Progression of Skills in Mathematics

Mathematics Overview 2024-2025

Every child a leader – Every chance taken – Every day counts

- Become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- Can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects. The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

Information and communication technology (ICT)
Calculators should not be used as a substitute for good written and mental arithmetic. They should therefore only be introduced near the end of key stage 2 to support pupils' conceptual understanding and exploration of more complex number problems, if written and mental arithmetic are secure. Teachers should use their judgement about when ICT tools should be used.

Spoken language
The national curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

National Curriculum Knowledge Pupils should…

KS1	Lower KS2	Upper KS2
- Develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools]. - Recognise, describe, draw, compare and sort different shapes and use the related vocabulary. - Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. - By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency. - Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.	- Become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. - Develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. - Develop their ability to solve a range of problems, including with simple fractions and decimal place value. - Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number. - By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work. - Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.	- Extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. - Develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. - Be introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. - Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. - By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. - Pupils should read, spell and pronounce mathematical vocabulary correctly.

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Value	Resilience	Integrity	Democracy	Creativity	Gratitude	Diversity
Key Events	Black History Month (October) Mental Health Day Harvest Festival Show Racism the Red Card	Remembrance Day Anti-bullying Week World Kindness Day	Safer Internet Day	World Book Day	Coronation of King Charles	Sports Week Science week at JEA

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place value: Count	· count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number · Count numbers to 100 in numerals; count in multiples of twos, fives and tens	· count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward	· count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number	· count in multiples of 6, 7, 9, 25 and 1000 · count backwards through zero to include negative numbers	· count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 · count forwards and backwards with positive and negative whole numbers, including through zero	· use negative numbers in context, and calculate intervals across zero
	Autumn 1 Spring 1 Spring 2 Summer 2	Autumn 1	Autumn 1 Autumn 2	Autumn 1 Autumn 2	Autumn 1 Summer 2	

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place value: Represent	· identify and represent numbers using objects and pictorial representations · read and write numbers to 100 in numerals · read and write numbers from 1 to 20 in numerals and words	· read and write numbers to at least 100 in numerals and in words · identify, represent and estimate numbers using different representations, including the number line	· identify, represent and estimate numbers using different representations · read and write numbers up to 1000 in numerals and in words	· identify, represent and estimate numbers using different representations · read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value	· read, write, (order and compare) numbers to at least 1 000 000 and determine the value of each digit · read Roman numerals to 1000 (M) and recognise years written in Roman numerals	· read, write, (order and compare) numbers up to 10 000 000 and determine the value of each digit
	Autumn 1 Spring 1 Spring 2 Summer 2	Autumn 1	Autumn 1	Autumn 1	Autumn 1	Autumn 1

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place value: Use and compare	· given a number, identify one more and one less	· recognise the place value of each digit in a two-digit number (tens, ones) · compare and order numbers from 0 up to 100; use <, > and = signs	· recognise the place value of each digit in a three-digit number (hundreds, tens, ones) · compare and order numbers up to 1000	· find 1000 more or less than a given number · recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) · order and compare numbers beyond 1000	· (read, write) order and compare numbers to at least 1 000 000 and determine the value of each digit	· (read, write), order and compare numbers up to 10 000 000 and determine the value of each digit
	Autumn 1 Spring 1 Spring 2 Summer 2	Autumn 1	Autumn 1	Autumn 1	Autumn 1	Autumn 1

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place value: Problems/Rounding	· solve one-step problems using concrete objects and pictorial representations	· use place value and number facts to solve problems	· solve number problems and practical problems involving these ideas	· round any number to the nearest 10, 100 or 1000 · solve number and practical problems that involve all of the above and with increasingly large positive numbers	· interpret negative numbers in context · round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 · solve number problems and practical problems that involve all of the above	· round any whole number to a required degree of accuracy · use negative numbers in context, and calculate intervals across zero · solve number and practical problems that involve all of the above
	Autumn 1	Autumn 1	Autumn 1	Autumn 1	Autumn 1	Autumn 1

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition & subtraction: Calculations	· add and subtract one-digit and two- digit numbers to 20, including zero	· add and subtract numbers using concrete objects, pictorial representations, and mentally, including: ➢ a two-digit number and ones ➢ a two-digit number and tens ➢ two two-digit numbers ➢ adding three one- digit numbers	· add and subtract numbers mentally, including: ➢ a three-digit number and ones ➢ a three-digit number and tens ➢ a three-digit number and hundreds · add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	· add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	· add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) · add and subtract numbers mentally with increasingly large numbers	· perform mental calculations, including with mixed operations and large numbers · use their knowledge of the order of operations to carry out calculations involving the four operations
	Autumn 2 Spring 2	Autumn 2	Autumn 2	Autumn 2	Autumn 1	Autumn 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition & subtraction: Problems	· solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ☐ − 9	· solve problems with addition and subtraction: ➢ using concrete objects and pictorial representations, including those involving numbers, quantities and measures ➢ applying their increasing knowledge of mental and written methods	· solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	· solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	· solve addition and subtraction multi- step problems in contexts, deciding which operations and methods to use and why · solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	· solve addition and subtraction multi- step problems in contexts, deciding which operations and methods to use and why
	Autumn 2 Spring 2	Autumn 2	Autumn 2	Autumn 2	Autumn 1	Autumn 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication & division: Recall/Use		· recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers · show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	· recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	· recall multiplication and division facts for multiplication tables up to 12 × 12 · use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers · recognise and use factor pairs and commutativity in mental calculations	· identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers · know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers · establish whether a number up to 100 is prime and recall prime numbers up to 19 · recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	· identify common factors, common multiples and prime numbers · use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
		Spring 2	Autumn 2 Spring 1	Autumn 1 Spring 1	Autumn 2	Autumn 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication & division: Calculations		· calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	· write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two- digit numbers times one-digit numbers, using mental and progressing to formal written methods	· multiply two-digit and three-digit numbers by a one- digit number using formal written layout	· multiply numbers up to 4 digits by a one- or two- digit number using a formal written method, including long multiplication for two-digit numbers · multiply and divide numbers mentally drawing upon known facts · divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context · multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	· multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication · divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context · divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context · perform mental calculations, including with mixed operations and large numbers
		Spring 2	Autumn 2 Spring 1	Spring 1	Autumn 2 Spring 1	Autumn 2

Multiplication & division: Problems	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	· solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	· solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	· solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects	· solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	· solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes · solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	· solve problems involving addition, subtraction, multiplication and division
	Summer 1	Spring 2	Spring 1	Spring 1	Autumn 2 Spring 1	Autumn 2

Multiplication & division: Combined	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					· solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	· use their knowledge of the order of operations to carry out calculations involving the four operations
					Spring 1	Autumn 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions: Recognise and write	· 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	· recognise, find, name and write fractions of 1/3, ¼, 2/4 and ¾ of a length, shape, set of objects or quantity	· count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 · recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators · recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators	· count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.	· identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths · recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, ⅖ + ⅘ = 6/5 = 1 and ⅕]	· identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths · recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, ⅖ + ⅘ = 6/5 = 1 and ⅕] · To solve varied problems by giving the answer as a mixed number or improper fraction.
	Summer 2	Summer 1	Spring 2	Spring 2 Summer 1	Autumn 2	Autumn 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions: Compare		· Recognise the equivalence of 2/4 and 1/2	· recognise and show, using diagrams, equivalent fractions with small denominators · compare and order unit fractions, and fractions with the same denominators	· recognise and show, using diagrams, families of common equivalent fractions	· compare and order fractions whose denominators are all multiples of the same number	· use common factors to simplify fractions; use common multiples to express fractions in the same denomination · compare and order fractions, including fractions > 1
		Summer 1	Spring 2	Spring 2	Autumn 2	Autumn 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions: Calculations		· write simple fractions such as ½ of 6 = 3	· add and subtract fractions with the same denominator within one whole e.g. 5/7 + 1/7 = 6/7	· add and subtract fractions with the same denominator	· add and subtract fractions with the same denominator and denominators that are multiples of the same number · multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	· add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions · multiply simple pairs of proper fractions, writing the answer in its simplest form · divide proper fractions by whole numbers
		Summer 1	Summer 1	Spring 2	Autumn 2 Spring 1	Autumn 2 Autumn 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions: Solve problems			· solve problems that involve adding and subtracting fractions	· solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number	· solve problems involving increasingly harder fractions to calculate quantities, and fractions to multiply/divide quantities, including non-unit fractions where the answer is a whole number	· solve problems involving increasingly harder fractions to calculate quantities, and fractions to multiply/divide quantities, including non-unit fractions where the answer is greater than one.
			Spring 2 Summer 1	Spring 2	Spring 2	Spring 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Decimals: Recognise, write, compare				· recognise and write decimal equivalents of any number of tenths or hundredths · recognise and write decimal equivalents to ¼, ½, ¾ · round decimals with one decimal place to the nearest whole number · compare numbers with the same number of decimal places up to two decimal places	· read and write decimal numbers as fractions e.g. 0.71 = 71/100 · recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents · round decimals with two decimal places to the nearest whole number and to one decimal place · read, write, order and compare numbers with up to three decimal places	· identify the value of each digit in numbers given to three decimal places
				Spring 2 Summer 1	Spring 2 Summer 2	Spring 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions, decimals and percentages				· solve simple measure and money problems involving fractions and decimals to two decimal places	· recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal · solve problems which require knowing percentage and decimal equivalents of ½, ¼, ⅕, ⅖, ⅗ and those fractions with a denominator of a multiple of 10 or 25	• associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8] · recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
				Spring 2 Spring 2 Summer 1	Spring 2	Spring 2 Spring 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Ratio and proportion						· solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts · solve problems involving the calculation/use of percentages for comparison · solve problems involving similar shapes where the scale factor is known or can be found · solve problems involving unequal sharing and grouping using knowledge of fractions and multiples
						Spring 1

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Algebra	· solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ☐ − 9	· recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems	· solve problems, including missing number problems	· solve problems, including missing number problems	· solve problems, including missing number problems	· use simple formulae · generate and describe linear number sequences · express missing number problems algebraically · find pairs of numbers that satisfy an equation with two unknowns · enumerate possibilities of combinations of two variables
			Autumn 1 Autumn 2	Autumn 1 Autumn 2	Autumn 1 Autumn 2	Spring 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Using measures	· compare, describe and solve practical problems for: ➢ lengths and heights ➢ mass/weight ➢ capacity and volume ➢ time · measure and begin to record the following: ➢ lengths and heights ➢ mass/weight ➢ capacity and volume ➢ time (hours, minutes, seconds)	· choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (℃); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels · compare and order lengths, mass, volume/capacity and record the results using >, < and =	· measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)	· Convert between different units of measure [for example, kilometre to metre; hour to minute] · estimate, compare and calculate different measures	· convert between different units of metric measure · understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints · use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling	· solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 d.p. where appropriate · use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 d.p. · convert between miles and kilometres
	Spring 2 Summer 2	Spring 2	Summer 1	Spring 2 Summer 2	Spring 2 Summer 2	Autumn 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Money	· recognise and know the value of different denominations of coins and notes	· recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value · find different combinations of coins that equal the same amounts of money · solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change	· add and subtract amounts of money to give change, using both £ and p in practical contexts	· estimate, compare and calculate different measures, including money in pounds and pence	· use all four operations to solve problems involving measure [for example, money]	· use all four operations to solve problems involving measure [for example, money]
	Summer 2	Spring 1	Autumn 2	Summer 1	Summer 2	Autumn 1

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Time	· sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] · recognise and use language relating to dates, including days of the week, weeks, months and years · tell the time to the hour and half past the hour and draw the hands on a clock face to show these times	· compare and sequence intervals of time · tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times · know the number of minutes in an hour and the number of hours in a day	· tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks · estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight · know the number of seconds in a minute and the number of days in each month, year and leap year · compare durations of events [for example to calculate the time taken by particular events or tasks]	· read, write and convert time between analogue and digital 12- and 24-hour clocks · solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	· solve problems involving converting between units of time	· use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit, and vice versa
	Summer 2	Summer 2	Spring 1	Spring 2	Summer 2	Autumn 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Perimeter, area, volume			· measure the perimeter of simple 2-D shapes	· measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres · find the area of rectilinear shapes by counting squares	· measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres · calculate and compare the area of rectangles (including squares) and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes · estimate volume [for example, using blocks to build cuboids] and capacity [for example, using water]	· recognise that shapes with the same areas can have different perimeters and vice versa · recognise when it is possible to use formulae for area and volume of shapes · calculate the area of parallelograms and triangles · calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units
			Spring 2	Autumn 1	Spring 2 Summer 2	Spring 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
2-D shapes	· recognise and name common 2-D shapes [for example, rectangles (including squares), circles and triangles]	· identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line · identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] · compare and sort common 2-D shapes and everyday objects	· draw 2-D shapes	· compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes · identify lines of symmetry in 2-D shapes presented in different orientations	· distinguish between regular and irregular polygons based on reasoning about equal sides and angles. · use the properties of rectangles to deduce related facts and find missing lengths and angles	· draw 2-D shapes using given dimensions and angles · compare and classify geometric shapes based on their properties and sizes · illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
	Autumn 2	Autumn 2	Autumn 1	Summer 2	Summer 1	Summer 1

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
3-D shapes	· recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]	· recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] · compare and sort common 3-D shapes and everyday objects	· make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them		· identify 3-D shapes, including cubes and other cuboids, from 2-D representations	· recognise, describe and build simple 3-D shapes, including making nets
	Autumn 2	Autumn 2	Autumn 1		Summer 1	Summer 1

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Angles and lines			· recognise angles as a property of shape or a description of a turn · identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle · identify horizontal and vertical lines and pairs of perpendicular and parallel lines	· 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 presented in different orientations · complete a simple symmetric figure with respect to a specific line of symmetry	· know angles are measured in degrees: 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 (total 360°) ➢ angles at a point on a straight line and $\frac{1}{2}$ a $ turn (total 180°) ➢ other multiples of 90°	· find unknown angles in any triangles, quadrilaterals, and regular polygons · recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
			Summer 2	Summer 2	Summer 1	Summer 1

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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Position and direction	· describe position, direction and movement, including whole, half, quarter and three-quarter turns	· order and arrange combinations of mathematical objects in patterns and sequences · use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti- clockwise)		· describe positions on a 2-D grid as coordinates in the first quadrant · describe movements between positions as translations of a given unit to the left/right and up/down · plot specified points and draw sides to complete a given polygon	· 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	· describe positions on the full coordinate grid (all four quadrants) · draw and translate simple shapes on the coordinate plane, and reflect them in the axes
	Summer 2	Summer 2		Summer 2	Summer 1	Summer 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Present and interpret data		· interpret and construct simple pictograms, tally charts, block diagrams and simple tables	· interpret and present data using bar charts, pictograms and tables	· interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	· complete, read and interpret information in tables, including timetables	· interpret and construct pie charts and line graphs and use these to solve problems
		Summer 2	Summer 2	Summer 1	Spring 2	Spring 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Solve statistical problems		· 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 totalling and comparing categorical data	· solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables	· solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	· solve comparison, sum and difference problems using information presented in a line graph	· calculate and interpret the mean as an average
		Summer 2	Summer 2	Summer 1	Spring 2	Spring 2

RECEPTION

NUMBER
Comparison

Development matters		Birth to 5 matters	
3 and 4 year olds	**Reception**	**Range 5**	**Range 6**
· Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. · Experiment with their own symbols and marks as well as numerals.	· Count objects, actions and sounds. · Compare numbers.	· Compares two small groups of up to five objects, saying when there are the same number of objects in each group, e.g. You've got two, I've got two. Same!	· Uses number names and symbols when comparing numbers, showing interest in large numbers · Estimates of numbers of things, showing understanding of relative size
Autumn 3, Autumn 5 Spring 1 Summer 2	Autumn 1, Autumn 5 Spring 1, Spring 3, Spring 4, Spring 5 Summer 1, Summer 6	Autumn 2, Autumn 5	Spring 1, Spring 3, Spring 5 Summer 1, Summer 4

Counting

Development matters		Birth to 5 matters	
3 and 4 year olds	**Reception**	**Range 5**	**Range 6**
· Recite numbers past 5. · Say one number for each item in order: 1, 2, 3, 4, 5.	· Count beyond ten.	· May enjoy counting verbally as far as they can go · Points or touches (tags) each item, saying one number for each item, using the stable order of 1,2,3,4,5. · Uses some number names and number language within play, and may show fascination with large numbers · Begin to recognise numerals 0 to 10	· Enjoys reciting numbers from 0 to 10 (and beyond) and back from 10 to 0 · Increasingly confident at putting numerals in order 0 to 10 (ordinality)
Autumn 3, Autumn 5 Spring 3, Spring 5 Summer 1	Summer 1, Summer 6	Autumn 3, Autumn 5 Spring 1, Spring 5 Summer 1	Spring 5 Summer 1

Cardinality

Development matters		Birth to 5 matters	
3 and 4 year olds	**Reception**	**Range 5**	**Range 6**
· Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). · Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle'). · Show 'finger numbers' up to 5.	· Subitise · Link the number symbol (numeral) with its cardinal number value.	· Subitises one, two and three objects (without counting) · Counts up to five items, recognising that the last number said represents the total counted so far (cardinal principle) · Links numerals with amounts up to 5 and maybe beyond · Explores using a range of their own marks and signs to which they ascribe mathematical meanings	· Engages in subitising numbers to four and maybe five · Counts out up to 10 objects from a larger group · Matches the numeral with a group of items to show how many there are (up to 10)
Autumn 3, Autumn 5 Spring 1	Autumn 3, Autumn 5 Spring 1, Spring 3, Spring 5 Summer 6	Autumn 3, Autumn 5 Spring 1 Summer 2	Autumn 5 Spring 1, Spring 3, Spring 5 Summer 4

Composition

Development matters		Birth to 5 matters	
3 and 4 year olds	**Reception**	**Range 5**	**Range 6**
· Solve real world mathematical problems with numbers up to 5.	· Understand the 'one more than/one less than' relationship between consecutive numbers. · Explore the composition of numbers to 10. · Automatically recall number bonds for numbers 0-5 and some to 10.	· Through play and exploration, beginning to learn that numbers are made up (composed) of smaller numbers · Beginning to use understanding of number to solve practical problems in play and meaningful activities · Beginning to recognise that each counting number is one more than the one before · Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same	· Shows awareness that numbers are made up (composed) of smaller numbers, exploring partitioning in different ways with a wide range of objects · Begins to conceptually subitise larger numbers by subitising smaller groups within the number, e.g. sees six raisins on a plate as three and three · In practical activities, adds one and subtracts one with numbers to 10 · Begins to explore and work out mathematical problems, using signs and strategies of their own choice, including (when appropriate) standard numerals, tallies and "+" or "-"
Autumn 5 Spring 1	Autumn 3, Autumn 5 Spring 1, Spring 3, Spring 5 Summer 2, Summer 4, Summer 6	Autumn 3, Autumn 5 Spring 1	Autumn 5 Spring 1, Spring 3, Spring 5 Summer 2, Summer 4, Summer 6

SHAPE, SHAPE AND MEASURE

Spatial Awareness

Development matters		Birth to 5 matters	
3 and 4 year olds	**Reception**	**Range 5**	**Range 6**
· Compare quantities using language: 'more than', 'fewerthan', · Understand position through words alone – for example, "The bag is under the table," – with no pointing. · Describe a familiar route. · Discuss routes and locations, using words like 'in front of' and'behind'.	· Select, rotate and manipulateshapes in order to develop spatial reasoning skills.	· Responds to and uses languageof position and direction · Predicts, moves and rotates objects to fit the space or createthe shape they would like	· Uses spatial language, includingfollowing and giving directions, using relative terms and describing what they see from different viewpoints · Investigates turning and flippingobjects in order to make shapesfit and create models; predictingand visualising how they will look (spatial reasoning) · May enjoy making simple mapsof familiar and imaginative environments, with landmarks
Autumn 2, Autumn 4 Spring 3 Summer 5	Spring 6 Summer 3	Autumn 4 Spring 6 Summer 3	Spring 6 Summer 3, Summer 5

Shape

Development matters		Birth to 5 matters	
3 and 4 year olds	**Reception**	**Range 5**	**Range 6**
· Talk about and explore 2D and 3D shapes (for example, circles,rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners', 'straight', 'flat', 'round'. · Select shapes appropriately: flatsurfaces for building, a triangular prisms for a roof, etc. · Combine shapes to make new ones – an arch, a bigger triangle,etc.	· Compose and decompose shapes so that children recognisea shape can have other shapes *within* it, just as numbers can.	· Chooses items based on their shape which are appropriate forthe child's purpose · Responds to both informal language and common shapenames · Shows awareness of shape similarities and differencesbetween objects · Enjoys partitioning and combining shapes to make newshapes with 2D and 3D shapes · Attempts to create arches and enclosures when building, usingtrial and improvement to selectblocks	· Uses informal language and analogies, (e.g. *heart-shaped and hand-shaped leaves*), as wellas mathematical terms to describe shapes . · Enjoys composing and decomposing shapes, learningwhich shapes combine to makeother shapes · Uses own ideas to make modelsof increasing complexity, selecting blocks needed, solving problems and visualising what they will build.
Autumn 4, Autumn 6 Spring 6	Autumn 6 Spring 6 Summer 3	Autumn 6 Spring 6 Summer 3	Autumn 4 Spring 6 Summer 3, Summer 5

Pattern

Development matters		Birth to 5 matters	
3 and 4 year olds	**Reception**	**Range 5**	**Range 6**
· Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper.Use informal language like 'pointy', 'spotty', 'blobs', etc. · Extend and create ABAB patterns – stick, leaf, stick, leaf. · Notice and correct an error in arepeating pattern.	· Continue, copy and createrepeating patterns.	· Creates their own spatialpatterns showing some organisation or regularity · Explores and adds to simple linear patterns of two or threerepeating items, e.g. stick, leaf(AB) or stick, leaf, stone (ABC) · Joins in with simple patterns insounds, objects, games and stories dance and movement, predicting what comes next	· Spots patterns in the environment, beginning toidentify the pattern "rule" · Chooses familiar objects to create and recreate repeating patterns beyond AB patterns andbegins to identify the unit of repeat
Autumn 2 Spring 6	Autumn 2 Spring 6 Summer 5	Autumn 2	Autumn 1 Spring 6 Summer 5

Measure

Development matters		Birth to 5 matters	
3 and 4 year olds	**Reception**	**Range 5**	**Range 6**
· Make comparisons between objects relating to size, length,weight and capacity. · Begin to describe a sequence ofevents, real or fictional, using words such as 'first', 'then…'	· Compare length, weight andcapacity.	· In meaningful contexts, finds thelonger or shorter, heavier or lighter and more/less full of twoitems · Recalls a sequence of events ineveryday life and stories.	· Enjoys tackling problems involving prediction and discussion of comparisons of length, weight or capacity, paying attention to fairness andaccuracy · Becomes familiar with measuring tools in everydayexperiences and play · Is increasingly able to order andsequence events using everydaylanguage related to time · Beginning to experience measuring time with timers andcalendars
Autumn 2 Spring 2, Spring 4 Summer 5	Spring 2, Spring 4 Summer 6	Autumn 2, Autumn 6 Spring 4	Autumn 6 Spring 2, Spring 4 Summer 6