Annesley Primary & Nursery School Progression Map

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Mathematics

At Annesley Primary and Nursery School, we believe that mathematics is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject. Our curriculum is designed so that all pupils become fluent in the fundamentals of mathematics, reason mathematically, and solve problems by applying their mathematics to a variety of routine and non-routine problems.

We teach mathematics using the White Rose Maths scheme of work, following its small steps and the national curriculum 'Ready to progress' criteria, so that pupils build secure understanding before they move on, and no child is left behind. Pupils are taught through a concrete, pictorial and abstract approach, using representations such as ten frames, place value counters, number lines, bar models and arrays to make structure visible, and are expected to explain and justify their thinking using precise mathematical vocabulary. Fluency in number facts is practised regularly, so that recall of facts such as number bonds and multiplication tables becomes automatic and frees up working memory for problem solving.

By the end of Year 6, pupils leave Annesley Primary and Nursery School as confident, fluent and resilient mathematicians who recall key number facts accurately, use formal written and mental methods with understanding, reason and explain using mathematical language, and solve multi-step problems across all areas of mathematics. They are well prepared for the mathematics curriculum at secondary school and for the demands of everyday life.

Our ARCHIE framework embeds six core values across our curriculum – Ambition, Resilience, Confidence, Honesty, Independence, and Equality. Below are how these values apply to Mathematics at Annesley Primary & Nursery School:

A	We encourage and support each other to aim high to master mathematical skills and knowledge so that we achieve the best we can. Pupils follow a well-sequenced curriculum in which concepts are introduced, practised and revisited, moving from simple ideas towards more complex mathematical thinking as they progress through school. Children are encouraged to aspire to deep understanding rather than surface learning, applying their knowledge to reasoning and problem-solving with increasing sophistication. High expectations are maintained for all pupils, ensuring that everyone is challenged appropriately and supported to reach beyond their current abilities. By encouraging one another to aim high, children develop a shared determination to achieve their personal best and to see themselves as capable mathematicians.
R	When children find Maths challenging, they explore alternative strategies, collaborate with their peers and persevere. Pupils learn that struggling with a problem is a natural part of learning mathematics rather than a sign of failure, and that making mistakes provides valuable opportunities to deepen understanding. They develop a repertoire of approaches, such as drawing a diagram, using equipment, trying a different method or talking through the problem with a partner, which they can draw on when the first attempt does not work. By working together and sticking with a problem until it is solved, children build the perseverance and determination to tackle increasingly complex mathematical challenges, consistent with the way mistakes are treated as opportunities to learn across our curriculum.
C	We aim to promote enjoyment, confidence and mastery in Maths so that children can tackle real-life mathematical problems today and in the future. As pupils see their skills developing through well-sequenced teaching and regular practice, this tangible progress builds genuine self-belief in their mathematical abilities. Children are given regular opportunities to explain their thinking, to justify their answers and to apply their learning to everyday situations such as money, measurement and time. This growing self-assurance enables pupils to approach unfamiliar problems without fear, to take pride in their achievements and to see Maths as a useful and enjoyable part of life rather than something to be anxious about.
H	Children are honest when they do not understand and know that knowledge and skills are built in small steps. Pupils learn that admitting they are unsure is a positive and valuable step in their learning, rather than something to hide, and that no one is expected to grasp every concept immediately. In a supportive environment where honest questions are welcomed, teachers are able to identify gaps quickly and respond with targeted support, so that misconceptions are addressed before they become barriers. Children are also encouraged to reflect truthfully on their own progress, recognising what they have mastered and what they need to practise further. This culture of openness ensures that learning is built on secure foundations, one small step at a time.
I	We aim to develop the mindset that further enables children's independence in Maths. Pupils are encouraged to take ownership of their learning by choosing strategies and resources that help them, checking their own work and deciding what they need to do when they are stuck, rather than relying solely on adult guidance. As their fluency and understanding grow, children become increasingly able to apply their knowledge to new problems and to make their own mathematical decisions. This independent mindset empowers pupils to become self-directed learners who can approach mathematical challenges with initiative and who continue to use and develop their skills beyond the classroom.
E	Children help each other and recognise that some learners find Maths hard. Pupils learn that everyone learns at a different pace and that each person's contribution to the class is valued, whatever their starting point. Through adaptive teaching and appropriate support, all children are enabled to access the curriculum and to make progress, ensuring that every child has equal access to high-quality teaching, resources and opportunities to succeed in Maths. By fostering a culture of kindness, patience and mutual support, we help every pupil to see themselves as a capable mathematician and to understand that asking for and offering help is a strength.

		EYFS	Key Stage 1		Key Stage 2			
		Nursery/ Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Number and Place Value	**Knowledge**	• Counting: the last number counted tells how many there are in a set (cardinality), and numbers beyond 20 follow a pattern. • A numeral stands for a quantity; small quantities up to 5 can be recognised without counting (subitising). • Comparing: one quantity can be more than, fewer than or the same as another, up to 10. **Key vocabulary:** count, number, numeral, how many, more, fewer, same, one more, one less, subitise	• Numbers to 100 can be counted forwards and backwards from 0 or 1, or from any given number, and in twos, fives and tens (1NPV-1). • Numbers to 20 have a position on a number line, which allows them to be compared, ordered and described using <, > and = (1NPV-2). • Every number has one more and one less; numbers from 1 to 20 can be written in numerals and in words. **Key vocabulary:** number line, one more, one less, tens, ones, fewer, greater than, less than, equal to, numeral, order	• Two-digit numbers are made up of tens and ones, and can be partitioned in standard (34 = 30 + 4) and non-standard ways (34 = 20 + 14) (2NPV-1). • Any two-digit number has a position on the number line, between the previous and next multiple of 10 (2NPV-2). • Counting in steps of 2, 3 and 5 from 0, and in tens from any number, forwards and backwards, helps to build number sense. **Key vocabulary:** tens, ones, place value, partition, expanded form, multiple of 10, number line, compare, order	• 10 tens are equivalent to 1 hundred, and 100 is 10 times the size of 10 (3NPV-1). • Three-digit numbers are made up of hundreds, tens and ones, and can be partitioned in standard and non-standard ways (3NPV-2). • Number lines and scales from 0 to 1000 can be read by dividing 100 into 2, 4, 5 and 10 equal parts (3NPV-3, 3NPV-4); counting in 4s, 8s, 50s and 100s extends number sense. **Key vocabulary:** hundreds, tens, ones, partition, multiple of 100, number line, scale, estimate, compare, order, more than, less than	• 10 hundreds are equivalent to 1 thousand, and 1,000 is 10 times the size of 100 (4NPV-1). • Four-digit numbers have thousands, hundreds, tens and ones, and can be partitioned in standard and non-standard ways (4NPV-2). • Numbers can be rounded to the nearest 10, 100 or 1,000 by finding the previous and next multiple (4NPV-3); negative numbers come below zero, and Roman numerals to 100 (I to C) show how the number system changed to include zero and place value. **Key vocabulary:** thousands, round, nearest, negative number, Roman numeral, partition, multiple of 1,000, scale, estimate	• 10 tenths are equivalent to 1 one, 100 hundredths are equivalent to 1 one, and 10 hundredths are equivalent to 1 tenth (5NPV-1). • Numbers to 1,000,000 and numbers with up to 2 decimal places can be composed and decomposed, and have a position on the number line (5NPV-2, 5NPV-3). • Rounding: numbers can be rounded to the nearest 10 to 100,000 and decimals to the nearest whole number and 1 decimal place; Roman numerals to 1,000 (M) can be read, including years. **Key vocabulary:** tenths, hundredths, thousandths, decimal, decimal place, round, million, negative number, Roman numeral, integer	• Powers of 10, from 1 hundredth to 10 million, are related; multiplying or dividing by 10, 100 and 1,000 makes a number 10, 100 or 1,000 times the size or 1 tenth, 1 hundredth or 1 thousandth times the size (6NPV-1). • Numbers up to 10,000,000, including decimal fractions to 3 decimal places, can be composed and decomposed (6NPV-2) and located in the number system (6NPV-3). • Negative numbers can be used in context, and the interval across zero calculated; numbers are rounded to a required degree of accuracy. **Key vocabulary:** power of 10, integer, decimal, ten million, round, degree of accuracy, interval, negative number, place value
	Skills	• Count objects, actions and sounds, and count beyond 20.	• Count within 100, forwards and backwards, starting with any number.	• Read and write numbers to at least 100 in numerals and in words.	• Recognise the place value of each digit in a three-digit number, and compose and	• Recognise the place value of each digit in a four-digit number, and compose and	• Read, write, order and compare numbers to at least 1,000,000, and determine	• Read, write, order and compare numbers up to 10,000,000, and determine the value

		• Recognise numerals to 10 (and beyond), matching them to quantities. • Compare quantities to 10 using 'more than' and 'fewer than'. • Subitise quantities up to 5 without counting.	• Read and write numbers to 100 in numerals, and numbers 1 to 20 in words. • Identify and represent numbers using objects and pictorial representations and give one more and one less. • Compare and order numbers to 20 using the number line, <, > and =. *White Rose blocks: Autumn 1, Spring 1, Spring 3, Summer 4.*	• Compose and decompose two-digit numbers using standard and non-standard partitioning. • Identify, represent and estimate numbers using different representations, including the number line, and identify the previous and next multiple of 10. • Compare and order numbers from 0 to 100, using <, > and =. *White Rose blocks: Autumn 1.*	decompose numbers using standard and non-standard partitioning. • Read and write numbers up to 1,000 in numerals and in words; compare and order numbers to 1,000. • Find 10 or 100 more or less than a given number, and count from 0 in multiples of 4, 8, 50 and 100. • Read scales and number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. *White Rose blocks: Autumn 1, Autumn 3.*	decompose four-digit numbers. • Find 1,000 more or less than a given number; order and compare numbers beyond 1,000. • Round any number to the nearest 10, 100 or 1,000, and count backwards through zero to include negative numbers. • Read Roman numerals to 100, and solve number and practical problems with increasingly large numbers. *White Rose blocks: Autumn 1, Autumn 4.*	the value of each digit. • Recognise the place value of each digit in numbers with up to 2 decimal places and locate decimals on the number line. • Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000; interpret negative numbers in context. • Count forwards and backwards in steps of powers of 10 for any given number up to 1,000,000, and read Roman numerals to 1,000. *White Rose blocks: Autumn 1, Summer 4.*	of each digit, including decimals to 3 decimal places. • Multiply and divide numbers by powers of 10, making a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size. • Round any whole number to a required degree of accuracy. • Use negative numbers in context, and calculate intervals across zero. *White Rose blocks: Autumn 1.*
		EYFS	**Key Stage 1**		**Key Stage 2**			
		Nursery/ Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Number Facts	**Knowledge**	• Numbers can be split into parts (composed and decomposed); for example, 5 is made of 4 and 1, or 3 and 2. • Number bonds to 5, and some to 10, can be recalled automatically; double facts can be recalled, e.g. 2 + 2.	• Addition and subtraction facts within 10 (number bonds) are composed from 2 parts, and fluency with these underpins all later calculation (1NF-1). • Counting forwards and backwards in	• Addition and subtraction facts within 10 must be secure and automatic, because they are used to add and subtract across 10 and with larger numbers (2NF-1). • Bonds to 20, and the 2, 5 and 10	• Addition and subtraction facts that bridge 10 can be recalled fluently through continued practice (3NF-1). • Multiplication facts, and the corresponding division facts, in the 2, 3, 4, 5, 8 and 10 multiplication tables	• Multiplication and division facts up to 12 × 12 can be recalled, and products in the tables are multiples of the corresponding number (4NF-1). • Division problems with two-digit dividends and one-	• Fluency in multiplication table facts, and the corresponding division facts, must be maintained through continued practice, and supports finding factors and multiples, squares	• Known number facts can be used to derive and complete related calculations, using arithmetic properties, inverse relationships and place-value understanding (6AS/MD-2). • Secure recall of facts, including for decimals and fractions, makes

		• A set can be shared equally, and odd and even numbers can be recognised. **Key vocabulary:** part, whole, double, share, equal, total, odd, even, number bond, number pair	multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and through the odd numbers, builds the foundation for the multiplication tables (1NF-2). **Key vocabulary:** number bond, fact family, part, whole, total, odd, even, multiple, double, half, count in twos, fives, tens	multiplication facts, build on these and on counting patterns. **Key vocabulary:** bond, add, subtract, make 10, bridge, fluent, automatic, fact, odd, even	can be recalled, and products are multiples of the corresponding number (3NF-2). • Place-value knowledge can be applied to known facts, scaling them by 10 (e.g. 3 + 4 = 7, so 30 + 40 = 70) (3NF-3). **Key vocabulary:** bridge, multiple, product, factor, multiplication table, division fact, scale, ten times	digit divisors can have remainders, which are interpreted appropriately according to the context (4NF-2). • Place-value knowledge can be applied to known additive and multiplicative facts, scaling them by 100 (4NF-3). **Key vocabulary:** multiple, factor pair, product, quotient, remainder, dividend, divisor, scale, hundred times	and fractions of amounts (5NF-1). • Place-value knowledge can be applied to known additive and multiplicative facts, scaling them by 1 tenth or 1 hundredth (5NF-2); decimal facts such as complements to 1 can be recalled. **Key vocabulary:** multiple, factor, square number, scale, tenth, hundredth, complement, fluent, division fact	mental calculation and estimation with large numbers efficient. **Key vocabulary:** derive, inverse, commutative, related fact, mental calculation, estimate, place value, scale
	<u>Skills</u>	• Recall number bonds to 5, and some bonds to 10, automatically. • Recall double facts, and know how quantities can be shared equally. • Explore odd and even numbers, and patterns in numbers.	• Develop fluency in addition and subtraction facts within 10. • Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple. • Count forwards and backwards through the odd numbers. • Compose numbers to 10 from 2 parts and recall bonds to 10.	• Secure fluency in addition and subtraction facts within 10, through continued practice. • Add by making 10, add to the next 10, and subtract from 10, using known bonds. • Recall and use multiplication and division facts for the 2, 5 and 10 tables.	• Secure fluency in addition and subtraction facts that bridge 10, through continued practice. • Recall multiplication facts and the corresponding division facts for the 2, 3, 4, 5, 8 and 10 tables, and recognise products as multiples. • Apply place-value knowledge to known facts, scaling them by 10.	• Recall multiplication and division facts up to 12 × 12, and recognise products as multiples of the corresponding number. • Solve division problems with two-digit dividends and one-digit divisors that involve remainders, interpreting them appropriately. • Apply place-value knowledge to known additive and multiplicative facts, scaling them by 100.	• Secure fluency in multiplication table facts, and the corresponding division facts, through continued practice. • Apply place-value knowledge to known facts, scaling them by 1 tenth or 1 hundredth. • Use known facts and complements to 1 to add and subtract decimals.	• Use a given calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships and place value. • Reason from known facts to calculate mentally with large numbers and decimals. • Use estimation to check answers.

			White Rose blocks: Autumn 2, Summer 1, Summer 4, Summer 5.	*White Rose blocks: Autumn 2.*	*White Rose blocks: Autumn 2, Autumn 3, Spring 1.*	*White Rose blocks: Autumn 2, Autumn 4, Spring 1.*	*White Rose blocks: Autumn 3, Spring 2, Summer 3.*	
		EYFS	**Key Stage 1**		**Key Stage 2**			
		Nursery/ Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Addition and Subtraction	**Knowledge**	• Adding means putting groups together to find a total; subtracting means taking away or finding how many fewer. • Numbers to 10 can be composed from two parts (e.g. 7 is 5 and 2). • One more and one less than a number can be found. **Key vocabulary:** add, more, altogether, take away, fewer, left, total, equal, one more, one less	• Numbers to 10 can be composed from 2 parts and partitioned into parts, including odd and even numbers (1AS-1). • Equations use addition (+), subtraction (−) and equals (=) symbols and relate to real-life contexts; fact families link addition and subtraction (1AS-2). • Addition and subtraction within 20 uses number bonds, and missing number problems (e.g. 7 = ? − 9) can be solved. **Key vocabulary:** add, subtract, equals, equation, part, whole, fact family, missing number, number bond, total, difference	• Addition and subtraction can cross a ten (2AS-1); subtraction as 'difference' answers 'How many more...?' questions (2AS-2). • Within 100, related one-digit facts can be applied to add and subtract ones or tens from a two-digit number (2AS-3) and any two two-digit numbers (2AS-4). • Addition and subtraction are inverse operations, which can be used to check calculations. **Key vocabulary:** across ten, difference, how many more, inverse, tens, ones, mental, number line, change, total	• Complements to 100 can be calculated (3AS-1). • Columnar methods add and subtract up to three-digit numbers, with exchange (3AS-2). • The inverse relationship between addition and subtraction relates to the part–part–whole structure; addition is commutative, and a related property is understood for subtraction (3AS-3). **Key vocabulary:** complement, column, exchange, inverse, part-whole, commutative, mental, estimate, hundreds	• Columnar addition and subtraction extend to numbers of up to four digits, where appropriate, with exchange across more than one column. • Two-step problems need a decision about which operations and methods to use, and why; estimating and the inverse help to check answers. **Key vocabulary:** column, exchange, thousands, two-step, estimate, inverse, operation, method, check	• Columnar methods add and subtract whole numbers with more than four digits; mental methods extend to increasingly large numbers. • Multi-step problems need decisions about operations and methods; the equals sign shows that two quantities are the same. **Key vocabulary:** column, exchange, multi-step, mental method, equals sign, inverse, estimate, operation	• The order of operations determines how calculations involving the four operations are carried out. • Two numbers can be related additively or multiplicatively (6AS/MD-1), and mental calculation can use mixed operations and large numbers. • Multi-step addition and subtraction problems involve choosing efficient methods and checking with estimation and inverses. **Key vocabulary:** order of operations, brackets, mixed operations, multi-step, inverse, estimate, additive, multiplicative, mental
	Skills	• Combine two groups to find a total, and take away to find how many are left. • Use objects, pictures and fingers to add and subtract within 10.	• Read, write and interpret equations with +, − and =, and relate them to real-life contexts. • Add and subtract one-digit and two-	• Add and subtract across 10, subtract from a 10, and recognise 'difference' as 'how many more'. • Add and subtract a two-digit number and ones,	• Calculate complements to 100. • Add and subtract mentally a three-digit number and ones, tens or hundreds.	• Add and subtract numbers with up to four digits using columnar methods where appropriate. • Solve two-step addition and subtraction	• Add and subtract whole numbers with more than four digits using columnar methods. • Add and subtract numbers mentally	• Perform mental calculations, including with mixed operations and large numbers. • Use knowledge of the order of operations to carry out calculations

		• Solve simple practical problems, and say what happened.	digit numbers to 20, including zero. • Solve one-step problems and missing number problems using objects and pictorial representations. *White Rose blocks: Autumn 2, Spring 2.*	a two-digit number and tens, two two-digit numbers, and three one-digit numbers. • Solve problems with numbers, quantities and measures, applying mental and written methods, and check using the inverse. *White Rose blocks: Autumn 2.*	• Add and subtract numbers with up to three digits using columnar methods. • Solve problems, including missing number problems, using number facts and place value. *White Rose blocks: Autumn 2.*	problems, deciding which operations and methods to use and why. • Estimate answers and use the inverse to check. *White Rose blocks: Autumn 2.*	with increasingly large numbers. • Solve multi-step problems in context, deciding which operations and methods to use and why. *White Rose blocks: Autumn 2.*	involving the four operations. • Solve multi-step addition and subtraction problems, choosing methods and checking by estimation. *White Rose blocks: Autumn 2.*
		EYFS	**Key Stage 1**		**Key Stage 2**			
		Nursery/ Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Multiplication and Division	**Knowledge**	• Doubling means making two equal groups; sharing means dividing into equal groups. • Items can be put into equal groups and counted, e.g. in twos.	• Equal groups and arrays show multiplication and division; doubling and halving are first examples. • Counting in 2s, 5s and 10s is the foundation of the multiplication tables (see Number Facts).	• Repeated addition contexts can be shown as multiplication equations, within the 2, 5 and 10 multiplication tables (2MD-1). • Grouping problems where the number of groups is unknown relate to division, and to multiplication equations with a missing factor (2MD-2). • Multiplication can be done in any order (commutative); division cannot.	• Known facts can be applied to contextual problems with different structures, including quotitive (grouping) and partitive (sharing) division (3MD-1). • The 3, 4 and 8 multiplication tables are added; two-digit numbers can be multiplied by one-digit numbers using mental methods, progressing to formal written methods. • Positive integer scaling and correspondence problems involve multiplication and division.	• Whole numbers can be multiplied and divided by 10 and 100, making a number 10 or 100 times the size (4MD-1). • Multiplication and division equations can be manipulated; multiplication is commutative (4MD-2) and distributive (4MD-3). • Facts to 12 × 12, factor pairs, multiplying by 0 and 1, dividing by 1, and multiplying three numbers, support mental calculation.	• Multiples, factors, common factors and common multiples of whole numbers can be found, and a number can be expressed as a product of 2 or 3 factors (5MD-2). • Prime numbers, prime factors, composite numbers, and square and cube numbers (^{2} and ^{3}) have specific properties. • Formal written methods: multiply up to 4 digits by 1 or 2 digits, and short division of up to 4 digits by 1 digit with remainders interpreted in context (5MD-3,	• Common factors, common multiples and prime numbers can be identified. • Formal written methods: long multiplication (up to 4 digits by 2 digits), long division (up to 4 digits by 2 digits), and short division where appropriate; remainders are interpreted as whole numbers, fractions or by rounding. • Estimation is used to check answers and to decide on an appropriate degree of accuracy; two numbers can be related multiplicatively (6AS/MD-1).

		Key vocabulary: double, half, share, equal, group, pair, count in twos, odd, even	**Key vocabulary:** group, equal, array, double, half, share, count in twos, fives and tens, one-step problem	**Key vocabulary:** equal groups, repeated addition, array, multiply, divide, times, product, share, group, commutative, odd, even	**Key vocabulary:** multiply, divide, product, quotient, sharing, grouping, scaling, correspondence, multiple, formal written method	**Key vocabulary:** factor pair, distributive, commutative, partition, product, scaling, multiply by 10, multiply by 100, remainder	5MD-4); numbers are multiplied and divided by 10, 100 and 1,000 (5MD-1). **Key vocabulary:** multiple, factor, common factor, prime, composite, square number, cube number, short division, long multiplication, remainder	**Key vocabulary:** long multiplication, long division, short division, remainder, common factor, common multiple, prime, estimate, order of operations
	<u>Skills</u>	• Double numbers, and share items into equal groups. • Explore equal groups and arrays practically. • Solve practical problems about sharing and doubling.	• Solve one-step problems involving multiplication and division, using concrete objects, pictorial representations and arrays with the support of the teacher. • Make equal groups, and double and halve numbers. • Count in multiples of 2, 5 and 10. *White Rose blocks: Summer 1.*	• Calculate and write multiplication and division statements within the multiplication tables, using ×, ÷ and =. • Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including odd and even numbers. • Solve problems using materials, arrays, repeated addition, mental methods and multiplication and division facts, including in contexts. *White Rose blocks: Spring 2.*	• Recall and use multiplication and division facts for the 3, 4 and 8 tables. • Write and calculate multiplication and division statements, including two-digit numbers times one-digit numbers, mentally and progressing to formal methods. • Solve problems, including missing number problems, positive integer scaling and correspondence problems. *White Rose blocks: Autumn 3, Spring 1.*	• Recall multiplication and division facts up to 12 × 12; multiply and divide mentally, including by 0, 1, 10 and 100. • Multiply two-digit and three-digit numbers by a one-digit number using a formal written layout. • Solve problems using the distributive law, integer scaling and harder correspondence problems. *White Rose blocks: Autumn 4, Spring 1.*	• Identify multiples and factors, including factor pairs and common factors; establish whether a number up to 100 is prime and recall primes to 19. • Multiply numbers up to 4 digits by a one- or two-digit number, and divide up to 4 digits by a one-digit number, interpreting remainders. • Multiply and divide whole numbers and decimals by 10, 100 and 1,000. • Solve problems involving factors, multiples, squares and cubes, scaling by simple fractions and simple rates. *White Rose blocks: Autumn 3, Spring 1.*	• Multiply multi-digit numbers up to 4 digits by a two-digit number using long multiplication. • Divide up to 4 digits by a two-digit number using long division (or short division where appropriate), and interpret remainders. • Perform mental calculations with mixed operations and large numbers; use estimation to check answers. • Solve problems involving all four operations. *White Rose blocks: Autumn 2.*

		EYFS	Key Stage 1		Key Stage 2			
		Nursery/ Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Fractions (including Decimals and Percentages)	**Knowledge**	• A whole can be shared equally into parts; a half is one of two equal parts. • Sharing equally into two groups gives a half of the amount. **Key vocabulary:** half, whole, equal, share, parts, double, in half	• A half is one of two equal parts of an object, shape or quantity; a quarter is one of four equal parts. • Fractions describe equal parts of a whole, and the parts must be equal. **Key vocabulary:** half, quarter, whole, equal parts, fraction, shape, quantity, share	• Fractions ½, ⅓, ¼, 2/4 and ¾ describe parts of a length, shape, set of objects or quantity; 2/4 is equivalent to ½. • A fraction of an amount can be written as a simple fraction, e.g. ½ of 6 = 3. **Key vocabulary:** half, quarter, third, three quarters, equivalent, fraction, numerator, denominator, set, length	• Unit and non-unit fractions with small denominators are interpreted and written as parts of a whole divided into equal parts (3F-1), and as numbers on a number line within 1 (3F-3). • Tenths arise from dividing an object into 10 equal parts and from dividing one-digit numbers or quantities by 10; unit fractions of quantities use known division facts (3F-2). • Equivalent fractions with small denominators can be shown with diagrams; fractions with the same denominator can be added and subtracted within 1 (3F-4). **Key vocabulary:** unit fraction, non-unit fraction, numerator, denominator, tenth, equivalent, compare, order, whole	• Mixed numbers have a position in the number system (4F-1), and can be converted to improper fractions and vice versa (4F-2). • Fractions with the same denominator, including improper and mixed fractions, can be added and subtracted, bridging whole numbers (4F-3). • Hundredths arise from dividing an object by 100 and tenths by 10; decimal equivalents of tenths, hundredths, ½, ¼ and ¾ are known; families of common equivalent fractions can be shown. **Key vocabulary:** mixed number, improper fraction, hundredth, decimal equivalent, equivalent fraction, decimal place, round	• Non-unit fractions of quantities can be found (5F-1); equivalent fractions have the same value and the same position on the number line (5F-2). • Decimal equivalents of ½, ¼, 1/5 (fifths), tenths and multiples of these are known (5F-3); decimals can be read as fractions (e.g. 0.71 = 71/100) and include thousandths. • Per cent means 'number of parts per hundred' (%), and percentages can be written as fractions with denominator 100 and as decimals; fractions can be compared, ordered, added and subtracted when denominators are multiples of the same number, and multiplied by whole numbers. **Key vocabulary:** equivalent fraction, improper fraction, mixed number, thousandth, per cent, percentage, decimal, denominator, multiple	• Fractions can be simplified using common factors (6F-1), and expressed in a common denomination to compare fractions (6F-2, 6F-3). • A fraction is related to division, and decimal equivalents of simple fractions can be calculated (e.g. 3/8 = 0.375); equivalences between simple fractions, decimals and percentages can be recalled and used. • Fractions with different denominators and mixed numbers can be added and subtracted; simple pairs of proper fractions can be multiplied; proper fractions can be divided by whole numbers. **Key vocabulary:** simplify, common factor, common denominator, equivalent, compare, order, mixed number, improper fraction, per cent, decimal equivalent

	Skills	• Share objects equally into two groups, and talk about a half. • Notice that parts can be equal or unequal. • Solve practical sharing problems and say what they did.	• Recognise, find and name a half as one of two equal parts of an object, shape or quantity. • Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. *White Rose blocks: Summer 2.*	• Recognise, find, name and write the fractions ½, ⅓, ¼, 2/4 and ¾ of a length, shape, set of objects or quantity. • Recognise the equivalence of 2/4 and ½. • Write simple fractions for a quantity, e.g. ½ of 6 = 3. *White Rose blocks: Summer 1.*	• Count up and down in tenths; recognise, find and write unit and non-unit fractions of a discrete set of objects. • Recognise and use fractions as numbers, and show equivalent fractions with diagrams; compare and order unit fractions and fractions with the same denominator. • Add and subtract fractions with the same denominator within one whole; solve problems involving fractions. *White Rose blocks: Spring 3, Summer 1.*	• Count up and down in hundredths; recognise and show families of common equivalent fractions. • Convert mixed numbers and improper fractions, and add and subtract fractions with the same denominator. • Recognise and write decimal equivalents of tenths, hundredths, ½, ¼ and ¾; round decimals with one decimal place to the nearest whole number; compare decimals with the same number of decimal places up to two. • Solve simple measure and money problems involving fractions and decimals to two decimal places. *White Rose blocks: Spring 3, Spring 4, Summer 1.*	• Identify, name and write equivalent fractions of a given fraction, including tenths and hundredths; convert mixed numbers and improper fractions. • Compare and order fractions whose denominators are multiples of the same number; add and subtract fractions; multiply proper fractions and mixed numbers by whole numbers. • Read, write, order and compare decimals with up to three decimal places; round decimals to the nearest whole number and to one decimal place. • Recognise the per cent symbol, write percentages as a fraction with denominator 100 and as a decimal, and solve problems requiring percentage and decimal equivalents of ½, ¼, 1/5, 2/5 and 4/5. *White Rose blocks: Autumn 4, Spring 2, Spring 3, Summer 3.*	• Use common factors to simplify fractions, and common multiples to express fractions in the same denomination; compare and order fractions, including fractions > 1. • Add and subtract fractions with different denominators and mixed numbers; multiply simple pairs of proper fractions, writing the answer in its simplest form; divide proper fractions by whole numbers. • Associate a fraction with division and calculate decimal fraction equivalents; recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. • Identify the value of each digit in numbers given to three decimal places. *White Rose blocks: Autumn 3, Autumn 4, Spring 3, Spring 4.*

		EYFS	Key Stage 1		Key Stage 2			
		Nursery/ Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Geometry: Shape, Position and Direction	**Knowledge**	• 2-D shapes (circle, triangle, square, rectangle) and 3-D shapes (cube, sphere, cone, cylinder) have names and properties, e.g. a number of sides, corners and faces. • Position words describe where things are, e.g. in front of, behind, next to, above, below; patterns can repeat.	• Common 2-D shapes (rectangles including squares, circles and triangles) and 3-D shapes (cuboids including cubes, pyramids and spheres) can be recognised in different orientations; rectangles, triangles, cuboids and pyramids are not always similar to one another (1G-1). • Shapes can be composed from smaller shapes (1G-2); position, direction and movement can be described, including whole, half, quarter and three-quarter turns.	• Shapes have properties, including the number of sides, vertices (corners), faces and edges, and line symmetry in a vertical line (2G-1). • 2-D shapes can be found on the surface of 3-D shapes (e.g. a circle on a cylinder); shapes and everyday objects can be compared and sorted. • Position, direction and movement are described using vocabulary including straight line movement and rotation as quarter, half and three-quarter turns, clockwise and anticlockwise; patterns and sequences can be arranged in order.	• An angle is a property of a shape or a description of a turn; right angles can be identified in 2-D shapes, and two right angles make a half-turn, three make three-quarters of a turn and four a complete turn (3G-1). • Horizontal and vertical lines, and pairs of perpendicular and parallel lines, can be identified (3G-2); angles can be greater than or less than a right angle. • 2-D shapes can be drawn, and 3-D shapes made using modelling materials and recognised in different orientations.	• Acute angles are less than a right angle and obtuse angles are greater than a right angle but less than two right angles; angles up to two right angles can be compared and ordered. • Quadrilaterals and triangles can be compared and classified by their properties and sizes; regular polygons have equal sides and equal angles (4G-2). • Line symmetry can be identified in shapes in different orientations, and a symmetric figure completed (4G-3); positions on a 2-D grid are coordinates in the first quadrant, and movements are translations left/right and up/down (4G-1).	• Angles are measured in degrees; acute, obtuse and reflex angles can be estimated and compared (5G-1). • Angles at a point total 360° (one whole turn) and angles on a straight line total 180°; other multiples of 90° can be identified. • Regular and irregular polygons can be distinguished by reasoning about equal sides and angles; the properties of rectangles allow facts and missing lengths and angles to be deduced; 3-D shapes can be identified from 2-D representations. • A shape that is reflected or translated has not changed; its new position can be described using appropriate language.	• Angles in triangles, quadrilaterals and regular polygons follow rules, and angles at a point, on a straight line and vertically opposite can be used to find missing angles (6G-1). • A circle has a radius, diameter and circumference, and the diameter is twice the radius; 3-D shapes can be recognised, described and built, including making nets. • The full coordinate grid has four quadrants; shapes can be drawn, translated and reflected in the axes.

		Key vocabulary: shape, circle, triangle, square, rectangle, cube, sphere, next to, above, below, pattern, repeat	**Key vocabulary:** 2-D, 3-D, circle, triangle, rectangle, square, cube, cuboid, pyramid, sphere, turn, half turn, quarter turn, position, direction	**Key vocabulary:** side, vertex, edge, face, line of symmetry, clockwise, anticlockwise, quarter turn, half turn, three-quarter turn, pattern, sequence	**Key vocabulary:** angle, right angle, turn, horizontal, vertical, perpendicular, parallel, polygon, greater than, less than	**Key vocabulary:** acute, obtuse, quadrilateral, triangle, regular polygon, irregular, line of symmetry, coordinate, quadrant, translation	**Key vocabulary:** degrees, protractor, reflex, acute, obtuse, regular polygon, irregular polygon, reflection, translation, 360°, 180°	**Key vocabulary:** vertically opposite, angle, polygon, radius, diameter, circumference, net, quadrant, coordinate, reflect, translate, axes
	<u>Skills</u>	• Explore, name and talk about 2-D and 3-D shapes. • Select, rotate and manipulate shapes to develop spatial reasoning, and compose and decompose shapes. • Use positional language to describe where things are, and continue patterns.	• Recognise and name common 2-D and 3-D shapes presented in different orientations; sort shapes. • Compose 2-D and 3-D shapes from smaller shapes to match an example, manipulating shapes into particular orientations. • Describe position, direction and movement, including whole, half, quarter and three-quarter turns.	• Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. • Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces; identify 2-D shapes on the surface of 3-D shapes. • Compare and sort common 2-D and 3-D shapes and everyday objects; order and arrange combinations of objects in patterns and sequences. • Use mathematical vocabulary to describe position, direction and movement.	• Draw 2-D shapes, and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. • Identify right angles in 2-D shapes in different orientations, and identify whether angles are greater than or less than a right angle. • Identify horizontal and vertical lines, and pairs of perpendicular and parallel lines; draw polygons by joining marked points.	• Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. • Identify acute and obtuse angles, and compare and order angles up to two right angles by size. • Identify lines of symmetry in 2-D shapes in different orientations and complete a symmetric figure. • Describe positions on a 2-D grid as coordinates in the first quadrant, plot points, draw polygons, and describe movements as translations.	• Estimate and compare acute, obtuse and reflex angles; draw given angles and measure them in degrees. • Identify angles at a point and one whole turn (360°), angles on a straight line (180°) and multiples of 90°. • Distinguish between regular and irregular polygons based on reasoning about equal sides and angles; use the properties of rectangles to deduce related facts. • Identify 3-D shapes, including cubes and other cuboids, from 2-D representations; identify, describe and represent the position of a shape following a reflection or translation.	• Draw 2-D shapes using given dimensions and angles; compare and classify geometric shapes based on their properties and sizes. • Find unknown angles in any triangles, quadrilaterals and regular polygons; recognise angles where they meet at a point, on a straight line or vertically opposite, and find missing angles. • Illustrate and name parts of circles, including radius, diameter and circumference, and know that the diameter is twice the radius. • Recognise, describe and build simple 3-D shapes, including making nets; describe positions on the full coordinate grid, and draw, translate and reflect shapes in the axes.

			White Rose blocks: Autumn 3, Summer 3.	*White Rose blocks: Autumn 3, Summer 4.*	*White Rose blocks: Summer 4.*	*White Rose blocks: Summer 4, Summer 6.*	*White Rose blocks: Summer 1, Summer 2.*	*White Rose blocks: Summer 1, Summer 2.*
		EYFS	**Key Stage 1**		**Key Stage 2**			
		Nursery/ Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Measurement	**Knowledge**	• Objects can be compared by length (long, short), weight (heavy, light), capacity (full, empty) and time (before, after, day, night). • Time passes, and daily routines happen in a sequence. **Key vocabulary:** long, short, heavy, light, full, empty, longer, shorter, before, after, day, night, compare	• Length and height, mass/weight, capacity and volume, and time can be compared, described and measured. • Dates, days of the week, weeks, months and years are used to sequence events; time can be told to the hour and half past the hour. • The value of different denominations of coins and notes can be recognised. **Key vocabulary:** length, height, mass, weight, capacity, volume, longer, shorter, heavier, lighter, o'clock, half past, coin, note	• Standard units are used to measure: length/height in metres (m) and centimetres (cm), mass in kilograms (kg) and grams (g), temperature in degrees Celsius (°C), and capacity in litres and millilitres (ml). • Time can be told and written to five minutes, including quarter past and quarter to; there are 60 minutes in an hour and 24 hours in a day. • The symbols £ and p are used for money, and different combinations of coins can make the same amount. **Key vocabulary:** metre, centimetre, kilogram, gram, litre, millilitre, degrees Celsius, quarter past, quarter to, pound, pence, change	• Lengths are measured in m, cm and mm, mass in kg and g, and volume/capacity in litres and ml; perimeter is the distance around a 2-D shape. • Time can be read from an analogue clock, including Roman numerals I to XII, in 12-hour and 24-hour time, using vocabulary such as o'clock, a.m./p.m.; there are 60 seconds in a minute and a known number of days in each month, year and leap year. • Amounts of money can be added and subtracted to give change using £ and p. **Key vocabulary:** millimetre, perimeter, analogue, Roman numeral, 24-hour clock, a.m., p.m., second, leap year, noon, midnight	• Units can be converted (e.g. kilometres to metres, hours to minutes), and measures estimated, compared and calculated, including money in pounds and pence. • Time can be read, written and converted between analogue and digital 12- and 24-hour clocks, and between hours, minutes, seconds, days, weeks, months and years. • The perimeter of rectilinear figures can be measured and calculated in cm and m; area can be found by counting squares. **Key vocabulary:** convert, kilometre, perimeter, rectilinear, area, digital clock, 24-hour clock, estimate, compare	• Metric units can be converted, and approximate equivalences between common metric and imperial units (e.g. inches, pounds, pints) are known. • The perimeter of composite rectilinear shapes can be calculated; the area of rectangles can be calculated in square centimetres (cm^2) and square metres (m^2), and the area of irregular shapes estimated; volume and capacity can be estimated. • All four operations can be used to solve problems involving measure, including decimal notation and scaling; time can be converted between units. **Key vocabulary:** convert, metric, imperial, inches, pounds, pints, composite shape, area, square	• Standard metric units of length, mass, volume and time can be converted from a smaller unit to a larger unit and vice versa, using decimal notation up to 3 decimal places; miles and kilometres can be converted. • Shapes with the same area can have different perimeters, and vice versa; formulae can be used to find area and volume. • The area of parallelograms and triangles can be calculated, and the volume of cubes and cuboids can be calculated, estimated and compared in cubic centimetres (cm^3) and cubic metres (m^3). **Key vocabulary:** convert, decimal notation, miles, kilometres, formula, area, volume, cubic centimetre,

							centimetre, volume, capacity	parallelogram, triangle
	Skills	• Compare lengths, weights and capacities using the vocabulary long, short, heavy, light, full and empty. • Sequence daily events, and talk about before and after. • Use non-standard units to measure.	• Compare, describe and solve practical problems for lengths and heights, mass/weight, capacity and volume, and time. • Measure and begin to record lengths and heights, mass/weight, capacity and volume, and time. • Sequence events in chronological order and use language relating to dates; tell the time to the hour and half past the hour and draw the hands on a clock face. • Recognise and know the value of different denominations of coins and notes. *White Rose blocks: Spring 4, Spring 5, Summer 5, Summer 6.*	• Choose and use appropriate standard units, and rulers, scales, thermometers and measuring vessels, to estimate and measure to the nearest appropriate unit. • Compare and order lengths, mass, volume/capacity and record the results using >, < and =. • Tell and write the time to five minutes, compare and sequence intervals of time, and draw the hands on a clock face. • Combine amounts of money to make a particular value; solve simple problems in a practical context, including giving change. *White Rose blocks: Spring 1, Spring 3, Spring 4, Summer 2.*	• Measure, compare, add and subtract lengths (m/cm/mm), mass (kg/g) and volume/capacity (l/ml); measure the perimeter of simple 2-D shapes. • Tell and write the time from an analogue clock, including Roman numerals and 12-hour and 24-hour clocks; estimate and read time to the nearest minute. • Record and compare time in seconds, minutes and hours. • Add and subtract amounts of money to give change, using both £ and p in practical contexts. *White Rose blocks: Spring 2, Spring 4, Summer 2, Summer 3.*	• Convert between different units of measure; estimate, compare and calculate different measures, including money in pounds and pence. • Read, write and convert time between analogue and digital 12- and 24-hour clocks; solve problems converting hours to minutes, minutes to seconds, years to months and weeks to days. • Measure and calculate the perimeter of a rectilinear figure in centimetres and metres; find the area of rectilinear shapes by counting squares. *White Rose blocks: Autumn 3, Spring 2, Summer 2, Summer 3.*	• Convert between different units of metric measure and use approximate equivalences between metric units and common imperial units. • Use all four operations to solve problems involving measure (length, mass, volume, money), using decimal notation and including scaling. • Measure and calculate the perimeter of composite rectilinear shapes; calculate and compare the area of rectangles in cm^2 and m^2, and estimate the area of irregular shapes. • Estimate volume and capacity, and solve problems involving converting between units of time. *White Rose blocks: Spring 4, Summer 3, Summer 5, Summer 6.*	• Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places. • Convert between miles and kilometres; convert measurements of length, mass, volume and time between smaller and larger units. • Recognise that shapes with the same area can have different perimeters and vice versa; calculate the area of parallelograms and triangles. • Calculate, estimate and compare the volume of cubes and cuboids, using standard units including cm^3 and m^3. *White Rose blocks: Autumn 5, Spring 5.*

		EYFS	Key Stage 1		Key Stage 2			
		Nursery/ Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Statistics	**Knowledge**	• Objects and information can be sorted into groups by what is the same and different. • Groups can be counted and compared, e.g. which group has more or fewer. **Key vocabulary:** sort, group, same, different, count, more, fewer, most, least	• Objects can be sorted into categories, counted and compared, which is the first step towards collecting and displaying data (links to Number and Place Value). • Information can be recorded using objects, pictures and simple tallies. **Key vocabulary:** sort, category, count, tally, more, fewer, same, most, least, data	• Data can be presented in pictograms, tally charts, block diagrams and simple tables; each picture, tally mark or block represents a quantity. • Questions can be asked and answered by counting the number of objects in each category and sorting the categories by quantity, and by totalling and comparing categorical data. **Key vocabulary:** pictogram, tally chart, block diagram, table, category, data, total, compare, most, fewest	• Data can be presented using bar charts, pictograms and tables, and the scale on a chart shows what each unit represents. • One-step and two-step questions (e.g. 'How many more?' and 'How many fewer?') can be answered using scaled bar charts, pictograms and tables. **Key vocabulary:** bar chart, pictogram, table, scale, axis, label, how many more, how many fewer, data	• Discrete data (counted, e.g. numbers of pupils) and continuous data (measured, e.g. temperature) can be displayed using appropriate graphs, including bar charts and time graphs. • Comparison, sum and difference problems can be solved using information presented in bar charts, pictograms, tables and other graphs. **Key vocabulary:** discrete data, continuous data, bar chart, time graph, scale, axis, interpret, compare, difference	• Information can be read and interpreted in tables, including timetables. • Line graphs show how a measurement changes, e.g. over time, and can be used to solve comparison, sum and difference problems. **Key vocabulary:** table, timetable, line graph, axis, scale, interpret, data, difference, trend	• Pie charts show proportions of a whole, and line graphs show change; both can be constructed and used to solve problems. • The mean is an average: the total divided by the number of values; it can be calculated and interpreted. **Key vocabulary:** pie chart, line graph, mean, average, proportion, angle, interpret, data, construct
	Skills	• Sort objects by features, and say how they have grouped them. • Count and compare groups using 'more' and 'fewer'. • Talk about what they have found out.	• Sort objects into categories and count them. • Record counts using objects, pictures or tallies. • Answer simple questions about which category has most and fewest.	• Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. • Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. • Ask and answer questions about	• Interpret and present data using bar charts, pictograms and tables. • Solve one-step and two-step questions using information presented in scaled bar charts, pictograms and tables.	• Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. • Solve comparison, sum and difference problems using information presented in bar	• Complete, read and interpret information in tables, including timetables. • Solve comparison, sum and difference problems using information presented in a line graph.	• Interpret and construct pie charts and line graphs, and use these to solve problems. • Calculate and interpret the mean as an average.

				totalling and comparing categorical data. *White Rose blocks: Summer 3.*	*White Rose blocks: Summer 5.*	charts, pictograms, tables and other graphs. *White Rose blocks: Summer 5.*	*White Rose blocks: Spring 5.*	*White Rose blocks: Spring 6.*
		EYFS	**Key Stage 1**		**Key Stage 2**			
		Nursery/ Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Ratio, Proportion and Algebra	**Knowledge**	• Patterns can repeat (e.g. red, blue, red, blue), and the pattern can be continued. • Doubling and halving are patterns that link numbers; things can be shared equally. **Key vocabulary:** pattern, repeat, next, double, half, same, different	• The equals sign means 'the same value as', and missing number problems can be solved, e.g. 7 = ? – 9. • Addition and subtraction relate to each other, and can be shown in equations. **Key vocabulary:** equals, missing number, number sentence, add, subtract, same as	• Addition and subtraction are inverse operations; the inverse can be used to check calculations and to solve missing number problems. • Multiplication and division are related, and equations can be written in different ways. **Key vocabulary:** inverse, missing number, check, equals, equation, add, subtract	• Missing number problems can be solved using number facts, place value and known operations. • Correspondence and scaling problems show a relationship between two quantities (see Multiplication and Division). **Key vocabulary:** missing number, scaling, correspondence, operation, equation, inverse	• Integer scaling and harder correspondence problems show how one quantity relates to another (see Multiplication and Division). • Equations can be rearranged, and the inverse used to solve missing number problems. **Key vocabulary:** scaling, correspondence, equation, inverse, rearrange, missing number, relationship	• Scaling by simple fractions and simple rates are examples of relationships between quantities. • The equals sign shows that two expressions have the same value, and the order of operations and properties of arithmetic can be used to solve problems. **Key vocabulary:** scaling, rate, equals sign, expression, equation, order of operations, missing number, relationship	• Ratio compares the relative sizes of two quantities, and missing values can be found using multiplication and division facts; percentages compare quantities; similar shapes have a scale factor; unequal sharing and grouping use fractions and multiples. • Simple formulae can be used; linear number sequences can be generated and described; missing number problems can be expressed algebraically, including equations with two unknowns. **Key vocabulary:** ratio, proportion, scale factor, percentage, formula, linear sequence, variable, unknown, equation, algebra
	Skills	• Continue, copy and create simple repeating patterns.	• Solve one-step problems that involve addition	• Recognise and use the inverse relationship	• Solve problems, including missing number problems,	• Solve problems involving integer	• Solve problems involving scaling by	• Solve problems involving the relative sizes of two

		• Notice and talk about patterns in numbers and shapes. • Share items equally, and double and halve quantities.	and subtraction using concrete objects and pictorial representations. • Solve missing number problems, such as 7 = ? – 9. • Read and write simple number sentences.	between addition and subtraction. • Use the inverse to check calculations and solve missing number problems. • Write multiplication and division statements, and use them to solve problems.	using number facts, place value and more complex addition and subtraction. • Solve scaling and correspondence problems. • Explain how they solved a missing number problem.	scaling and harder correspondence. • Use the inverse to solve missing number problems. • Explain the relationship between two quantities.	simple fractions and simple rates. • Understand and use the meaning of the equals sign. • Use the order of operations to solve multi-step problems.	quantities, finding missing values using multiplication and division facts. • Solve problems using percentages for comparison, similar shapes with a known scale factor, and unequal sharing and grouping. • Use simple formulae; generate and describe linear number sequences; express missing number problems algebraically; find pairs of numbers satisfying an equation with two unknowns. *White Rose blocks: Spring 1 (ratio), Spring 2 (algebra).*