Scheme of Learning: Maths

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It 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 therefore 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.

Procedural Knowledge in Maths

Maths by the end of EYFS:
Numbers 1. Children count reliably with numbers from 1 to 20, place them in order and say which number is one more or one less than a given number. 2. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. 3. They solve problems, including doubling, halving and sharing.

Strand	By the end of Year 1	By the end of Year 2	By the end of Year 3
Number & Place Value	1. I can count up and down from 0 to 100 and more. 2. I can count, read and write numbers up to 100. 3. Icancountin2or5or10. 4. When you show me a number, I can tell you what is one more and one less. 5. I can find numbers on a number line when I am solving problems with questions using equal to, more than, less than, most and least.	1. I can count forward and backward in steps of 2, 3, and 5 from 0, and make jumps in tens from any number. 2. I know what each digit means in Tens and Unit numbers such as 24. 3. I can find and show numbers on a number line. 4. I can order numbers up to 100 and tell you which numbers are bigger or smaller. 5. I use the greater than, less than and equals signs in maths and know what they mean. 6. I can read and write numbers to 100 in digits and words. 7. I solve problems using number facts such as 18+2=20 and what I know about the value of digits in a number.	1. I can count from 0 in steps of 4, 8, 50 and 100. 2. I can find 10 or 100 more or less than a given number. 3. I know what each digit means in Hundred Tens and Unit numbers such as 204. 4. I can compare and order numbers up to 1000. 5. I can identify and estimate numbers in different units such as length (mm and m) and weight (g and kg). 6. I read and write numbers up to 1000 in numerals and in words. 7. I can solve number problems, working with numbers up to 1000 and in different units of measurement.

Addition & Subtraction	1. I read and write numbers from 1 to 20 in numbers and words. 2. I know and can use the maths symbols + - and = in a number sentence. 3. I know my number bond facts to 20 - such as 1+5 = 6 and 5 = 6 - 1. 4. I add and subtract numbers up to 20 - such as 5+5 or 12-8. 5. I can solve some number problems such as 7 = ? - 9.	1. I answer addition and subtraction maths problems using objects to help me work it out. 2. I can solve addition and subtraction problems and work out how I answer it on paper or show you how I did it in my head by explaining step by step. 3. I answer problems with addition and subtraction using my number facts to 20 and other number facts up to 100. 4. I can add and subtract numbers such as 34 - 8 or 52 + 5 using objects or pictures to help. 5. I add and subtract two-digit numbers using objects to help me. 6. I can add or subtract numbers such as 42 - 22 or 56 + 29 using objects or pictures to help me. 7. I can add or subtract three numbers such as 2 + 5 + 9. 8. I know that adding to numbers together can be done in any order but subtracting numbers can only be done in one order. 9. I can check my answers or solve missing number problems by doing an inverse check.	1. I can add and subtract numbers in my head, including questions such as 432 - 7. 2. I can add and subtract numbers in my head, including questions such as 432 - 70. 3. I can add and subtract numbers in my head, including questions such as 432 - 300. 4. I can use written methods to add or subtract two three-digit numbers. 5. I can estimate the answer to a question before I work it out and then use inverse operations to check the answer when I have finished. 6. I solve problems such as missing numbers (for example, 452 - ? = 122) using my knowledge of number facts and methods of addition and subtraction.
Multiplication & Division	1. I answer maths multiplication or division problems with help from an adult and using objects to see what the problem means.	1. I know my 2 and 5 and 10 times tables by heart and can tell whether a number is odd or even. 2. I use multiplication (×), division (÷) and equals (=) signs when writing out my times tables. 3. I know that the multiplication of two numbers can be done in any order, but	1. I know my 3, 4 and 8 times tables. 2. I can answer multiplication and division questions such as 16 x 5 or 45 divided by 9. 3. I can solve more complex problems and missing number questions involving multiplication and division.

		that the division of numbers can only be done in one order. 4. I can solve multiplication and division problems using times table facts and objects or pictures to help me.	
Fractions	1. I know that a half is one of two equal parts, and I find half of a shape or a set of objects by sharing the shape or set into two equal parts. 2. I find a quarter of a shape or a set of objects by sharing the shape or set into four equal parts.	1. I can find 1/3 or 1/4 or 2/4 or 3/4 of a shape, length or set of objects. 2. I can write simple fractions sentences such as 1/2 of 6 = 3 and know that 2/4 equals 1/2.	1. I can count up and down in tenths. 2. I know that tenths can be found by dividing an object or shape into ten equal parts or by dividing numbers by 10. 3. I can find a fraction (such as 2/5 or 3/4) of a set of objects. 4. I know how to find fractions of a number or shape - such as 3/5 ,1/4 or 4/6. 5. I can show that some fractions have the same value - such as 1/2, 3/6 and 5/10 or 1/3 and 3/9. 6. I can add and subtract fractions with the same denominator [for example, 5/7 + 1/7 = 6/7]. 7. I can compare and order unit fractions, and fractions with the same denominators. 8. I solve problems that finding, ordering or comparing fractions.
Measure	1. I use words such as long/short, longer/shorter, tall/short, double/half to describe my maths work when I am measuring. 2. When weighing, I use the words heavy/light, heavier than, lighter than to explain my work. 3. When working with capacity, I use the words full/empty, more than, less than,	1. I can choose, use and measure the correct unit to measure length or height in any direction (m/cm); weight (kg/g); temperature (°C); or capacity (litres/ml). 2. I can compare and order lengths, weight and capacity and then record the results using symbols for greater than, less than and equals. 3. I know and use the symbols for pounds (£) and pence (p) and can add together	1. I can measure and compare in these units: lengths (m/cm/mm), weight (kg/g) and capacity (l/ml). 2. I can measure the perimeter od a 2-D shape such as a square or triangle. 3. I can work on money problems, adding and subtracting amounts of money and working out how much change is left. I use both £ and p in my problems.

	half, half full and quarter to explain my work. 4. I can answer questions about time, such as Who is quicker? or What is earlier? 5. I can measure the length or height of something and write down what measure. 6. I can measure how heavy an object is and write down what I find. 7. I can measure the capacity of jugs of water and write down what I measure. 8. I can measure how long something takes to happen - such as how long it takes me to run around the playground. 9. I know that coins have different values - such as 2p, 5p, 10p and 50p. 10. I use special time words such as before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening. 11. I can tell you the days of the week and months of the year and I can talk about weeks and months and years and what they mean. 12. I can tell the time and draw hands on a clock for to the hour and half past the hour times.	different amounts of money, such as 253p and £2. 4. I can find different combinations of coins that equal the same amounts of money. 5. I have solved money problems such as how much change do I get from 50p if I buy an apple for 35p? 6. I can put the time of events in order. 7. I can 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. 8. I know there are 60 minutes in an hour and 24 hours in a day.	4. I can tell and write the time from a clock with numbers or Roman numerals or using 12 and 24 hour clocks. 5. I can tell the time accurately to the nearest minute. 6. I can measure and record time passing in seconds, minutes and hours. 7. I know and use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight in my maths work. 8. I know the number of seconds in a minute and the number of days in each month, year and leap year. 9. I can calculate how long an event or task took to complete.
Shape	1. I can name common 2-D shapes such as rectangles, squares, circles and triangles. 2. I can name some 3-D shapes such as cuboids and cubes, pyramids and spheres.	1. I can describe the properties of some 2-D shapes, including the number of sides they have and facts about their symmetry. 2. I can describe the properties of some 3-D shapes, including the number of edges, faces and vertices they have. 3. I can tell you which 2-D shapes appear as the faces on 3-D shapes, such as triangles on a pyramid.	1. I draw 2-D shapes and make 3-D shapes using modelling materials. 2. I recognise and can describe 3-D shapes even when they have been turned about in different ways. 3. I know an angle is used to measure how far something turns. An angle is also the point in a 2-D shape. 4. I know what a right angles is and I know that two right angles make a half-turn, three make three quarters of a turn and four right angles make a complete turn.

		4. I can compare 2-D and 3-D shapes with everyday objects around me.	5. I can tell whether an angle is greater than or less than a right angle. 6. I know when a line is horizontal or vertical or when two lines are perpendicular or parallel.
Position	1. I can describe my position, direction and movement, including whole turns, half turns, quarter turns and three-quarter turns.	1. I can order combinations of mathematical objects in patterns and sequences. 2. I can describe my position, direction and movement, including describing turns as quarter, half and three-quarter turns in clockwise and anti-clockwise directions.	
Statistics		1. I can read and construct picture graphs, tally charts and tables. 2. I can sort objects into categories and tell you how many objects are in each category and show which category has the most. 3. I work on sorting objects and can answer questions about the groups of objects I have sorted.	1. I can answer questions about bar charts, pictograms and tables and make my own bar charts, pictograms and tables. 2. I can answer maths problems such as 'How many more?' and 'How many fewer?' by finding the information in bar charts, pictograms and tables.

Strand	By the end of Year 4	By the end of Year 5	By the end of Year 6
Number & Place Value	1. I can count in multiples of 6, 7, 9, 25 and 1000. 2. I can find 1000 more or less than a given number. 3. I can count backwards to negative numbers below zero. 4. I know what each digit means in Thousands, Hundreds Tens and Unit numbers such as 2024. 5. I can order and compare numbers above 1000. 6. I can makes estimates of a range of things - such as how many small objects there are in a large jar, how long in cm an object is, how heavy an object may weigh in kg. 7. I can round a number to the nearest 10, 100 or 1000. 8. I can solve number and practical problems that involve rounding, ordering and exploring negative numbers and with increasingly large positive numbers. 9. I can 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.	1. I can read, write, order and compare numbers to at least 1 000 000 and know the value of each digit. 2. I count forwards or backwards in steps 10, 100, 1000, 10000 or 100000 for any given number up to 1000000. 3. I can use negative numbers in my work and can count backwards and forwards to and from negative numbers. 4. I can round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000. 5. I can solve number problems and practical problems that involve numbers up to 1000000, negative numbers, rounding or jumping in steps. 6. I can read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	1. I can work with numbers up to 10 000 000 and know what each digit represents. 2. I can round a whole number as requested - for example to the nearest 10 or 1000 or 100000. 3. I understand and use negative numbers in my work, for example - working out how much is between -7 and +8. 4. I can solve number and practical problems that involve large numbers, rounding and negative numbers.
Addition & Subtraction	1. I can add and subtract numbers with up to 4 digits using written methods (for example, using column addition and subtraction). 2. I can estimate an answer and check my answer using inverse operations. 3. I can solve longer addition and subtraction problems and explain all the	1. I can add and subtract whole numbers with more than 4 digits using written methods such as column addition and subtraction. 2. I can add and subtract larger numbers in my head. 3. I round numbers to check the accuracy of my solution.	

	steps I took and why I worked things out as I did.	4. I can solve addition and subtraction multi- step problems, deciding which operations and methods to use and why.	
Multiplication & Division	1. I know all my times table up to the 12 times tables. 2. I know what the outcome is when I multiply a number by 1 or by zero. 3. I know what the outcome is when I divide a number by 1. 4. I can multiply three numbers together, such as 3 x 6 x 9. 5. I know what factor pairs are how I can multiply numbers in any order and use my knowledge to work out questions in my head. 6. I can multiply a two-digit or a three-digit number by a one-digit number using written methods. 7. I can solve maths problems such as - how many different outfits can I make from 3 hats and 4 coats.	1. I can identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. 2. I know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. 3. I know whether a number up to 100 is prime and recall prime numbers up to 19. 4. I can multiply 4 digit numbers by a one- or two-digit number using a written method, including long multiplication for two-digit numbers. 5. I multiply and divide numbers mentally drawing upon my times table knowledge and other number facts. 6. I can divide 4 digit numbers by a one-digit number using the written method of short division and find the remainder. 7. I can multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. 8. I know what square numbers and cube numbers are, including the notation for squared (2) and cubed (3). 9. I can solve multiplication and division problems using my knowledge of factors and multiples, squares and cubes. 10. I can solve more difficult problems involving addition, subtraction, multiplication and division and a combination of these.	1. I can multiply 4 digit numbers by a two-digit number (for example 4307 x 34) using the written method of long multiplication. 2. I can divide 4 digit numbers by a two-digit number using the written method of long division - and tell you the remainder. 3. I can choose to divide 4 digit numbers by a two- digit number using the written method of short division if this is possible. 4. I can multiply, divide, add and subtract large numbers in my head. 5. I identify common factors, common multiples and prime numbers. 6. I know that addition, subtraction, multiplication and division should be carried out in a specific order when looking at problems. 7. I can solve addition and subtraction multi-step problems, deciding where to add or subtract. 8. I can solve problems involving addition, subtraction, multiplication and division. 9. I always estimate my answer before I begin calculating - this helps me to check at the end to make sure I am correct.

		11. I can solve problems including scaling by simple fractions and problems involving simple rates.	
Fractions	1. I can show in drawings why a number of fractions equal each other (such as 3/5 and 6/10) and are called equivalent fractions. 2. I can count up and down in hundredths and know that a hundredth is made by dividing an object by one hundred and a tenth is made by dividing an object by ten. 3. I can work out the fractions of numbers such as 4/5 of 25 or 7/10 of 700. 4. I can add and subtract fractions with the same denominator. 5. I can tell you the decimal equivalents of any number of tenths or hundredths - such as 1/10 = 0.1 and 23/100 = 0.23. 6. I know what the decimal equivalents are for 1/4, 1/2 and 3/4. 7. I can divide a one- or two-digit number by 10 and 100 and I know what the tenths and hundredths mean after the decimal point. 8. I can round decimals with one decimal place to the nearest whole number. 9. I can compare numbers such as 0.26 and 0.56 to say which is bigger or lower. 10. I can solve measure and money problems involving fractions and decimals to two decimal places.	1. I can compare and order fractions whose denominators are all multiples of the same number. 2. I can name and write equivalent fractions of a given fraction, and show these in a drawing (including tenths and hundredths). 3. I know what mixed numbers and improper fractions are and I can convert from one to the other [for example, 2/5 + 4/5 = 6/5 = 1 1/5]. 4. I can add and subtract fractions with the same denominator and denominators that are multiples of the same number. 5. I use diagrams and some fraction tools to multiply proper fractions (7/10) and mixed numbers (1 7/10) by whole numbers. 6. I can read and write decimal numbers as fractions [for example, 0.71 = 71/100]. 7. I know what thousandths are and how to use them with tenths, hundredths and decimals. 8. I can round decimals with two decimal places to the nearest whole number and to one decimal place. 9. I can read, write, order and compare numbers with up to three decimal places. 10. I can solve problems involving numbers with up to three decimal places.	1. I can use common factors to simplify fractions and use common multiples to express fractions in the same denomination. 2. I can compare and order fractions, including fractions greater than 1. 3. I add and subtract fractions with different denominators and mixed numbers. 4. I can multiply fractions such as 1/4 × 1/2 = 1/8. 5. I know how to divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6]. 6. I can change a fraction into a decimal - for example, I can change 3/8 to 0.375 by dividing 1 by 8 and multiplying by 3. 7. I can multiply and divide numbers by 10, 100 and 1000 and know what each digit means up to three decimal places. 8. I can multiply numbers such as 1.45 by a one digit number - for example 1.45 x 7. 9. I use written division methods in cases where the answer has up to two decimal places. 10. I can solve problems which include rounding to a required accuracy such as the nearest 10, 100 or 10000. 11. I know the decimal value, percentage and fraction of a range of values - such as 0.5, 50 per cent and 1/2.

		11. I know what the per cent symbol is (%) 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. 12. I work on problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.	
Measure	1. I can convert one unit of measurement to another, such as kilometre to metre, hour to minute and cm to mm. 2. I can measure and calculate the perimeter of a rectangle (including a square). 3. I can find the area of a rectangular shape by counting the number of squares the shape takes up. 4. I can estimate and compare the measurements of a range of measures (such as cm, km, g, litres) and money. 5. I can read, write and convert time between clocks with hands (analogue clocks) and digital 12- and 24-hour clocks. 6. I can convert hours to minutes, minutes to seconds, years to months and weeks to days. 7.	1. I can convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre). 2. I can change metric units to become imperial units such as inches, pounds and pints. 3. I can calculate the perimeter of multi-shape shapes in centimetres and metres. 4. I can calculate the area of rectangles in square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes. 5. I can estimate volume [for example, using 1 cm3 blocks to build cuboids] and capacity [for example, using water]. 6. I can convert between the units of time. 7. I can solve more difficult problems which involve units of measurement, decimal numbers and scales.	1. I solve problems about different units of measures with three decimal places. 2. I can convert measurements of length, weight, volume and time up to three decimal places in length (for example 0.345kg = 345g). 3. I can convert between miles and kilometres. 4. I know that even though shapes may have the same area, the perimeter may be different - or a shapes with the same perimeter may have a different areas. 5. I can use a formulae for area and volume of shapes. 6. I can calculate the area of parallelograms and triangles. 7. I can work with the volume of cubes and cuboids using cubic centimetres (cm3) and cubic metres (m3), and other units too such as mm3 and km3.
Shape	1. I can group 2-D shapes based on their properties (such as the number of sides) and sizes.	1. I can identify 3-D shapes, including cubes and other cuboids, from 2-D drawings.	1. I accurately draw 2-D shapes using given dimensions and angles. 2. I can recognise, describe and build 3-D shapes, including making nets.

	2. I can find acute and obtuse angles and order a set of given angles by size. 3. I can find all the lines of symmetry in 2-D shapes. 4. If I have been given one half of a symmetrical shape, I can complete the other half based on the position of the line of symmetry.	2. I know that angles are measured in degrees and I can estimate and compare acute, obtuse and reflex angles. 3. I can draw a given angle (such as 47°), and then measure them in degrees (°). 4. I know one whole turn - or a set of angles all around a point - measure a total of 360°. 5. I know that a straight line - or angles that add up to a straight line - measure 180°. 6. I can identify multiples of 90° (right angles). 7. I can find the missing lengths and angles of a rectangle. 8. I know regular shapes have equal sides and angles and irregular shapes do not have equal sides and angles.	3. I can classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. 4. I know the parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. 5. I can work with angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
Position	1. I can find the coordinates of a point on a grid. 2. I can move (translate) a point on a grid by a given set of jumps either up/down or left/right. 3. I can plot points using coordinates and join up the points to create a shape.	1. I can reflect or translate a shape on a grid.	1. I can use the four quadrants in a coordinate grid. 2. I can draw and translate shapes using coordinates or reflect a shape on the grid.
Statistics	1. I can take continuous and discrete data and create a bar chart or time graph. 2. I can solve comparison, sum and difference problems using information in bar charts, pictograms, tables and other graphs.	1. I can solve problems using a line graph to find the answers. 2. I can find the information I need from a timetable or large table of data.	1. I can use and construct pie charts and lines graphs and use these to solve problems. 2. I can calculate the mean as an average.

Ratio			1. I can solve problems about relative sizes (ratio). 2. I can find the percentage of an amount - such as finding 15 per cent of 360. 3. I can solve similar shape problems. 4. I can solve problems about unequal sharing - such as 'I need four eggs and for every egg I need three spoonfuls of flour. How much flour do I need?'
Algebra			1. I know how to use simple formulae such as n - 10 = 2. 2. I can create a sequence of numbers that follow a rule. 3. Icanusealetter(suchasnorx)toshowa missing number - such as 10 - x = 5. 4. I can find pairs of numbers that satisfy an equation with two unknowns. 5. I can list possible answers to missing numbers such as listing the possible answers of a and b in a + 6 = b - 10.

Procedural Knowledge in Mathematics in Year 7, 8 and 9

Number and Place Value, Multiplication and Division

1. Understand and use place value for decimals, measures and integers of any size.
2. Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols equals, not equals, less than, greater than, less than or equal, greater than or equals.
3. Use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property.
4. Use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative.
5. Use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals.
6. Recognise and use relationships between operations including inverse operations.
7. Use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations .
8. Interpret and compare numbers in standard form A x 10n where A greater than or equal to 1 less and A is less than 10, where n is a positive or negative integer or zero.
9. Round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures].
10. Use approximation through rounding to estimate answers and calculate possible resulting errors expressed using inequality notation a less than x less than or equal to b.
11. Use a calculator and other technologies to calculate results accurately and then interpret them appropriately.
12. Appreciate the infinite nature of the sets of integers, real and rational numbers.

Fractions

1. Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 7/2 or 0.375 and 3/8).
2. Define percentage as 'number of parts per hundred', interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express one quantity as a percentage of another, compare two quantities using percentages, and work with percentages greater than 100%.
3. Interpret fractions and percentages as operators.

Measurement

1. Use standard units of mass, length, time, money and other measures, including with decimal quantities.

Algebra

1. Ab in place of a×b.
2. 3y in place of y+y +y and 3×y.
3. A2 in place of a×a, a3 in place of a×a×a;a2b in place of a×a×b.
4. A/b in place of a divided by b.
5. Coefficients written as fractions rather than as decimals.

6. Brackets.
7. Substitute numerical values into formulae and expressions, including scientific formulae.
8. Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors.
9. Collecting like terms.
10. Multiplying a single term over a bracket.
11. Taking out common factors.
12. Expanding products of two or more binomials.
13. Understand and use standard mathematical formulae; rearrange formulae to change the subject.
14. Model situations or procedures by translating them into algebraic expressions or formulae and by using graphs.
15. Use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement).
16. Work with coordinates in all four quadrants.
17. Recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane.
18. Interpret mathematical relationships both algebraically and graphically.
19. Reduce a given linear equation in two variables to the standard form y = mx + c; calculate and interpret gradients and intercepts of graphs of such linear equations numerically, graphically and algebraically.
20. Use linear and quadratic graphs to estimate values of y for given values of x and vice versa and to find approximate solutions of simultaneous linear equations.
21. Find approximate solutions to contextual problems from given graphs of a variety of functions, including piece-wise linear, exponential and reciprocal graphs.
22. Generate terms of a sequence from either a term-to-term or a position-to-term rule.
23. Recognise arithmetic sequences and find the nth term.
24. Recognise geometric sequences and appreciate other sequences that arise.

Ratio

1. Change freely between related standard units [for example time, length, area, volume/capacity, mass].
2. Use scale factors, scale diagrams and maps.
3. Express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1.
4. Use ratio notation, including reduction to simplest form.
5. Divide a given quantity into two parts in a given part:part or part:whole ratio; express the division of a quantity into two parts as a ratio.
6. Understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction.
7. Relate the language of ratios and the associated calculations to the arithmetic of fractions and to linear functions.
8. Solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics.
9. Solve problems involving direct and inverse proportion, including graphical and algebraic representations.
10. Use compound units such as speed, unit pricing and density to solve problems.

Shape and Position

1. Derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders).
2. Calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes.

3. Draw and measure line segments and angles in geometric figures, including interpreting scale drawings.
4. Derive and use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle); recognise and use the perpendicular distance from a point to a line as the shortest distance to the line .
5. Describe, sketch and draw using conventional terms and notations: points, lines, parallel lines, perpendicular lines, right angles, regular polygons, and other polygons that are reflectively and rotationally symmetric.
6. Use the standard conventions for labelling the sides and angles of triangle ABC, and know and use the criteria for congruence of triangles.
7. Derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies.
8. Identify properties of, and describe the results of, translations, rotations and reflections applied to given figures.
9. Identify and construct congruent triangles, and construct similar shapes by enlargement, with and without coordinate grids.
10. Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles.
11. Understand and use the relationship between parallel lines and alternate and corresponding angles.
12. Derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and to derive properties of regular polygons.
13. Apply angle facts, triangle congruence, similarity and properties of quadrilaterals to derive results about angles and sides, including Pythagoras' Theorem, and use known results to obtain simple proofs.
14. Use Pythagoras' Theorem and trigonometric ratios in similar triangles to solve problems involving right-angled triangles.
15. Use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3-D.
16. Interpret mathematical relationships both algebraically and geometrically.

Statistics

1. Record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale.
2. Understand that the probabilities of all possible outcomes sum to 1.
3. Enumerate sets and unions/intersections of sets systematically, using tables, grids and Venn diagrams.
4. Generate theoretical sample spaces for single and combined events with equally likely, mutually exclusive outcomes and use these to calculate theoretical probabilities.
5. Describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers).
6. Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data.
7. Describe simple mathematical relationships between two variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs.

EYFS

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Autumn	Getting to Know You			Just Like Me!			It's Me 1 2 3!			Light and Dark			Consolidation	
Spring	Alive in 5!			Growing 6, 7, 8			Building 9 and 10			Consolidation				
Summer	To 20 and Beyond			First Then Now			Find My Pattern			On The Move				

Year 1

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value (within 10)				Number: Addition and Subtraction (within 10)				Geometry: Shape	Number: Place Value (within 20)		Consolidation
Spring	Number: Addition and Subtraction (within 20)				Number: Place Value (within 50) (Multiples of 2, 5 and 10 included)			Measurement: Length and Height		Measurement: Weight and Volume		Consolidation
Summer	Number: Multiplication and Division (Reinforce multiples of 2, 5 and 10 to be included)			Number: Fractions		Geometry: Position and Direction	Number: Place Value (within 100)		Measurement: Money	Measurement: Time		Consolidation

Year 2

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value			Number: Addition and Subtraction					Measurement: Money		Number: Multiplication and Division	
Spring	Number: Multiplication and Division		Statistics		Geometry: Properties of Shape			Number: Fractions			Measurement: Length and Height	Consolidation
Summer	Geometry: Position and Direction			Problem solving and efficient methods		Measurement: Time		Measurement: Mass, Capacity and Temperature			Investigations	

Year 3

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value			Number: Addition and Subtraction					Number: Multiplication and Division			Consolidation
Spring	Number: Multiplication and Division			Measurement: Money	Statistics		Measurement: Length and Perimeter			Number: Fractions		Consolidation
Summer	Number: Fractions			Measurement: Time			Geometry: Properties of Shape		Measurement: Mass and Capacity			Consolidation

Year 4

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value				Number: Addition and Subtraction			Measurement: Length and Perimeter	Number: Multiplication and Division			Consolidation
Spring	Number: Multiplication and Division			Measurement: Area	Number: Fractions				Number: Decimals			Consolidation
Summer	Number: Decimals		Measurement: Money		Measurement: Time	Statistics		Geometry: Properties of Shape			Geometry: Position and Direction	Consolidation

Year 5

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value			Number: Addition and Subtraction		Statistics		Number: Multiplication and Division		Measurement: Perimeter and Area		Consolidation
Spring	Number: Multiplication and Division			Number: Fractions						Number: Decimals and Percentages		Consolidation
Summer	Number: Decimals				Geometry: Properties of Shape			Geometry: Position and Direction	Measurement: Converting Units		Measurement: Volume	Consolidation

Year 6

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value		Number: Addition, Subtraction, Multiplication and Division				Number: Fractions				Geometry: Position and Direction	Consolidation
Spring	Number: Decimals		Number: Percentages		Number: Algebra		Measurement: Converting Units	Measurement: Perimeter, Area and Volume		Number: Ratio		Consolidation
Summer	Geometry: Properties of Shape		Problem Solving			Statistics	Investigations					Consolidation