Maths Long Term Plan Year 2

Year 2 Maths	
National Curriculum Objectives for Year 2	**Key Links**
Pupils should be taught: The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the 4 operations, including with practical resources [for example, concrete objects and measuring tools]. At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency. Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.	https://resources.whiterosemaths.com/resources/year-2/ https://www.mathletics.com/uk/ https://www.topmarks.co.uk/ https://www.ictgames.com/mobilePage/index.html https://mathsframe.co.uk/en/resources/category/22/most-popular **Recap knowledge:** Times tables including 2 , 5 , 10 + - = x Vocabulary Number bonds to… 10, 20, 50 and 100 Column addition and subtraction Use of a hundred square for number recognition up to 100 Counting forward and backwards and in steps of 2's, 5's and 10's. Use of symbols to compare numbers up to 100.

Topics		Working towards	Expected progress	Greater depth / extension	Key vocabulary
Autumn 1	Number: Place Value	• Count forwards and backwards in twos, fives and tens up to 100. • Identify and represent numbers up to 100 in some different ways. • Say one more or one less than a given number up to 100. • Compare numbers using the language 'more than', 'less than' and 'equal to'. • Read and write numbers to 50 in words. • Read and write numbers to 100 in numerals.	• Count forwards and backwards in steps of two, three and five from zero. • Count forwards and backwards in steps of ten from any number. • Know the value of the tens and ones in a two-digit number. • Partition two-digit numbers into different combinations of tens and ones. • Identify, represent and estimate two-digit numbers using a range of representations.	• Use reasoning about numbers and place value to answer increasingly complex questions. • Explain ideas fluently using mathematical vocabulary and make generalisations. • Solve number and place value problems of greater complexity by applying procedures fluently. • Explore and investigate numbers greater than 100 by representing them in different ways. • Understand zero as a place holder.	Ones, tens, hundreds, place, value, digit, number, numeral, less, more, greater, equal, count, compare, representation, partition, part, whole, tens frame, base 10, reason, problem solve

		• Partition two-digit numbers into tens and ones. • Provide simple explanations of mathematical concepts.	• Compare numbers using <, > and = signs. • Order numbers up to 100. • Read and write numbers to at least 100 in numerals and in words. • Use knowledge of place value to explain concepts of number. • Use number and place value skills fluently to solve a variety of problems.		
	Number: Addition & Subtraction	• Recall and use at least four out of six number facts to ten and derive their associated subtraction facts • Add and subtract: two-digit numbers and ones, and two-digit numbers and tens, where no regrouping is required • Explain their addition and subtraction methods verbally, in pictures or using apparatus • Understand that two numbers can be added in any order and the answer will be the same.	• Recall number facts to and within ten and related subtraction facts. Use these to derive number facts to and within 20 and 100 • Add and subtract within 100: a two-digit number and ones, a two-digit number and tens, two two-digit numbers • Add three one-digit numbers using efficient strategies • Understand that addition is commutative but subtraction is not, and explain what this means • Use the inverse relationship between addition and subtraction to solve problems and check answers to calculations • Solve addition and subtraction problems, in the context of quantities and measures, using equipment, pictures and mentally.	• Use reasoning about number facts to answer increasingly complex questions • Explain ideas fluently using mathematical vocabulary and make generalisations • Solve unfamiliar word problems that involve more than one step • Use the terms ‘sum’ and ‘difference’ with understanding • Begin to record addition and subtraction in columns.	Add, Addition, plus, total, altogether, equals to, subtract, take away, less, more, minus, equal, sum, calculation, number sentence, regroup, carry over, borrow, difference, count on, count back, inverse, commutative, number facts, estimate

Progression 	**Year 1 expectations:** •Read, write and understand calculations involving addition (+), subtraction (–) and equals (=) signs • Recall number facts to ten and related subtraction facts, using these to derive number facts to 20 • Add and subtract one-digit and two-digit numbers to 20, including zero • Solve one-step problems in familiar contexts, that involve addition and subtraction, using equipment, pictures and models • Use number facts to solve missing number problems. •Count up to and beyond 100, forwards and backwards • Count, read and write numbers up to 100 in numerals • Read and write numbers from one to 20 in words • Count in twos, fives and tens up to the tenth multiple • Say one more or one less than a given number up to 100 • Compare numbers using the language: equal to, more than, less than, fewer, most, least • Identify and represent numbers up to 100 in different ways • Use their knowledge of place value to explain concepts of number • Use number and place value skills fluently to solve a variety of problems. **Year 3 expectations:** • Read numbers up to 1000 in numerals and words • Recognise multiples of four • Recognise multiples of eight • Recognise multiples of 50 • Recognise multiples of 100 • Find missing numbers in a given sequence • Solve problems involving multiples • Solve problems involving place value • Solve problems involving partitioning • Solve problems involving comparing and ordering numbers • Solve problems involving numbers in different representations • Solve place value problems involving measures. • Add and subtract numbers with up to four digits using the formal written methods of column addition and subtraction • Estimate and use inverse operations to check answers to a calculation • Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why • Continue to practise both mental methods to aid fluency.				
Cross curricular links / examples	•Look at periods of time (years) to compare and order				
<u>Autumn 2</u>	*Number: Addition and subtraction (continued).* Measurement: Money	• Recognise the symbols for pounds (£) and pence (p) and know the value of different coins • Solve simple, practical one-step measurement problems with all four operations.	• Recognise the symbols for pounds (£) and pence (p) and use different coins to make the same amount • Solve practical addition and subtraction money problems, including giving change • Solve measurement problems involving all four operations	• Solve unfamiliar word problems that involve more than one step and all four operations.	Pence, pound, coin, note, money, amount, total, change, price, cost, pay, owe, altogether.
	Number: Multiplication & Division	• Sort objects into equal groups and recognise equal and unequal groups • Count fluently in twos, fives and tens from zero and keep track of their count to multiply • Use equipment and different models and images to	• Recall and use multiplication and division facts for the two, five and ten times tables • Recognise odd and even numbers up to 100 and use reasoning to explain how to identify larger odd and even numbers	• Use known multiplication facts for the two, five and ten times tables to make deductions outside these facts • Make links between known facts, for example, the relationship between the five	Groups, sharing, lots of, arrays, repeated addition, multiplication, division, multiply, times, divide, times tables, odd, even, sharing equally

		demonstrate multiplication and division • Use equipment and different models and images to solve simple multiplication and division problems • Recognise odd and even numbers up to 20 and explain the difference between them; • know some doubles and halves of numbers.	• Write expressions and calculations using the multiplication (x), division (÷) and equals (=) symbols • Understand that multiplication is commutative but that division is not • Demonstrate that multiplication and division are inverse • Recall doubles and halves of numbers up to 20 • Link doubling and halving to multiplying and dividing by two and use this to solve problems • Use equipment, draw a picture, skip count, use a number line or recall facts to solve a one-step multiplication or division problem.	and ten times table and make generalisations about what they notice • Use reasoning skills to solve problems that involve more than one step • Explain ideas fluently using mathematical vocabulary and make rules and generalisations.	
Progression	**Year 1 expectations:** • Know the value of coins and notes •Count the number of groups they have made • Find how many groups make a given total • Double a number using equipment • Use doubling and halving to solve problems • Make a context from an array. **Year 3 expectations:** • Compare money amounts up to £1• Make different money combinations, using coins up to £1 • Add together up to three items in pence, where the total equals up to £1 •Add together up to three items in pounds, where the total equals up to £15 • Calculate the change required when paying for a single and several items, paying with £1. • Recall multiplication and division facts for the 3x, 4x and 8x tables with increasing speed and accuracy • Use multiplication and division facts from the 3x, 4x and 8x tables to solve word problems with more than one step • Identify patterns in known multiplication tables • Multiply multiples of 10 (including three-digit numbers) mentally using known facts • Use the grid method to solve multiplication problems which go beyond known facts • Begin to use expanded multiplication when working with numbers beyond known facts • Use number lines to solve division problems beyond known facts with increasing accuracy and speed • Begin to use the bus stop method as a written method for division • Solve missing number problems which go beyond known facts • Solve scaling problems with increasing accuracy, beginning to work out the scale used from the measurements • Spotting patterns when solving correspondence problems and beginning to predict the number of possibilities.			
Cross curricular	**Money linked to buying ingredients for Pumpkin soup in D.T**				

links / examples					
Spring 1	*Number: Multiplication and Division (continued)* Statistics	• Add totals and tallies to a tally chart • complete a pre-drawn table; • Complete a block diagram • Complete a one-to-one pictogram • Interpret tables, tally charts, pictograms and block diagrams to answer simple retrieval questions • Count in twos, fives and tens from 0 and use this to answer retrieval questions about many-to-one pictograms.	• Complete and interpret a table, tally chart, one-to-one pictogram, many-to-one pictogram and block diagram • Read scales in divisions of ones, twos, fives and tens and use this to interpret many-to-one pictograms • Ask and answer comparison questions by counting the number of objects in each category and finding totals or the difference.	• Use reasoning about numbers and relationships to solve more complex problems and explain their thinking, including finding how many more or fewer • Solve unfamiliar word problems that involve more than one step (e.g. 'which has the most votes for favourite fruit: apple and orange or apple and banana) • Generate, present and compare data in different ways • Begin to draw their own tables, tally charts, pictograms and block diagrams.	Tally, pictogram, table, chart, block diagram, information, data, results, interpret, compare, symbol.
Progression	**Year 1 expectations:** •Count the number of groups they have made • Find how many groups make a given total •Double a number using equipment • Use doubling and halving to solve problems •Make a context from an array. **Year 3 expectations:** • Create scaled bar charts and pictograms • Create Venn and Carroll diagrams • Create a table of information • Ask and answer two-step questions about charts, tables and diagrams				
Cross curricular links / examples	**Statistics linked to Road Safety Week- who walked to school, etc.** **Venn diagrams linked to reading when comparing books or characters.**				
Spring 2	Geometry: Properties of shape.	• Name some common 2D and 3D shapes from a group of shapes or in pictures (e.g. triangles, rectangles, squares, circles, cuboids, cubes, pyramids and spheres)	• Name common 2D and 3D shapes, use general terms to name groups of shapes, such as quadrilateral, polygon and polyhedron	• Compare 2D and 3D shapes by identifying the similarities and differences, in their properties • Investigate shape patterns, for example, predicting	Shape, 2D, two dimensional, 3D, 3 dimensional, sides, vertices, corners, round, straight, curved, edges, faces, vertex, lines of symmetry, vertical, horizontal,

		• Describe some shape properties • Sort 2D and 3D shapes in simple ways • Read some shape names • create 2D shapes using geoboards • Make simple 2D and 3D shape patterns • Create 3D shape structures	• Recognise regular and irregular polygons in different sizes and orientations • Describe the properties of 2D and 3D shapes using the language sides, vertices, edges and faces • Identify vertical lines of symmetry in 2D shapes • Identify 2D faces on 3D shapes • Sort 2D and 3D shapes by their properties • Read and write some shape names • Create 2D shapes using geoboards and draw polygons using straight lines • Make 2D and 3D shape patterns • Create and describe 3D shape structures	shapes that come further along the sequence. • Explore regular polyhedrons such as dodecahedrons and octahedrons • Sort and compare shapes using increasingly complex criteria • Use reasoning about shapes to answer increasingly complex questions • Explain ideas fluently using mathematical vocabulary and make generalisations	flat, solid, Irregular, common, angles.
	Number: Fractions	•Identify and make equal parts of a shape or quantity • Recognise and make half of a shape or quantity • Share equally into four groups to find one-quarter • Count three of the four equal groups to find three-quarters • Share objects into three groups to find one-third • Recognise that one-half and two-quarters can look the same when coloured on a shape.	• Understand that fractions are equal parts of a whole • Name, find and write 1/3 of a shape or quantity • Name, find and write 1/4, 2/4 and 3/4 of a shape or quantity • Identify how many halves, thirds and quarters make a whole • Recognise the equivalence of one-half and two-quarters • Complete simple fraction sentences • Count in halves.	• Describe the fractions 1/2, 1/3, 1/4, 2/4 and 3/4 • Explain which fractions are equivalent to one-whole or one-half • Find the whole shape or quantity from a fraction • Complete fraction sentences for 1/2, 1/3, 2/3, 1/4, 2/4 and 3/4 • Count in halves, quarters and thirds • Place halves, quarters and thirds on a number line.	Fraction, whole, half, quarter, thirds, parts, equivalent, numerator, denominator, share

Progression 	**Year 1 expectations:** •Recognise 2D and 3D shapes in real life • Recognise 2D and 3D shapes in different sizes and orientations • Name halves and quarters • Explain that a half is one of two equal parts that make a whole • Explain that a quarter is one of four equal parts that make a whole. **Year 3 expectations:** • Describe the properties of 3D shapes using the vocabulary faces, edges and vertices • Recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn • Identify whether angles are greater than or less than a right angle • Identify pairs of perpendicular and parallel lines •Add and subtract fractions with the same denominator • Compare and order simple fractions; • use resources to identify equivalent fractions • Draw number lines to round decimals to the nearest whole number • Compare fraction number lines and number sequences • Use resources to support finding a fraction of a set of objects or number.				
Cross curricular links / examples	**Shapes linked to making musical instruments in D.T** **Lines of symmetry linked to drawing butterflies in art**				
<u>Summer 1</u>	Measurement: Length & Height	• Use standard units to estimate and measure length/ height (cm/m) accurately • Compare and order length using the language more than, less than and equal to • Read scales on rulers and measuring vessels in divisions of ones • Solve simple, practical one-step measurement problems with all four operations.	• Use standard units to estimate and measure length/ height (cm/m), to the nearest unit accurately • Compare and order length, using the symbols <, > and = • Read scales on rulers and measuring vessels in divisions of ones, twos, fives and tens • Solve measurement problems involving all four operations.	• Read scales where not all numbers on the scale are given and estimate points in between • Use reasoning about lengths and heights to solve more complex problems and explain their thinking • Solve unfamiliar word problems that involve more than one step and all four operations.	Length, height, width, short, shorter, shortest, tall, taller, tallest, long, longer, longest, compare, measure, ruler, tape measure, metre stick, metre, centimetre, cm, metres, m, order
	Geometry: Position and direction.	• 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 • Distinguish between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns in clockwise and anticlockwise directions.	• Work with patterns of shapes, including those in different orientations • Use the concept and language of angles to describe 'turn' by applying rotations in practical contexts.	Forwards, backwards, left, right, north, south, west, east, turn, quarter turn, full turn, half turn, 3 quarter turn, clockwise, anticlockwise, pattern, sequence.

Progression 	**Year 1 expectations:** • Describe and compare lengths, heights, capacities, and weights using mathematical vocabulary • Measure length, heights, capacities, weights and times using standard and non-standard units • Understand fully-numbered scales, such as on a ruler or measuring jug • Reason about measurements to solve practical problems • Describe turns, including quarter, half and whole turns • Begin to recognise and use the clockwise direction to turn • Describe position including left, right, above and below • Describe movement including forwards and backwards. **Year 3 expectations;** • Estimate and measure to the nearest metre • Estimate and measure in multiples of five millimetres • Measure and draw lines in mixed units (centimetres and millimetres) • Solve word problems by adding and subtracting three measurements in centimetres • Solve addition problems involving metres by adding two three-digit numbers totalling up to 550m • Solve subtraction problems involving metres by subtracting two three-digit numbers, involving exchanging • Solve addition and subtraction problems involving millimetres by adding four amounts • Use < > and = to compare two mixed unit length measurements • Order mixed unit length measurements • Calculate the perimeter of squares, perimeter given.				
Cross curricular links / examples	**Position and direction linked to map making in geography- compass points.** **Shapes last term linked to printing in art**				
<u>Summer 2</u>	Measurement: Time	***With support:*** • Identify the hour hand (shorter) minute hand (longer) •Practically move hands around the clock in 5 minute intervals • Practically show hour / o'clock times	• Read and write the time on an analogue clock to the nearest 5 minutes • Know there are 60 minutes in one hour and 24 hours in one day • Compare and sequence time intervals	• Accurately represent times on an analogue clock and written times. •Begin to solve problems involving times	O clock, half past, quarter past, quarter to, time, minutes, hours, seconds, hand, five minutes, duration, shorter, longer, hands, analogue, digital
	Measurement: Mass, Capacity and Temperature	• Use standard units to estimate and measure mass (g/kg), temperature (°C), capacity (litres/ml) accurately • Compare and order mass, volume/capacity using the language more than, less than and equal to • Read scales on scales, thermometers, and measuring vessels in divisions of ones • Solve simple, practical one-step measurement problems with all four operations.	• Use standard units to estimate and measure mass (g/kg), temperature (°C), capacity (litres/ml) to the nearest unit accurately • Compare and order mass, volume/capacity using the symbols <, > and = • Read scales on scales, thermometers, and measuring vessels in divisions of ones, twos, fives and tens • Solve measurement problems involving all four operations.	• Read scales where not all numbers on the scale are given and estimate points in between • Use reasoning about capacities, weights and times to solve more complex problems and explain their thinking • Solve unfamiliar word problems that involve more than one step and all four operations.	Mass, grams, kilograms, weight, heavy, light, heavier, heaviest, lighter, lightest, litre, millilitres, total capacity, volume, temperature, Celsius, degrees, hotter, colder

Progression 	**Year 1 expectations:** • Sequence familiar events in chronological order • Order the days of the week and months of the year • Tell the time to the hour and half past the hour on an analogue clock • Draw the hands on an analogue clock face to show the hour and half past the hour • Describe and compare lengths, heights, capacities, and weights using mathematical vocabulary • Measure length, heights, capacities, weights and times using standard and non-standard units • Understand fully-numbered scales, such as on a ruler or measuring jug • Reason about measurements to solve practical problems. **Year 3 expectations:** • Read the time in minute intervals on an analogue clock • Read digital clocks in five minute intervals and state the time in analogue form • Read clocks with Roman numerals in five minute intervals • Order times which use a.m. and p.m. • Calculate the number of days from one date to another, up to 50 days • Calculate and compare the length of events using digital times in ten minute intervals.
Cross curricular links / examples	**Time linked to Science investigation- mouldy bread- how long do we need to leave it for mould to show?** **Time linked to different events in a day- lunchtime, playtime, home time, etc.** **Mass linked to cooking** **Measure linked to sewing in DT with measuring out material** **Temperature linked to recording weather in summer**