Mathematics Long Term Framework

Intent

At Preston Primary, we aim to give the pupils a progressive, thoughtfully sequenced maths learning experience that enables them to:

- become confident numerate citizens
- talk confidently and reason about maths
- apply their learning to real-life, everyday contexts
- gain a passion for maths

Year Group	Autumn	Spring	Summer
One	1a- place value, counting objects and ordering and comparing numbers to 30. Read and write in numbers up to 20. Focus on teen and ty and including length and height (3 weeks) 1b – addition and manipulation of number (2 weeks) 1c – subtraction and manipulation of number (2 weeks) 1d – fractions finding halves of number finding halves of shapes and their names (2D) (2 weeks) 1e – money 1p 2p including counting in 2s (1 week) 1f – mass and weight (1 week) 1g – 3D shapes (1 week)	2a- place value, counting objects and ordering and comparing numbers to 60 link to length and height and mass and weight (3 weeks) 2b – days of the week, telling the time (2 weeks) 2c – fractions finding quarters of numbers quarters of shapes (2 weeks) 2d- time linked to half and quarter (1 week) 2f – money 5p 10p 20p 50p linked to arrays and counting in 2s 5s and 10s linked to addition and subtraction (3 weeks) 2g – capacity and volume linked to addition and subtraction (1 week)	3a- place value, counting objects and ordering and comparing numbers to 100 link to length and height and mass and weight, capacity and volume (3 weeks) 3b – position direction and movement linked to time (2 weeks) 3c – money all coins up to 1 and introduce notes knowing their value counting in 2s 5s and 10s linked to addition and subtraction (3 weeks) 3d – 3D and 2D shape (1 week) 3e – problem solving with multiplication and division linked to fractions (3 weeks)
Two	1a – counting, place value, ordering including < and >, reading and writing numbers up to 100, partitioning two digit numbers involving	2a – counting including the commutative law, place value, ordering including < and >, partitioning two digit numbers in different combinations up to 100	2g/ 3a- division and fractions including 2/4 and ¾ (2 weeks) 3b – time telling the time to 5 mins (2 weeks) (SATS – 2 weeks)

	addition of three one digit numbers and subtraction of two numbers (3 weeks) 1b – recall and use addition and subtraction facts to 20 and reason about these including the commutative law (1 week) 1c - addition of numbers adding multiples of 10 with apparatus (1 week) 1d – addition of two, two digit numbers using apparatus including bridging (2 weeks) 1e – money, including value of coins and making the same amount of money pounds and pence (1 week) 1f – multiplication 2s,5s,10s what does it mean lots of including using pictograms as a representation (2 weeks) 1g- division and fractions of numbers and fractions of shapes ¼ (including quarter to and quarter past) , 1/3, ½ including all parts make a whole(2 weeks)	revisit adding two, two digit numbers moving away apparatus including problem solving (GD use reasoning about numbers and relationships to solve more complex problems and explain thinking) (2 weeks) 2b – telling the time including quarter past, half past and introducing 5 minutes, clockwise and anticlockwise, minutes in an hour and hours in a day (1 week) 2c – subtraction of a number using an empty number line linked to difference and counting forward (3 weeks) 2d- Reading scales and estimation including measure and graphs(2 weeks) 2e- solve problems involving multiplication (GD including making deductions outside known multiplication facts and solving word problems that involve more than one step) (1 week) 2f – shapes including 2D and 3D shapes names and properties and lines of symmetry (GD including similarities and differences) (2 weeks) 2g / 3a- division and fractions including 2/4 and ¾ (1 week)	3c – relationships between addition and subtraction (2 weeks) 3d – introduction of numbers to 1000 (multiples of 100) involving kg/ g l/ ml (2 weeks) 3d – Constructing of graphs including tallys, block diagrams and simple tables (1 week) 3e- Equivalence of fractions of numbers ½ of 6 = 3 and the equivalence of 2/4 and ½ (1 week)
Three	1a Recap on numbers to 1000 (multiples of 100) but comparing and ordering numbers to 999 in numbers and words. Understand the place value of all of the three digit numbers and identify and represent these using different representations. Introduce 4 x table and associated division (5 weeks)	2a Count, recognize the place value and compare numbers to 999 and solve number problems and practical problems involving these ideas. (2 weeks) 2b Teach the children the formal written method for addition with up to three digits **NOT PASSED 999** using the dienes method from Y2 as a starting point to introduce	3a Read and write numbers to 1000 including understanding the place value of each digit and number bonds associated with these. (2 weeks) 3b Count up and down in 1/10. Recognise and show using diagrams equivalent fractions. Introduce non-unit fractions after revisiting

	2b add and subtract numbers **mentally** including • 3 digit number and ones • 3 digit number and tens • 3 digit number and hundreds Including missing number problems Counting in 50 and 100s and finding 10 more / less or 100 more / less (2 weeks) 2c measure and compare, add/subtract lengths, mass, volume and capacity using the partitioning method from Y2 and perimeter of 2d shapes. (2 weeks) 2d interpret and present data using bar charts (including horizontal and vertical lines) and pictograms and tables and solve one and two step questions associated with these. Count using multiples of 2,3,4 and associated division use these in graphs. Recap 5 and 10 (3 weeks)	carrying. Ensure estimation is used first (2 weeks) 2c add and subtract amounts of money to give change using £ and p in practical contexts (1 week) 2d Teach the children the formal written method for subtraction with up to three digits **NOT PAST 999** using the Dienes method from Y2 as a starting point to introduce carrying. Ensure estimation is used first. Link to checking inverse to check answers. (2 weeks) 2d Introduce 8 x table and link to 4x table and associated division. Write and calculate statements for multiplication and division using the tables that they know mentally progressing to formal written methods. (2 weeks) 2e Count up and down in 1/10 understanding that 10th arise that 10ths arise by dividing objects into 10 equal parts and dividing one digit numbers or quantities by 10. Recognise and find fractions of objects and add and subtract fractions with the same denominator. Comparing and ordering unit fractions and fractions with the same denominator. Begin to solve fraction problems (3 weeks) Remember to tell the time to the nearest minute!	unit fractions and ordering these. Solve fraction problems. (3 weeks) 3c Introduce that an angle is a description of a turn or a property of a shape. Identifying right angles, recognize two right angles make a half turn and three make ¾ and 4 make a complete turn. Identify if angles are greater or less than a right angle. (2 weeks) 3d Draw 2D and make 3D shapes using modelling materials, recognize 3D shapes in different orientations and describe them. Use terminology perpendicular and parallel lines (3 weeks) 3e problem solving with addition and subtraction including missing number and more complex problems (1 week) 3f 6 x table by the end of this week children should be able to tell the time on the analogue clock as this has been an ongoing objective throughout the year and the roman numeral clock. Solve problems involving time, seconds in a minute, days in a month and days in a year and leap year with the required vocabulary. (1 week) <u>Incidental/ongoing</u> : tell the time to 5 min intervals
Four	1a Recognise the place of value in a 4 digit number, ordering and comparing numbers beyond 1000 up to 9999, counting in 1000	2a Recap the place of value in a 4 digit number, ordering and comparing numbers beyond 1000 up to 9999, counting in 1000	3a identify lines of symmetry in 2D shapes presented in different orientations. Complete

and finding 1000 more or less than a given number. Identify represent and estimate numbers using different representations (2 weeks) 1b Recall multiplication facts in all known tables and the corresponding division facts introducing 9x table linked to 3x Know the effect of multiplying and dividing by 10, 100 or 1000 specifically linked to converting measures km – m and hours to mins (2 weeks) 1c solve simple money problems involving decimals to two decimal places. Count up and down in 100ths and understand that this arises when dividing an object by 100 and dividing 10ths by 10. Compare decimals with the same number of decimal places and round decimals to nearest whole number (3 weeks) 1d Recap of formal methods with addition and subtraction using estimating and checking with inverse, solving two step problems in contexts deciding which operation to use and why (3 weeks) 1e Describe positions on a 2d grid as coordinates in the first quadrant. Plotting specified points and drawing sides to complete a given polygon describe movements between positions as translations of a given unit to the left/right and up/down (1 week)	and finding 1000 more or less than a given number rounding to the nearest 10, 100 or 1000. Solving numbers and practical problems including estimating, comparing and calculating different measures. (3 weeks) 2b Recap of formal methods with addition and subtraction using estimating and checking with inverse, solving two step problems including involving money and other measures in contexts deciding which operation to use and why including finding perimeter of rectilinear shapes and estimate compare and calculate different measures. (3 weeks) 2c Recap addition and subtraction of fractions with the same denominator. Recognise using diagrams families of common equivalent fractions. Solve problems involving harder fractions to calculate quantities and fractions to divide quantities including non unit fractions where the answer is a whole number. Solve simple problems involving fractions. (3 weeks) 2d Read, write, convert time, between analogue and digital 12 hour clocks. Solve problems converting from hours to minutes, mins to seconds, years to months, weeks to days (2 weeks) 2e compare and classify geometric shapes including quadrilaterals and triangles based on their properties and sizes including acute and obtuse angles (1 week)	a simple symmetric figure with respect to specific line of symmetry. (2 weeks) 3a Revisit rounding to the nearest 10, 100 or 1000. Solving numbers and practical problems in numbers up to 9999 using (2 weeks) 3b Find the effect of dividing a one or two digit number by 10 or 100 identifying the values of the digits as 1s 1/10ths and 1/100 Recognise and write decimal equivalents of any number of 10ths or 100ths. Recognise and write decimal equivalents to ¼, ½, 3/4 . Solve simple problems involving fractions and decimals.(2 weeks) 3c Find the area of rectilinear shapes by counting squares. Compare and order angles up to 2 right angles by size (1 week) 3d Read, write, convert time, between analogue and digital 24 and 12 hour clocks. Solve problems converting from hours to minutes, mins to seconds, years to months, weeks to days (1 week) 3e interpret and present discrete and continuous data using appropriate graphical methods including bar charts and time graphs. Solve, compare sum and difference problems using the information presented in these using the formal addition and subtraction methods (3 weeks)

			3f Read Roman numerals to 100 (I toC) and know this system changed over time (1 week)
Five	1a read, write, order and compare numbers to at least 100 000 and determine the value of each digit including related problem solving (1 week) 1b count forwards or backwards in steps of powers of 10 for any given number up to 100000 round any number up to 100 000 to the nearest 10, 100, 1000, 10 000 including related problem solving (2 weeks) 1c add and subtract whole numbers with 4 digits, including using formal written methods (columnar addition and subtraction) including related multi- step problem solving in context and checking using rounding (2 week) 1d Recap multiply and divide whole numbers by 10, 100 and 1000 (1 week) 1e identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers add and subtract fractions with the same denominator and denominators that are multiples of the same number compare and order fractions whose denominators are all multiples of the same number	2a interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero solve comparison, sum and difference problems using information presented in a line graph complete, read and interpret information in tables, including timetables. (3 weeks) 2b multiply and divide whole numbers and those **involving decimals** by 10, 100 and 1000 convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) (2 weeks) 2c recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal read and write decimal numbers as fractions [for example, 0.71 = 100 71] (add % too) (2 weeks) 2d round decimals with two decimal places to the nearest whole number and to one decimal place	3a read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit including related problem solving (1 week) 3b count forwards or backwards in steps of powers of 10 for any given number up to 1000000 round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 including related problem solving (2 weeks) 3c add and subtract whole numbers with at least 4 digits, including using formal written methods including related multi- step problem solving in context checking using rounding (columnar addition and subtraction) (2 weeks) 3d multiply and divide whole numbers and those **involving decimals** by 10, 100 and 1000 convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) (2 weeks) 3e 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, 5 2 + 5 4 = 5 6 = 1 5 1]

know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers establish whether a number up to 100 is prime and recall prime numbers up to 19 (3 weeks) 1f Recap multiply numbers up to 4 digits by a one digit number using a formal written method, and introduce using a long multiplication for four digit by 2 digit estimate answers (1 week) 1f measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes (2 weeks) 1g divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context 1h read Roman numerals to 1000 (M) and recognise years written in Roman numerals. On-going - add and subtract numbers mentally with increasingly large numbers All multiplication tables up to 12 x 12 Multiply and divide mentally upon known facts	read, write, order and compare numbers with up to three decimal places solve problems involving number up to three decimal places solve problems which require knowing percentage and decimal equivalents of 2 1 , 4 1 , 5 1 , 5 2 , 5 4 and those fractions with a denominator of a multiple of 10 or 25. (2 weeks) multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers (1 week) 2e know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles draw given angles, and measure them in degrees (o) identify: angles at a point and one whole turn (total 360o) angles at a point on a straight line and 2 1 a turn (total 180o) other multiples of 90o 2f distinguish between regular and irregular polygons based on reasoning about equal sides and angles. (1 week) 2g estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water] recognise and use square numbers and cube numbers, and the notation for squared and cubed (1 week)	multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams (2 weeks) 3f use the properties of rectangles to deduce related facts and find missing lengths and angles distinguish between regular and irregular polygons based on reasoning about equal sides and angles. calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes (2 weeks) divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context 3h understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints

	Incidental teaching – on-going: solve problems involving converting between units of time use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes solve problems involving addition, subtraction, multiplication and division and a combination of these solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.		
Six	1a – Read, write, order and compare numbers up to 1,000,000 and determine the value of each digit (1 week) 1b – identify the value of each digit [and order] up to 3 decimal places and multiply numbers by 10, 100, and 1000 giving answers up to 3 decimal places (1 week) 1c – use, read, write and convert between standard units, converting measurements of length, mass, volume from a smaller unit of measure to a larger unit, and vice versa, using decimal notation up to 3 decimal places (1 week)	2a – divide numbers up to 4 digits by a 2-digit whole number using formal long division and, where appropriate, short division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context (1 week) 2b – solve problems (including multi-step problems) involving addition, subtraction, multiplication and division and use estimation to check answers to calculations (1 week) 2c – generate and describe linear number sequences *including* using negative numbers	3a – *3-4 week block, covering weaknesses and misconceptions, identified through ongoing AfL* 3b – describe positions on the full coordinate grid (0.5 week) 3c – draw 2-D shapes using given dimensions and angles.(0.5 week) 3d – draw and translate simple shapes on the coordinate plane and reflect them in the axes. (1 week) 3e – recognize and describe and build simple 3D shapes – including making nets (1 week)

1d – round any number (up to hundredths) to a required degree of accuracy (1 week) 1e – solve number and practical problems that involve all of the above (1 week) 1f – multiply 1-digit numbers with up to 2 decimal places by whole numbers *and* multiply numbers up to 4 digits by a two-digit whole number using formal long multiplication *and* identify common factors, common multiples and prime numbers (1 week) 1g – use common factors to simplify fractions; use common multiples to express fractions in the same denomination *and* compare and order fractions, including fractions > 1 *with different denominators* (1 week) 1h – add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions (1 week) 1i – compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons (1 week) 1j – illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius *and* recognize angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles (1 week) 1k – recall and use equivalences between simple fractions, decimals and percentages *and* associate a fraction with division and	in context and calculate intervals across zero (1 week) 2d – recognize that shapes with the same areas can have different perimeters *and* recognize where it is possible to use formulae for area of shapes *and* calculate the area of parallelograms and triangles *and* use simple formulae (2 weeks) 2e – find pairs of numbers that satisfy an equation with 2 unknowns *and* express missing number problems algebraically (1 week) 2f – *Calculations with fractions:* multiply simple pairs of proper fractions, writing the answer in its simplest form *and* divide proper fractions by whole numbers (1 week) 2g – use written division methods where the answer has up to 2 decimal places *and* interpret and construct pie charts and line graphs and use these to solve problems *and* calculate and interpret the mean as an average (3 weeks) 2h – solve problems, including multi-step problems, involving 4 rules, including problems which require answers to be rounded (2 weeks)	3f – calculate and estimate volume of cubes and cuboids using standard units (ie.cm3) (1 week) 3f. convert between miles and km (0.5 week) 3g - solve problems involving the relative sizes of 2 quantities where missing values can be found using integer multiplication and division facts. (1 week) 3h – solve problems involving similar shapes where the scale factor is known (1week) 3i – solve problems involving unequal sharing and grouping using knowledge of fractions and multiples (1 week)

	calculate decimal-fraction equivalences(1 week) 1l – solve problems involving the calculation of percentages and the use of percentages for comparison (1 week)		