). **Demonstrates an understanding that the total number of objects changes when objects are added.** Can complete 'missing' number sums to 10. Uses a number line to count back to solve addition problems to 10. Can make sums to total numbers to 10, showing composition of number. **Solve number problems in addition of single-digit numbers up to 10 (applying knowledge in money and measures.)** **Demonstrate an understanding of mathematical symbols of addition and equals signs.** Represents and uses number bonds and related subtraction facts within 20. Adds one-digit and two-digit numbers to 20, including zero. **Demonstrates an understanding of the commutative law (e.g. 2 + 8 is the same as 8 + 2) using images and resources.** **Demonstrates an understanding of inverse relationships involving addition (e.g. if 3 + 2 = 5, then 5 – 2 = 3).**	**Recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other associated additive relationships (e.g. if 7+3+10, then 17+3=20).** **Adds two-digit number and ones, and two-digit and tens, where no regrouping is required, explaining their method verbally, in pictures or using apparatus (e.g. 23+5; 46+20).** **Recalls at least four of the six number bonds to 10 and reason about associated facts (e.g. 6+4=10, therefore 4+6=10 and 10-6=4)**. Solves missing number sums to 20 without prompting. Adds three 1-digit numbers Recalls and uses addition facts to 20 fluently, and derive and use related facts up to 100. **Add any 2 two-digit numbers using an efficient strategy, explaining their method verbally, in pictures or using apparatus e.g. 48 + 35.** Records addition in columns using expanded format involving partitioning. Shows that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.

Subtraction	Shows an awareness of number activities and counting. **Demonstrate an understanding of the concept of 1:1 correspondence, e.g. in routine activities such as fruit time ensure gives one piece of fruit goes to each pupil.** **Demonstrates an understanding of the concept of transaction in familiar mathematical activities *e.g. knows that in a role play shop a coin can be exchanged for an item.*** **Distinguish between 'one' and 'lots', when shown an example of a single object and a group of objects.** Demonstrates awareness of contrasting quantities - Makes 'one' and 'lots' by making groups of one or lots of food items on plates in role play and real life.	Demonstrates an understanding of 'less' - Indicates which bottle has less water in it **In practical situations responds to 'subtract one' to a number of objects - use real-life materials (e.g. apples or crayons) to subtract 1 from a group of objects and indicate how many are now present.** Says which number is one less than a given number to 10. Using quantities and objects, subtracts two single-digit numbers and counts back to find the answer.	Subtract numbers when solving problems involving 10 objects practically. **Demonstrates an understanding of the composition of numbers to 5 and a developing ability to recall number bonds within 5 (e.g. 4 – 2 = 2 and 4 – 3 = 1).** Begins to understand that subtraction must be completed in order. **Demonstrates an understanding that the total number of objects changes when objects are taken away.** Can complete 'missing' number sums to 10. Uses a number line to count back to solve subtraction problems to 10. Can make sums to total numbers to 10, showing composition of number. **Solve number problems in subtraction of single-digit numbers up to 10 (applying knowledge in money and measures).** **Demonstrate an understanding of mathematical symbols of subtraction and equals signs.** Represents and uses related number bond facts to subtract within 20. Subtracts one-digit and two-digit numbers to 20, including zero. **Demonstrates an understanding of inverse relationships involving subtraction (e.g. if 3 + 2 = 5, then 5 – 2 = 3).**	**Recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other associated additive relationships (e.g. if 7-3=4, then 17+3=14).** **Subtracts two-digit number and ones, and two-digit and tens, where no regrouping is required, explaining their method verbally, in pictures or using apparatus (e.g.16-5;88-30).** **Recalls at least four of the six number bonds to 10 and reason about associated facts (e.g. 6+4=10, therefore 4+6=10 and 10-6=4).** Recalls and uses subtraction facts to 20 fluently, and derive and use related facts up to 100. **Subtract any 2 two-digit numbers using an efficient strategy, explaining their method verbally, in pictures or using apparatus e.g. 72 – 17** Shows subtraction of one number from another cannot be done in any order Checks answers using inverse. Solves missing number subtractions using inverse.
Multiplication			Counts in 2's to 10 forwards and back. Opportunities to engage in practical situations e.g. pair objects such as socks and shoes to develop and use appropriate language. Counts in 2's to 20 forwards and back. Counts in 2's forwards and back from a given number to 20. Begins to count in 10's to 100. Put up to 20 items into groups of 2 or 5 or into 2 or 5 equal groups (e.g. give the pupil 5 hoops and 15 objects and ask them to share them equally between the hoops and discuss 'lots of/groups of). Counts in multiples of twos, fives and tens to 100. Uses repeated addition to solve multiplication problems in practical situations. Understands doubling by grouping objects. Uses arrays to show multiplication.	Uses 'arrays' to understand multiplication. Recalls 2 and 10 multiplication tables. Understands multiplication as 'lots of'. Begins to show that multiplication can be done in any order using images or manipulatives. Solves simple missing number sums involving known tables. Recall doubles and halves to total 20. **Recalls multiplication facts for the 2,5 and 10 multiplication tables and use them to solve simple problems** (including recognising odd and even numbers). **Demonstrates an understanding of commutativity.** Calculates mathematical statements for multiplication within the multiplication tables and writes them using the multiplication and equals signs.
Division			Opportunities to engage in practical situations involving sharing within the classroom to develop and use appropriate language. Put up to 20 items into groups of 2 or 5 or into 2 or 5 equal groups (e.g. give the pupil 5 hoops and 15 objects and ask them to share them equally between the hoops). Begins to use repeated subtraction to share objects practically. In practical situations begins to work out how many items each child will get e.g. sharing grapes.	Uses 'arrays' to support use of division. Understands division as sharing. Begins to show that division cannot be done in any order using images and manipulatives. Recall doubles and halves to total 20. **Recalls division facts for the 2,5 and 10 multiplication tables and use them to solve simple problems,** (including recognising odd and even numbers). Shows that division of two numbers cannot be done in any order. Calculates mathematical statements for division within the multiplication tables and writes them using the division and equals signs.

Fraction		Solves practical problems, involving the vocabulary and concepts of doubling, halving and sharing.	Uses the concept and language of half / halves in practical situations e.g. can give out 10 counters into 2 groups and recognises that 5 + 5 is fair and represents half equally. Uses the concept and language of quarter / quarters in practical situations e.g. can group 12 counters into four equal groups. Recognises, finds and names a half as one of two equal parts of an object, shape or quantity. Recognises, finds and names a quarter as one of four equal parts of an object, shape or quantity.	Understands and can explain why parts in halves ad quarters have to be equal. Arranges objects in to four equal groups and explain, with some support, that each of them represents a quarter, and then additional quarters (e.g. 3 groups = ¾) Can also identify that 2 groups = ½. Works out 1/2 of 8 with supporting diagrams. **Recognises, finds, names and writes fractions 1/3, ¼, 2/4, and ¾ of a length, shape, set of objects or quantity and know that all parts must be equal parts of the whole. Identifies three equal parts of a rectangle and know** that each of them represents 1/3. Identifies four equal parts of a rectangle and know that two of them represent 2/4 and three of them represent 3/4. Recognises the equivalence of 2/4 and ½ . Counts in steps of 1/4, saying half rather than 2/4 and 1 1/2 instead of 6/4. Works out 1/2 of 8 = 4 and 1/3 of 6 = 2 using manipulatives or images as appropriate.
Measures	Matches big objects and small objects. Anticipates, follow sand joins in familiar activities. when given a contextual clue. **Identify the big or small object from a selection of two.**	Compares the overall size of one object with that of another where the difference is not great. Uses familiar words in practical situations when they compare sizes and quantities.	Shows which object is longer, shorter etc and use appropriate vocabulary in everyday situations. Recognises the order of events in the school day using visual images. **Know the value of different coins.** Describes everyday events using the appropriate sequencing language (e.g. before, after, later etc.) Chants the days of the week and the months of the year in order and, with support, identify today's date. Tells the time for o'clock and show on the hands of a clock. Solves problems such as 'Using a balance, compare two boxes to find out which is heavier, heaviest'. Compare two 'snakes' which is longer, longest'. Measures, records, compares, describes and solves practical problems for: lengths and heights, mass/weight, capacity and volume using non-standard measures. Sequences events in chronological order using language e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening. Recognises and uses language relating to dates, including days of the week, weeks, months and years. Tells the time to the hour and half past the hour and draw the hands on a clock face to show these times. Recognises coins and notes, and that they have different values e.g. 5p is worth more than 1p. To be able to solve problems up to 20p or using whole pounds.	*minutes to measure time taken to do a task.* Compares and orders measurements and record the results, by selecting from a set of measurements, pairs of measurements that satisfy conditions such as 'is less than', 'is greater than' and 'is the same as' and record them using symbols, with prompting. Assembles the coins to match an amount of money written using £ and p, with prompts in order to solve problems eg. *'It costs 50p to park a car for two hours. Show ways you can make up 50p using coins'*. Tells the time to quarter past the hour and draw the hands on a clock face. With support interpret 'to' correctly with appropriate prompts. Begins to recognise that there are 60 minutes in an hour and count intervals in lots of 5. Recognises and knows the value of different denominations of coins and notes in order to use to solve problems including giving change from £1 and using coins to count in 2's and 10's. Chooses and uses 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 Compares and orders lengths, mass, volume/capacity and record the results using >, < and = **Read scales in divisions of ones, twos, fives and tens** in a practical situation where not all numbers on the scale are given (e.g. measure using a ruler). Recognises and uses symbols for pounds (£) and pence, solve problems using the same units including giving change Combine amounts to make a particular value use coins to count in 2's, 5's and 10's. **Finds different combinations of coins that equal the same amounts of money.** Compares and sequences intervals of time. **Tells and writes the time** to five minutes, including quarter past/to, and **to the nearest 15 minutes.** Knows the number of minutes in an hour and the number of hours in a day.
Geometry	Searches for objects that have gone out of sight, hearing or touch. Demonstrates interest in position and the relationship between objects.	Searches for objects not found in their usual place demonstrating their understanding of object permanence. Manipulates three-dimensional shapes.	Sorts and matches simple shapes using mathematical language and own criteria. Constructs models using 3-D shapes in play. **Recognises simple common 2-D shapes.**	**Name some common 2D and 3D shapes from a group of shapes practically or from pictures of the shapes and describe some of their properties (e.g. triangles, rectangles, squares, cuboids, cubes, pyramids and spheres).**

	Searches intentionally for objects in their usual place. Explores the position of objects. Sorts or matches objects or pictures by recognising similarities e.g. all cars.	Shows understanding of words signs and symbols that describe positions. **Copy and continue a pattern using real life materials (e.g. apple, orange, apple, orange).** **Sorts objects according to stated characteristics e.g. group all the small balls together and sort the shapes into triangles and circles.** Responds to 'forwards' and backwards. Picks out described shapes from a collection. Completes classification activities using a given criterion. Identifies when an object is different and does not belong to a given familiar category. Responds to mathematical vocabulary such as 'straight', 'circle', 'larger' to describe the shape and size of solids and flat shapes, in play. **Talks about, recognises, copies and continues more advanced patterns using real-life materials (e.g. apple, apple, orange, apple, apple, orange, etc.)**	Recognises, continues and devises simple repeating patterns. Identifies and name rectangles, triangles and circles in familiar contexts. Selects simple 3-D shapes. Describes position using everyday language eg. on, under, next to Recognises and creates simple repeating patterns with objects and shapes (simple repeat RGBRGB). Follows instructions from another including the turns either left or right, quarter turns either clockwise or anti-clockwise, referring to a clock face to establish the direction, with prompts. Recognises and name common 2-D and 3-D shapes. Describes position using everyday language e.g. top, middle, bottom, in front of, between, near, inside. Describes direction and movement, including whole, half, quarter and three-quarter turns. Gives instructions to another including the turns either left or right, quarter turns either clockwise or anti-clockwise, referring to a clock face to establish the direction. Recognises and creates simple repeating patterns with objects and shapes (more complex repeats RGGBRGGB).	Copies a simple shape. Draws a line of symmetry on a drawing of a square. Chooses an object in the classroom and describe where it is using mathematical vocabulary, with prompts. Arranges a selection of shapes such as squares, triangles, circles and rectangles into a pattern, using different orientations, with support. **Name and describe properties of 2-D and 3-D shapes, including number if sides, vertices, edges, faces and lines of symmetry (in a vertical line).** Compare and sort common 2-D and 3-D shapes and everyday objects. Order and arrange combinations of mathematical objects in patterns and sequences. Use mathematical vocabulary to describe position, direction and movement, including 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).
Statistics				Answers simple questions from a tally chart or pictogram, with prompting Constructs a tally charts to show quantities Solves problems such as 'Which category has the most objects in it?' with support. Interpret sand constructs simple pictograms, tally charts, block diagrams and simple tables. Asks and answers simple questions by counting the number of objects in each category and sorting the categories by quantity. Asks and answers questions about totalling and comparing categorical data.