Llangyfelach Primary School

Mathematics & Numeracy Progression Model

Mathematics and Numeracy @LPS

The development of mathematics has always gone hand in hand with the development of civilisation itself. A truly international discipline, it surrounds us and underpins so many aspects of our daily lives, such as architecture, art, music, money and engineering. And while it is creative and beautiful, both in its own right and in its applications, it is also essential for progress in other areas of learning and experience. What is more, numeracy – the application of mathematics to solve problems in real-world contexts – plays a critical part in our everyday lives, and in the economic health of the nation. It is imperative, therefore, that mathematics and numeracy experiences are as engaging, exciting and accessible as possible for learners, and that these experiences are geared towards ensuring that learners develop mathematical resilience.

Formal mathematics has developed through rigorous logical reasoning. It involves inventing or discovering abstract objects and establishing the relationships between them. It also teaches the difference between conjecture, likelihood and proof. Mathematical thinking involves applying similarly logical reasoning, this time to the investigation of relations within and between concepts, along with justifying and proving findings. Indeed, understanding mathematical concepts and being able to apply and reason with the abstract representations of concepts is central to learning mathematics. And essential to this is comprehension of, and proficiency with, the symbols and symbol systems used in mathematics.

Applying mathematics requires strategic competence in the use of abstraction and modelling, and learners develop resilience, as well as a sense of achievement and enjoyment, as they overcome the challenges involved. Subsequently, mathematical activities teach learners not to be afraid of unfamiliar or complex problems, as they can be reduced to a succession of simpler problems and, eventually, to basic computations. As they reflect on the approaches used, and on their own mathematics and numeracy learning, learners can develop metacognitive skills which can help them identify steps to take to improve performance. Through this they can become ambitious, capable learners, ready to learn throughout their lives.

Experiences in this Area also contribute to developing enterprising, creative contributors, ready to play a full part in life and work. These can encourage learners to be creative because it asks them to play, experiment, take risks and be flexible in tackling mathematical problems. Because mathematics is essentially abstract, it allows learners to operate with objects that do not physically exist, and to use and develop their creativity to imagine and discover new realities. It also supports numerical modelling and forecasting which can in turn encourage entrepreneurial thinking.

Mathematics and numeracy can also help learners become ethical, informed citizens of Wales and the world by providing them with tools to analyse data critically, enabling them to develop informed views on social, political, economic and environmental issues. It encourages clarity of thinking, allowing learners to understand and make reasoned decisions.

Our LPS Learning Projects will enable all learners to encounter contexts involving health and personal finance, where they may develop the skills needed to manage their own finances, make informed decisions and become critical consumers. Experiences within these Learning Projects will also help them learn to interpret information and data to assess risk, and to use their numeracy skills across the curriculum to make effective choices, all of which can help them become healthy, confident individuals, ready to lead fulfilling lives as valued members of society.

Number System								
	P1.1	**P1.2**	**P2.1**	**P2.2**	**P2.3**	**P3.1**	**P3.2**	**P3.3**
Place Value Number facts and relationships	A. Recognise numbers 0 to 10. B. Count reliably up to 10 objects. C. Compare and order numbers to at least 10. D. Recite numbers from 0 to 10 forwards and backwards using songs and rhymes. E. Use mark making to represent numbers in play activities that can be interpreted and explained. F. Count in ones from any single digit number. G. Use the terms 'first' and 'last' in daily activities and play.	A. Read and write numbers from 1 to 20 in numerals and words. B. Count reliably up to 20 objects. C. Compare and order numbers to at least 20. D. Recite numbers up to 20, forwards and backwards, and from different starting points. E. Understand that zero means 'none'. F. Demonstrate an understanding of equal and not equal. G. Identify one more and one less from a given number. H. Understand doubling and find doubles up to 5. I. Know number bonds to 10. J. Count in 2s to 10 and in 10s to 100. K. Use ordinal numbers to 5 in daily activities and play. L. Use the terms 'first', 'second', 'third' and 'last' in daily activities and play. M. Begin to recognise odd and even numbers.	A. Read, write and order numbers to at least 100 in numerals and words. B. Demonstrate an understanding of place value, e.g., one 10 and four units equal 14, up to at least 100. C. Count reliably up to 100 objects. D. Compare and order numbers up to 100. E. Recite numbers up to 100, forwards and backwards and from different starting points. F. Count in 2s, 5s, and 10s to 100. G. Understand and use the language of equal to, more than, less than (fewer), most, least. H. Use number facts within 20, e.g., doubling and halving (4 + 4), bonds of 20 (6 + 4). I. Use ordinal numbers to 10 in daily activities and play. J. Count to and across 100, forwards and backwards, from any given number. K. Recognise and understand odd and even numbers up to 20.	A. Read and write numbers to at least 1,000 in numerals and words and determine the value of each digit. B. Compare and order numbers up to 1,000 using language and symbols >, <, =. C. Count on and back from any number in steps of 2, and 5 from 0, and in tens. D. Count sets of objects by grouping in 2s, 5s or 10s. E. Recite numbers beyond 100, forwards and backwards and from different starting points. F. Complete place value additions and subtractions, e.g., 10 more/less, 100 more/less. G. Round any number to the nearest 10. H. Use mental recall of number facts to 20 to derive other facts, e.g., 40 + 40 from 4 + 4, 60 + 40 from 6 + 4. I. Recall doubles up to 20. J. Recognise and understand odd and even numbers up to 100. K. Use ordinal numbers beyond 10. L. Recognise a negative number as being less than zero.	A. Read and write numbers to 10,000 in numerals and words and determine the value of each digit. B. Read, write and order numbers to 1dp determining the value of each digit. C. Compare and order numbers up to 10,000 using language and symbols >, <, =, ≠. D. Count on and back in steps of 2,3,4 and 5 from 0, and in 10's and 100's from any number. E. Complete place value additions and subtractions, e.g., 100 more/less, 1,000 more/less. F. Use place value knowledge to multiply numbers by 10 and 100. G. Round any number to the nearest 10, 100 or 1,000. H. Round numbers with 1dp to the nearest whole number. I. Use mental strategies to recall number facts within 20. J. Identify multiples of 2, 3, 4, 5 and 10; use the term multiple. K. Identify odd and even numbers up to 1,000. L. Identify negative whole numbers on a number line.	A. Read and write numbers to 100,000 in numerals and words and determine the value of each digit. B. Read, write and order numbers to 2dp determining the value of each digit. C. Order and compare different types of numbers beyond 10,000 using language and symbols >, <, =, ≠, ≤, ≥. D. Count in steps of 2,3,4,5 and 8 from any number to 100, forward and backward. E. Count in any multiple from any given number and in powers of 10 (including 1dp, negative) to at least 10,000. F. Count in multiples of 6, 7, 9, 25 and 1,000. G. Use place value knowledge to multiply and divide numbers by 10 and 100. H. Round any number to the nearest 10, 100 or 1,000 or 10,000. I. Round numbers with 2dp to the nearest 10^{th} or whole number. J. Read Roman numerals to 100 (I to C). K. Identify multiples of 2, 3, 4, 5, 6 and 10; use the terms multiple and factor.	A. Read and write numbers to at least 1,000,000 in numerals and words and determine the value of each digit. B. Read, write and order numbers to 3dp determining the value of each digit. C. Order and compare different types of numbers beyond 100,000 using language and symbols >, <, =, ≠, ≤, ≥, ≈. D. Count in any multiple from any given number and in powers of 10 (including 2dp, negative) to at least 100,000. E. Count on/ back from any number (1dp, negative) to at least 100,000. F. Count in multiples of 6,7,8 and 9 from any number to 100. G. Read Roman numerals to 1000 (M). H. Identify multiples of 2,3,4,5,6,8 and 10; use the terms multiple and factor. I. Use place value knowledge to multiply and divide numbers and decimals by 10, 100 and 1,000. J. Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000. K. Round numbers up to 3dp to the nearest 10^{th}, 100^{th} or whole number. L. Know prime numbers up to 20.	A. Read and write numbers to 10,000,000 in numerals and words and determine the value of each digit. B. Order and compare different types of numbers beyond 1,000,000 using language and symbols >, <, =, ≠, ≤, ≥, ≈. C. Count in any multiple from any given number and in powers of 10 (including 3dp, negative) to at least 1,000,000. D. Use negative numbers in context and calculate intervals across zero. E. Identify multiples of numbers up to 10; use the terms multiple and factor. F. Read Roman numerals beyond 1,000 and recognise years written in Roman numerals. G. Identify common multiples/factors. H. Use place value knowledge to multiply numbers and decimals by a multiple of 10. I. Round any number up to 10,000,000 to the nearest 10, 100, 1,000, 10,000, 100,000 and million. J. Know prime numbers up to 100.

Addition & Subtraction	A. Begin to recognise 'more' and 'less' in their play. B. Understand and use the concept of 'one more' and 'one less' in their play. C. Use counting to solve simple mathematics problems in everyday and play situations. D. Recognise how sets change when objects are added and taken away.	A. Talk about addition and subtraction instructions in play activities. B. Combine two groups of objects to find 'how many altogether?' C. Take away objects to find 'how many are left?' D. Mentally recall 'one more' or one less of a number within 10. E. Add and subtract from a number up to 20 by counting on or back using a number line. F. Know number bonds up to 10 and use to form a quantity in different ways.	A. Understand and use the mathematical symbols for addition, subtraction and equals. B. Represent and use number bonds and related subtraction facts within 20. C. Use known facts to mentally solve simple problems within 10, e.g., doubling and halving, number bonds. D. Add and subtract one-digit and two-digit numbers to 20, including zero. E. Add and subtract 11 and 12. F. Mentally add or subtract 10 or 20 to a number up to 100. G. Use number facts and patterns to solve missing number problems, e.g. 7 + ? = 9. H. Use known number facts when adding three single digit numbers realising addition can be done in any order.	A. Understand and use the mathematical symbols and terms for addition, subtraction and equals, e.g., add, combine, find the difference/total. B. Add and subtract whole numbers with up to 3 digits. C. Use mental recall of number facts to 10 and place value to add or subtract larger numbers, e.g., 24 + 4, 30 + 5, 34 + 10. D. Solve one- and two-step problems that involve addition and subtraction. E. Use mental strategies to add and subtract 2-digit numbers. F. Recall and use addition and subtraction facts to 20 fluently to derive and use related facts up to 100. G. Add and subtract near multiples of 10 e.g., 9,11,19,21 by adding / subtracting the multiple of 10 and adjusting. H. Find a small difference between two numbers by counting on, e.g. 44 – 28 = ? I. Recognise and use the inverse relationship between addition and subtraction to solve missing number problems.	A. Add and subtract whole numbers with up to 4 digits, using formal written methods. B. Mentally add and subtract 1- and 2-digit numbers from a 3-digit number. C. Solve addition and subtraction two-step problems in contexts. D. Solve addition and subtraction problems, including missing number problems, using number facts, place value, inverse. E. Use mental strategies to find differences within 100.	A. Add and subtract whole numbers with up to 5 digits, using formal written methods. B. Add and subtract numbers using whole numbers and decimals (1dp). C. Mentally add and subtract 3-digit numbers. D. Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. E. Add or subtract across zero using a number line, e.g., -3 + 5, 4 – 6. F. Use mental strategies to find differences within 1,000.	A. Add and subtract whole numbers with up to 6 digits, using formal written methods. B. Add and subtract numbers using whole numbers and decimals (2dp). C. Mentally add and subtract numbers with more than 3 digits. D. Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. E. Add or subtract negative numbers. F. Use mental strategies to find differences between numbers with 1dp.	A. Add and subtract whole numbers with up to 7 digits, using formal written methods. B. Add and subtract numbers using whole numbers and decimals (3dp). C. Perform mental calculations, including with mixed operations and large numbers. D. Solve multi-step problems in contexts, selecting and justifying which strategies and methods used. E. Solve addition and subtraction problems involving negative numbers. F. Use mental strategies to find differences between numbers with 2dp.

Multiplication & Division	A. Use concrete objects and visual representations to group objects/things into given numbers. B. Share out several objects/things between members in a group.	A. Use concrete objects, pictorial representations and arrays to understand that a double is two of the same number added together. B. Find doubles of 1 to 5 using concrete objects. C. Find halves of even numbers up to 10 using concrete objects.	A. Understand multiplication as 'sets of' in a practical context. B. Work out practical multiplications by counting 'sets of'. C. Begin to record 'sets of' as a multiplication number sentence. D. Understand division as 'groups of' in a practical context. E. Begin to work out practical division problems as grouping. F. Work out simple division problems by working out how many groups in a given number. G. Double a number up to 20 by doubling the tens and then doubling the ones. H. Understand what halving a number means. I. Find half of even numbers up to 20.	A. Understand and use mathematical symbols and terms for multiplication, division and equals e.g., share, goes into. B. Understand that multiplication is repeated addition. C. Recall and use 2, 5 & 10 multiplication tables. D. Link multiplication with simple division, e.g., grouping and sharing in 2s, 5s and 10s. E. Multiply and divide statements within the multiplication tables and write them using arrays, repeated addition, mental methods, and multiplication and division facts. F. Use partitioning strategies to double and halve 2-digit numbers. G. Use these facts to work out near doubles. H. Recognise that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.	A. Multiply 2-digit numbers by a 1-digit number using formal written layout. B. Divide a 2-digit number by a 1-digit number including with remainders. C. Recall 2,3,4,5,8 and 10 multiplication tables and use to solve multiplication and division problems. D. Use place value, known and derived facts to multiply and divide mentally. E. Solve multiplication and division problems, including missing number problems. F. Use partitioning to double and halve 2-digit numbers. G. Understand that multiplication is the inverse of division.	A. Multiply numbers up to 3-digits by a 1-digit number using formal written layout. B. Multiply decimal numbers by 10 and 100 to give answers with tenths and wholes. C. Divide a 3-digit numbers by a 1-digit number including with remainders. D. Divide whole numbers by 10 and 100 to give tenths and hundredths. E. Recall multiplication tables 2,3,4,5,8 and 10 and use to solve multiplication and division problems. F. Use mental strategies to multiply and divide 2-digit numbers by a single digit number. G. Use place value, known and derived facts to multiply and divide mentally. H. Recognise and use factor pairs and commutativity in mental calculations. I. Solve problems involving mixed operations, including using the distributive law to multiply 2-digit numbers by one.	A. Multiply numbers up to 4 digits by 1-digit numbers using formal written methods of multiplication. B. Multiply a 2-digit number by a 2-digit whole number using formal written methods of long multiplication. C. Multiply decimal numbers, up to 2dp by 1 or 2-digit whole numbers. D. Divide numbers up to 4 digits by a 1-digit number using the formal written method of short division and interpret remainders appropriately for the context. E. Divide decimal numbers, up to 2dp by 1-digit whole numbers. F. Recall multiplication tables up to 10x10 and use to solve multiplication and division problems. G. Multiply and divide numbers mentally drawing upon known facts. H. Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. I. Establish whether a number up to 100 is prime. J. Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}).	A. Multiply numbers up to 4 digits by 1 and 2-digit whole numbers using formal written methods of long multiplication. B. Multiply decimal numbers, up to 3dp by 1 or 2-digit whole numbers. C. Divide numbers up to 4 digits by a 2-digit number using the formal written method of long division. D. Divide decimal numbers, up to 2dp by 2-digit whole numbers. E. After division, interpret remainders as whole numbers, fractions, or by rounding, as appropriate for the context. F. Recall multiplication tables up to 12x12 and use to solve division and multiplication problems. G. Perform mental calculations, including with mixed operations and large numbers. H. Identify highest common factors, lowest common multiples and prime numbers. I. Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. J. Solve problems using knowledge of factors and multiples, squares and cubes.

Fractions, Decimals, Percentages & Ratio	A. Begin to understand what half and whole means.	A. Recognise and name a half as one of two equal parts within practical activities. B. Recognise, find and name a half as one of two equal parts of an object, shape or quantity. C. Recall halves up to 10.	A. Recognise, find and name a half as one of two equal parts of an object, shape or quantity. B. Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. C. Recall halves up to 20.	A. Recognise, find, name and write fractions 1/3, 2/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity. B. Write simple fractions, e.g., 1/2 of 6 = 3 and recognise the equivalence of 2/4 and ½. C. Find halves and quarters in practical situations. D. Use decimal notation when recording money.	A. Compare and order unit fractions, and fractions with the same denominators. B. Find fractions of shapes and objects (unit and non-unit fractions with small denominators). C. Find fractional quantities linked to known multiplication facts, e.g., 1/3 of 18, 1/5 of 15. D. Recognise and show, using diagrams, equivalent fractions with small denominators. E. Add and subtract fractions with the same denominator within one whole, e.g., 5/7 + 1/7 = 6/7. F. Recognise a quarter as a half of a half. G. Use halves and quarters to count, describe amounts and shapes. H. Halve 2-digit numbers in the context of number, money and measures. I. Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10. J. Count on and back in tenths.	A. Compare and order fractions whose denominators are all multiples of the same number. B. Find fractions of amounts using division (unit fractions). C. Understand and use fractions that are several parts of a whole, e.g. 2/3, 3/10. D. Recognise and show, using diagrams, families of common equivalent fractions. E. Add and subtract fractions with the same denominator beyond 1 whole. F. Reduce fractions to their simplest form. G. Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. H. Count on and back in hundredths. I. Find equivalences linked to common percentages, fractions and decimals, e.g., 10%, 1/10, 0.1. J. Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred'. K. Solve simple measure and money problems involving fractions and decimals to 2dp. L. Halve 3-digit numbers in the context of number, money and measures.	A. Find equivalent fractions and use these to compare and order fractions with different denominators and mixed numbers. B. Find fractions of amounts using division (unit and non-unit fractions). C. Recognise mixed numbers and improper fractions and convert from one form to the other. D. Add and subtract fractions with denominators that are multiples of the same number. E. Multiply proper fractions and mixed numbers by whole numbers. F. Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. G. Recognise fraction, decimal and percentage equivalents and convert from one form to the other. H. Recognise connections between fractions, e.g., one-tenth is half of one-fifth. I. Use understanding of simple fraction and decimal equivalences when measuring and calculating, e.g., 1⁄2 = 0.5, 1⁄10 = 0.1. J. Calculate fractional or percentage parts of quantities and measurements. K. Solve problems requiring scaling by simple fractions.	A. Use common factors and multiples to simplify and compare, order and express fractions in the same denomination. B. Use mental division strategies to find unit and non-unit fractions of amounts. C. Add, subtract, multiply and divide fractions, writing the answer in its simplest form, e.g., 1/4 × 1/2 = 1/8, 1/3 ÷ 2 = 1/6. D. Associate a fraction with division and use a calculator to find decimal fraction equivalents, e.g., 0.375 for 3/8. E. Know and use percentage and decimal equivalents for common fractions, e.g., ½, ¼, 1/5 1/10, find 25% of 60cm and know this is equivalent to 1⁄4 of 60cm. F. Calculate a number as a fraction or percentage of another. G. Find the whole amount from a given percentage or fraction. H. Use calculator skills to solve more complex percentage and fraction problems. I. Use simple ratio and proportion to solve problems. J. Use ratio to express two or more quantities in words. K. State the proportion of a whole that each share represents, e.g., in a ratio of 1:3, 1 part represents a quarter of the total. L. Use fractions and percentages to describe proportions.

Financial Literacy	A. Demonstrate an awareness of the purpose of money through role play. B. Find coins among a collection of objects. e.g., buttons, shells.	A. Aware of the values of different coins. B. Use 1p, 2p, 5p and 10p coins to pay for items. C. Exchange coins, e.g., 10 pennies for a 10p coin. D. Add small amounts of money in context. E. Use money, and the language of money, in play and real-life situations.	A. Recognise and know the value of different denominations of coins and notes. B. Use different combinations of money to pay for items up to 20p. C. Give change from 10p, 20p and 30p by counting on and using number bonds. D. Find totals of money using number facts. E. Find the difference between amounts of money less than 20p, with a difference of 5p or less.	A. Find different combinations of coins that equal the same amounts of money. B. Use different combinations of money to pay for items up to £1. C. Find totals and give change from multiples of 10p. D. Add and subtract amounts of money to give change, using both £ and p in practical contexts. E. Uses decimal notation in recording money. F. Learn about budgets, expenditure and saving to meet goals.	A. Add and subtract totals less than £100 using correct notation. B. Use different combinations of money to pay for items up to £2 and calculate the change. C. Order and compare items up to £100 using place value knowledge. D. Calculate money spent and saved within a given budget or spend plan.	A. Add and subtract totals less than £1,000 using correct notation. B. Use money to pay for items up to £10 and calculate the change. C. Order and compare items up to £1,000 using place value knowledge. D. Manage money, compare costs from different retailers and determine what can be bought within a given budget.	A. Solve multi step problems involving mixed operations in contexts. B. Order and compare the cost of items up to £10,000 using place value knowledge. C. Plan and track money and savings by keeping accurate records. D. Realise the importance of budgeting and adjusting accordingly.	A. Use the terms profit and loss in buying and selling activities and make calculations for this. B. Understand the advantages and disadvantages of using bank accounts. C. Make comparisons between prices and understand which is best value for money.
Estimate and Check	A. Begin to make a sensible estimate of up to 5 objects.	A. Make a sensible estimate of up to 10 objects that can be checked by counting. B. Make comparisons between groups of objects, e.g., about the same, more, less.	A. Make a sensible estimate of a number of objects that can be checked by counting. B. Make a sensible estimate of measurement (length, height, weight, capacity) that can be checked using non-standard measures.	A. Use checking strategies, e.g., check subtraction using addition, check multiplication using repeated addition. B. Make a sensible estimate of measurement in (length, height, weight, capacity) that can be checked using standard measures.	A. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations. B. Estimate the answer to a calculation by rounding to the nearest 10 and 100.	A. Recognise and use the inverse relationship between addition / subtraction multiplication / division to check calculations. B. Estimate the answer to a calculation by rounding to the nearest 10, 100 or 1,000.	A. Check answers using inverse operations. B. Estimate the answer to a calculation by rounding to the nearest 10, 100, 1,000 or whole number.	A. Select suitable methods to check answers for accuracy, e.g., number facts, divisibility rules. B. Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Algebra & Symbols								
	P1.1	**P1.2**	**P2.1**	**P2.2**	**P2.3**	**P3.1**	**P3.2**	**P3.3**
Number Patterns	A. Copy simple visual and auditory repeating patterns and sequences.	A. Recognise and investigate simple repeating patterns and sequences.	A. Recognise repeating patterns. B. Continue a sequence or pattern.	A. Recognise sequences of numbers. B. Recognise when two different numerical expressions describe the same situation but are written in different ways. C. Write the next two (or more) terms in sequences that involve addition or subtraction.	A. Explore sequences of whole numbers involving addition or subtraction, from different starting points. B. Recognise and explain sequences that involve adding or subtracting. C. Find missing numbers when number bonds and multiplication facts are not complete.	A. Explore sequences of whole numbers from different starting points. B. Recognise and explain sequences, involving 4 operations. C. Write the next two (or more) terms in sequences.	A. Show that a number is in the sequence and/or find the position number by continuing the sequence or otherwise. B. Find the term-to-term rule for ascending and descending sequences, e.g. 3, 7, 11, 15 add 4.	A. Generate and describe linear number sequences. B. Generate a sequence given the first term and the term-to-term rule. C. Find and describe in words the rule for the next term or nth term of a sequence where the rule is linear.
Exploring & Solving Equations	A. Demonstrate an understanding of one-to-one correspondence by matching pairs of objects or pictures.	B. Use objects and pictorial representations to represent the concept of equal or not equal.	A. Identify and represent numbers using objects and pictures, including the number line, and use the language: equal to, more than, less than (fewer), most, least. B. Find an 'unknown' in one step equations, e.g. 7+? = 10.	A. Compare numbers using language and symbols >, <, =. B. Use one step function machines to generate input and output involving addition and subtraction within 100. C. Find an 'unknown' in one step equations and recognise other facts, e.g., 7+? = 10 therefore 10 – 7 =?	A. Order and compare numbers using language and symbols >, <, =, ≠. B. Use one and two step function machines to generate input and output involving addition, subtraction and multiplication and explain the operation in words. C. Find an 'unknown' in one step equations and use this to derive other facts, e.g. 37 + ? = 100 therefore 100 – 37 = ? D. Use simple formulae expressed in words.	A. Order and compare different types of numbers using language and symbols >, <, =, ≠, ≤, ≥, ≈. B. Use one and two step function machines to generate input and output using all four operations and explain the operation in words. C. Find an 'unknown' in two step equations, e.g. 4 x ? + 1 = 25. D. Use simple formulae. E. Check solutions by applying inverse operations or estimating using approximations.	A. Order and compare different types of numbers using language and symbols >, <, =, ≠, ≤, ≥, ≈. B. Use multistep function machines to generate input and output using all four operations and explain the operation in words. C. Solve one step equations using letters to present 'unknowns' with integer solutions, e.g., 6 + a = 10 and b + b = 8. D. Construct and use simple formulae involving one or two operations. E. Select systems for checking solutions. F. Use inverse operations to find unknown values in simple equations.	A. Express output generated from one step function machines using algebra. B. Formulate and solve a variety of simple linear equations. C. Explore and simplify general statements through practical activities, e.g., that a + a + a = 3a, 3 x a = 3a and a + a + a + b + b = 3a + 2b. D. Use knowledge of the order of operations to carry out calculations involving the four operations. E. Find pairs of numbers that satisfy an equation with two unknowns. F. Use inverse operations to find unknown values in complex equations. G. Use trial and improvement methods to solve problems.

Geometry & Measure								
	P1.1	**P1.2**	**P2.1**	**P2.2**	**P2.3**	**P3.1**	**P3.2**	**P3.3**
Length, Weight/Mass, Capacity	A. Compare, sort and order two objects in terms of size, weight or capacity by direct observation.	A. Estimate and compare length, height and distance, e.g., longer/shorter than. B. Estimate and compare weight/mass, e.g., heavier/lighter than. C. Estimate and compare capacity, e.g., holds more/less than. D. Use a variety of non-standard units to estimate and measure length and height. E. Understand the need to use the same object when measuring.	A. Use non-standard units to estimate and measure. B. Measure and begin to record using standard units. C. Compare, describe and solve practical problems for: length/height, mass/weight volume and capacity. D. Begin to use a variety of measuring instruments.	A. Estimate and measure using non-standard and standard units. B. Choose and use appropriate standard units to estimate and measure. C. Complete calculations containing units of measure. D. Compare and order measurements using >, < and =. E. Select the most appropriate method or instrument to measure. F. Use a variety of measuring devices from different starting points.	A. Use standard units to estimate and measure with accuracy. B. Select appropriate metric units to measure. C. Measure, compare, and calculate measurements. D. Convert units of measurement (e.g., cm to m). E. Recognise that perimeter is the distance around a shape. F. Measure the perimeter of simple 2-D shapes. G. Find area of simple regular shapes by counting squares.	A. Select and use appropriate units and instruments to estimate and measure. B. Estimate, compare and calculate different measures. C. Convert between metric units to smaller or larger units, e.g., cm to mm, ml to l, g to kg. D. Measure and calculate perimeter of a variety of rectilinear shapes in cm or m. E. Find area of irregular and compound shapes by counting squares. F. Measure on a ruler to the nearest mm and record using a mix of units, e.g., 1cm 3mm. G. Use weighing scales with divisions to weigh objects to the nearest 5g, 10g, 25g or 100g. H. Measure capacities to the nearest 50ml or 100ml. I. Read scales, with appropriate accuracy, on a range of measuring instruments.	A. Understand and use approximate equivalences between metric units and common imperial units for length. B. Use all four operations to solve problems involving measure using decimal notation, including scaling. C. Make use of conversions, e.g., ¼ of a km = 250m. D. Measure and calculate the perimeter of compound rectilinear shapes. E. Use formulae to find the area of simple rectilinear shapes. F. Find areas of compound rectilinear shapes and triangles. G. Recognise that shapes with the same areas can have different perimeters and vice versa. H. Find volumes of cuboids by counting cubes and begin to use a formula. I. Make estimates of length, weight/mass and capacity based on knowledge of the size of real-life objects. J. Use measuring instruments with 10 equal divisions between each major unit, and record using decimal notation, e.g. 4.2cm, 1.3kg.	A. Carry out calculations using imperial units for length weight and capacity. B. Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3dp where appropriate. C. Convert between standard units: from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3dp. D. Recognise when it is possible to use formulae for area and volume of shapes. E. Calculate the area of different quadrilaterals and triangles. F. Use formulae to find circumferences and areas of circles. G. Use formulae to find volumes of cuboids. H. Make estimates of length, weight/mass and capacity based on knowledge of real-life objects, recognising the appropriateness of units. I. Read and interpret scales/divisions on a range of measuring instruments. J. Record measures in different ways, e.g. 1.3kg = 1kg 300g.

Time	A. Order events related to elements of daily routines and use the terms 'before' and 'after'. B. Understand simple time-related vocabulary. C. Sing/chant the days of the week.	A. Use the concept of time in terms of their daily activities. B. Investigate analogue clocks, discussing the numbers and hands and their purpose. C. Begin to use simple time-related vocabulary (hourly – o'clock) within daily routines. D. Sing/chant the days of the week, months and seasons of the year in meaningful contexts.	A. Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. B. Recognise and use language relating to dates, including days of the week, weeks, months and years. C. Understand and order the days of the week, the months and seasons of the year in meaningful contexts. D. Order events chronologically using sequential language. E. Demonstrate a developing sense of how long tasks and everyday events take.	A. Read 'half past', 'quarter past' and 'quarter to' on an analogue clock. B. Tell and write the time to five minutes and draw the hands on a clock face to show these times. C. Read hours and minutes on a 12-hour digital clock. D. Know the number of minutes in an hour and the number of hours in a day. E. Estimate, compare and sequence intervals of time (30s, 1min, etc). F. Use days of the week, the months and seasons of the year, within investigations and problem solving.	A. Tell the time to the nearest 5 minutes on an analogue clock and calculate how long it is to the next hour. B. Read hours and minutes on a 12-hour digital clock using am and pm. C. Know the number of seconds in a minute and the number of days in each month, year and leap year. D. Compare, estimate and record times and durations of events (to nearest minute) within problem solving and enquiry activities.	A. Tell the time to the nearest minute on an analogue (including Roman numerals) and digital clock. B. Convert between digital and analogue times using am and pm. C. Convert between 12- and 24-hour clock times. D. Calculate time intervals using 12- and 24-hour clock times. E. Compare, order, estimate and record times and durations of events within problem solving and enquiry activities.	A. Read, write and use analogue and digital clocks. B. Convert time between analogue and digital, 12- and 24-hour clocks. C. Calculate start times, finish times and durations using hours, minutes, days and weeks. D. Convert between standard units of time. E. Compare, order, estimate, calculate and record times and durations of events (nearest second) within problem solving and enquiry activities.	A. Read, write, convert and use a variety of time formats fluently. B. Use and interpret timetables and schedules to plan events and activities and calculate time intervals as part of the planning process. C. Solve problems involving converting between units of time. D. Time and order events in minutes and seconds to the nearest tenth of a second.
Temperature	A. Use words that describe temperature during everyday activities, e.g., hot, cold, warm, cool.	A. Use direct comparisons when describing temperature, e.g., hotter, warmer, colder.	A. Compare daily temperatures using a thermometer (°C). B. Use descriptive comparative words for a range of temperatures, e.g., cooler, warmer.	A. Take temperature readings (°C), using a thermometer and interpret readings above and below 0°C. B. Recognise symbols related to temperature.	A. Record and order temperature readings above and below 0°C using symbols related to temperature. B. Calculate temperature differences.	A. Measure and record temperatures involving positive and negative readings. B. Calculate rise and fall in temperatures, crossing 0°C.	A. Estimate temperatures involving positive and negative readings. B. Read scales, with appropriate accuracy, on a range of measuring instruments.	A. Estimate, measure, record and interpret temperature readings in a variety of contexts. B. Read and interpret scales or divisions on a range of measuring instruments. C. Convert between Fahrenheit and Celsius.

Shape, Construction & Movement	A. Recognise and use the names for 2D shapes (circle, square and triangle) within play activities. B. Explore 2D shapes and 3D objects in play. C. Fit simple 2D shapes into spaces. D. Use and build with 2D and 3D shapes within play-based activities.	A. Recognise and name common 2D shapes (circle, square, triangle and rectangle). B. Recognise and name some 3D shapes (cube, cuboid and sphere) within play activities. C. Use 2D and 3D shapes to make models and pictures. D. Complete a simple symmetrical picture. E. Follow two-step instructions for simple movements.	A. Recognise and name common 2D shapes (square, triangle, rectangle, circle and semi-circle). B. Recognise and name common 3D shapes (cube, cuboid, cone and sphere). C. Compare and sort 2D and 3D shapes. D. Use 2D and 3D shapes and describe how they fit together. E. Recognise and complete a symmetrical picture or simple shape. F. Move shapes using directional language. G. Make whole and half turns.	A. Recognise and name regular and irregular 2D and 3D shapes. B. Draw common 2D shapes. C. Understand and use the properties of shape to classify in various ways. D. Make increasingly more complex or accurate models with 3D shapes and tessellate 2D shapes. E. Identify a line of symmetry for 2D shapes and complete symmetrical pictures. F. Identify 2-D shapes on the surface of 3-D shapes (e.g., circle on a cylinder). G. Recognise half and quarter turns and that a quarter turn is a right angle. H. Relate right angles to full, half and quarter turns.	A. Draw 2-D shapes and make 3-D shapes. B. Recognise 3-D shapes in different orientations and describe them. C. Recognise and classify triangles, squares, rectangles, pentagons and hexagons, including irregular cases. D. Identify congruent shapes. E. Recognise 3D shapes, including prisms. F. Draw lines to nearest half centimetre. G. Identify lines of symmetry in 2D shapes. H. Identify and draw horizontal and vertical lines of symmetry.	A. Use knowledge of shape to draw common 2-D shapes in different orientations on grids. B. Draw the reflection of a shape in a horizontal or vertical line. C. Uses knowledge of shape to make 3-D mathematical models. D. Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. E. Recognise and classify 3D shapes, using their own criteria. F. Draw lines to nearest millimetre G. Recognise and draw parallel and perpendicular lines. H. Draw lines of symmetry. I. Identify lines of symmetry in 2-D shapes presented in different orientations.	A. Identify 3-D shapes from 2-D representations. B. Recognise and classify triangles, using their own criteria. C. Identify congruent shapes and justify whether two or more shapes are congruent. D. Draw and label lines accurately, e.g., AB E. Draw squares, rectangles and right-angled triangles accurately. F. Construct solids from given nets G. Draw the reflection of a shape in any line. H. Recognise, identify and describe all the symmetries of 2-D shapes. I. Complete a partly drawn shape after rotation. J. Translate a shape on squared paper horizontally or vertically. K. Explore the tessellation of different shapes. L. Draw nets of cubes on square paper. M. Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.	A. Uses common 2-D representations of 3-D objects. B. Compare and classify geometric shapes based on their properties and sizes. C. Draw 2-D shapes using given dimensions and angles. D. Recognise, describe and build simple 3-D shapes, including making nets. E. Find unknown angles in any triangles, quadrilaterals, and regular polygons. F. Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. G. Recognise tetrahedra and square based pyramids. H. Recognise different types of quadrilaterals. I. Draw cubes and cuboids on isometric paper. J. Find all the lines of symmetry for a given shape. K. Identify rotational symmetry of shapes. L. Identify symmetrical properties of regular polygons. M. Enlarge shapes by a positive whole-number scale factor.

Angle & Position	A. Follow two-step instructions for simple movements within games and play activities. B. Demonstrate an awareness of prepositions and movement during their own physical activities.	A. Move in given directions. B. Use prepositions to describe position.	A. Make whole turns and half turns. B. Describe position, direction and movement, including whole, half, and quarter turns. C. Locate items within a simple grid.	A. Recognise half, quarter and three-quarter turns, clockwise and anti-clockwise. B. Recognise that a quarter turn is a right angle. C. Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and rotation as a turn. D. Use 4 compass points to describe directions. E. Order and arrange combinations of mathematical objects in patterns and sequences. F. Locate and plot items/locations using coordinates.	A. Recognise angles as a property of shape or a description of a turn. B. Identify right angles. C. Recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn. D. Identify whether angles are greater than or less than a right angle. E. Use 4 or 8 compass points to describe directions. F. Use and interpret co-ordinates in the first quadrant.	A. Identify acute and obtuse angles. B. Compare and order angles up to 180°. C. Use a protractor to check if an angle is more or less than a right angle. D. Use 8 compass points to describe direction. E. Read, plot and write co-ordinates in one quadrant. F. Plot specified points and draw sides to complete a given polygon.	A. Estimate, compare and order acute, obtuse and reflex angles. B. Identify missing angles at a point on a straight line. C. Measure angles in degrees (°) with appropriate accuracy (+/- 2°). D. Use a protractor to draw given angles with appropriate accuracy (+/- 2°). E. Use the properties of rectangles to deduce related facts and find missing lengths and angles. F. Use co-ordinates in all four quadrants. G. Use coordinates to specify location. H. Read scales on maps, plans and graphs.	A. Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. B. Measure and draws angles to the nearest degree. C. Calculate a missing angle within a right angle, on a straight line or around a point. D. Solve problems using angle and symmetry properties of polygons and properties of intersecting and parallel lines. E. Identify the coordinates of a missing point from a regular shape. F. Describe positions on the full co-ordinate grid (all four quadrants). G. Draw and translate simple shapes on the co-ordinate plane and reflect them in the axes. H. Use grid references to specify location.

Statistics & Probability								
	P1.1	**P1.2**	**P2.1**	**P2.2**	**P2.3**	**P3.1**	**P3.2**	**P3.3**
Interpreting Data	A. Use mark making to begin to record collections. B. Sort and match objects or pictures by recognising similarities.	A. Record collections using marks, numbers or pictures. B. Sort and classify objects, explaining the criterion used. C. Sorts objects using one criterion and is aware of contrasting qualities. D. Investigate data collected and recorded.	A. Collect information by voting or sorting. B. Create simple lists, tables, diagrams and block graphs. C. Sort and classify objects using more than one criterion. D. Extract information from simple pictograms, tally charts, block diagrams and tables.	A. Use table, list or diagram to record data. B. Create lists, tables, diagrams. C. Construct block graphs and pictograms (one symbol represents one or two units). D. Sort and classify objects using more than two criteria (their own or others). E. Extract and interpret information from pictograms, lists, tables, Venn diagrams, graphs, tally charts, block diagrams and tables. F. Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.	A. Collect and record discrete data. B. Represent data using lists, tally charts, tables and diagrams. C. Construct bar charts and bar line graphs (labelled in 2s, 5s and 10s) and pictograms (one symbol represents more than one unit) D. Investigate the use of Venn and Carroll diagrams. E. Extract and interpret information presented in simple tables, lists, bar charts and pictograms. F. Solve one-step and two-step questions ('How many more?' and 'How many fewer?') using information presented in bar charts, pictograms and tables.	A. Collect discrete data, and group data appropriately. B. Create own lists, tally charts, tables and diagrams to represent data. C. Construct bar charts and bar line graphs, pictograms. D. Construct simple line graphs. E. Extract and interpret information from bar charts, timetables, line graphs and frequency diagrams. F. Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and simple line graphs. G. Use the mode and median as characteristics of a set of data.	A. Collect and record continuous data to support enquiry. B. Create own lists, tally charts, tables, diagrams and frequency tables to represent data. C. Construct bar charts and grouped data charts. D. Construct line graphs and conversion graphs. E. Extract and interpret information from an increasing range of diagrams, timetables and graphs (including pie charts) and use to solve comparison, sum and difference problems. F. Use mean, median, mode and range to describe a data set.	A. Identify, collect and record relevant data to support enquiry and select appropriate presentation. B. Construct bar charts and grouped data charts. C. Construct multiple line graphs and conversion graphs. D. Construct pie charts and scatter graphs. E. Extract and interpret information from a range of diagrams, timetables and graphs (including pie charts and scatter graphs) to solve various problems. F. Use the mean of discrete data and compares two simple distributions. G. Identify a missing value within a variety of data sets e.g., missing value from bar chart to give mean.
Probability						A. Understands and uses simple vocabulary associated with probability (impossible, likely, even chance, etc.). B. Identify the outcomes of simple events, e.g., Will it rain today?	A. Use all vocabulary associated with probability to describe the likelihood of an event occurring. B. Uses the probability scale from 0 to 1 (decimals). C. Appreciate that different outcomes may result from repeating an experiment (flipping a coin, rolling a dice) and representing this as tree diagram or branching database.	A. Use numbers and fractions to describe the likelihood of an event, e.g. A one-in-six chance. B. Uses knowledge that the total probability of all the mutually exclusive outcomes of an experiment is 1 to find and justify probabilities. C. Identifies and demonstrates all the outcomes when dealing with a combination of two experiments (fractions).